THE OPTICAL
MAGIC LANTERN
JOURNAL
AND
PHOTOGRAPHIC ENLARGER.
A Magazine of Popular Science for the Lecture-room and the Domestic Circle.
Vol. 2.—No. 14. JULY 1, 1890.

Edited by J. HAY TAYLOR.
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EDITED BY J. HAY TAYLOR.


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Notices.

THE Optical Magic Lantern Journal and Photographic Enlarger is issued on the 1st of every month, price One Penny, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:

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Exchange Column, General Wants, &c. (not Trade)—First 20 words, 6d.; and for every 3 additional words, 1d.

Advertisements must reach the office not later than the 24th of each month. All cheques and postal orders to be made payable to Taylor Brothers.

Editorial communications must be addressed, The Editor; advertisements and business communications to Taylor Brothers, care of the Publishers, Dorset Works, Salisbury Square, Fleet Street, London, E.C.

American Agents:—The International News Co., 83 and 85, Duane Street, New York City.

Notes.

Binding Cases for this Journal are now ready, price 1s., post free 1s. 1/4d.

Society reports, which should be short, must reach us as early as possible before the 24th of each month to insure insertion in the forthcoming issue.

A Correspondent informs us that two ladies intend giving a series of lectures throughout the French provinces during the autumn and winter seasons, to be illustrated by the lantern. Both ladies are, we understand, good orators, and also thoroughly understand lantern manipulation. The lectures will include two subjects each evening, the orator for the first becoming the lantern operator for the second, and the manipulator of the first lecture the lecturer during the second subject.

A Certain Frenchman is said to have an eye so sensitive that he can follow the respective movements of a trotting horse, and can reproduce animals on canvas in precisely the position in which they would be had an instantaneous photograph been taken.

In the near future, the leading lens makers will adopt a standard series of screws for flanges.

To be able to produce transparencies of the tone imparted to commercial slides is the aim of many who make their own slides. In our next number we shall, in continuing the article commenced in this issue, give such instructions as will enable those desirous of making slides to produce those tones which are most pleasing.

The Photographic Convention of the United Kingdom will meet at Bath next year. This year's meeting at Chester has been well attended. Interesting papers, optical lantern exhibitions, and excursions were the order of the week.
Lantern Transparencies.

Making, Printing and Toning.

Although the most of our remarks on the making of lantern transparencies will bear on their product by photography, yet would this little series be incomplete unless mention was made of the simplest and most primitive way by which they may be produced, viz., in outline drawing by the hand.

This having been described in a former number will only now be treated very briefly.

The subject to be outlined on the glass must first be drawn on a sheet of paper, unless it is an engraving or other picture that is to be copied, when that may be used instead of the drawing. The glass is made quite clean, and having been rubbed over with ox-gall, or even licked by the tongue and allowed to dry, is laid flat down upon the drawing or engraving. A fine steel pen or crow quill having been dipped in copying ink, or common writing ink, in which a little sugar has been dissolved, is employed to trace off the lines on the paper. If care has been taken to have the point of the pen very fine and the ink rather thin, the lines made in tracing will be thin, otherwise they may be coarse and blotchy. When the whole of the outlines have been traced the plate is lifted up and examined. By this time the ink is dry. A plug of cotton wadding is then fixed by giving it a coating of spirit varnish, which prevents the lines being disturbed by any subsequent painting, either with oil or water colours.

Transparencies by Wet Collodion.—Most of those who prepare large numbers of transparencies for the market do so by the wet collodion process, and there is no doubt that excellently fine work may be obtained by it, and in almost every variety of tone.

Although we advise the purchase of bromo-iodised collodion ready prepared, this being kept on sale by every dealer, yet some may prefer making it for themselves, more particularly as it involves no special skill. The proportions we give are those for 200z., for as it keeps well after preparation, and even improves by keeping, it is scarcely worth while to make less. The stock of supplies for its manufacture consists of alcohol (strong methylated spirit will answer), ether, soluble cotton or prpyxline, the iodides of cadmium and ammonium, and the bromides of cadmium and ammonium.

Into a bottle capable of holding more than twenty ounces, place one hundred and twenty grains of the soluble cotton, and pour over it seven ounces of alcohol. Shake these until the cotton has been thoroughly wetted, and then add eight ounces of ether, by which a little shaking the cotton will all dissolved. If the cotton is good, there will be no residuum. This is plain collodion, and may be used for every purpose in which collodion plays a part, even in surgery, or for abrasions of the fingers. It should be allowed to stand and settle for a short time before being iodised, which is done by the addition of the following:

<table>
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<th>Dissolve</th>
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<td>Iodide of cadmium</td>
<td>25</td>
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<tr>
<td>Bromide of cadmium</td>
<td>3</td>
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<tr>
<td>Alcohol</td>
<td>5 ounces.</td>
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These ingredients and proportions are found to make a good and stable collodion. The above solution is added to the fifteen ounces of plain collodion with which it is mixed by shaking. But so long as the relative proportions are adhered to, it matters little whether the whole twenty ounces are mixed at a time, or only a small proportion. When the plate is coated either with this or any other collodion, it is immersed for not less than two minutes in a bath made in the proportion of thirty-five grains of nitrate of silver to the ounce of distilled water. This must be done in a dark room. Being taken out and allowed to drip, it is at once placed in the slide of the copying camera, and exposed rather longer than would be the case with a gelatine plate.

It is developed by holding it level, and gently pouring over it—along one edge—just enough of the developer to flow over the surface.

Developer—

<table>
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<td>Protosulphate of Iron</td>
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<tr>
<td>Acetic Acid</td>
<td>8 ounces.</td>
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<tr>
<td>Alcohol</td>
<td>3</td>
</tr>
<tr>
<td>Water</td>
<td>5</td>
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The image appears with considerable rapidity, and when the details are all out, the plate is washed and transferred to the fixing bath, which may consist either of hyposulphate of soda, or cyanide of potassium, io grains to the ounce. After this it receives a final and thorough washing.

Now examine the transparency, and observe if the highest lights are pure. If not, pour over the surface a five or six-grain solution of cyanide of potassium, in which a little iodine has been dissolved, to the extent of not striking a final red colour in the solution. This serves to dissolve the image on the plate, and as it commences with the weakest parts, its action must be promptly stopped by washing as soon as, by clearing away any veiling, a measure of pluck or vigour is imparted.
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WILL EXCHANGE a valuable Collie for a Rouch Eureka Detective Camera, complete.—N. J. R., c/o this Journal.

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WARM-AIR SATURATOR.
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CALL AND SEE IT!
THE SIMPLEST AND MOST COMPLETE IN THE WORLD.

SIZE—Takes 12 Plates, 4½ X 3¼, Vertical or Horizontal. Measure, 10 X 7 X ½.
TO CHANGE PLATE—Simply pull back the Lever at bottom and the plate swings into register; an index is fixed at the bottom to indicate the number of plates exposed.
LENS—Specially manufactured, working at 60, and made to focus for short and long distances.
SHUTTER—Works behind the lens, and can be fitted with Newman's Pneumatic Regulator. With this Shutter more exposure is given to foreground than the sky.
FINDERS—One to show horizontal and other vertical.
The Camera is one of the most simple that has yet been introduced: nothing complicated to get out of order; can be fitted to Tripod with focusing arrangement. The whole is made of seasoned Mahogany and covered with Morocco leather, and we guarantee that there is nothing so easy to manipulate and yet so perfect.

Price for 12 Plates, £6 6s.; Price for 18 Plates, £7 7s.; Price for 24 Plates, £9 9s.

Magic Lantern, Dissolving View, and Photographic Apparatus Makers.
The Best and Cheapest House for High-Class Lanterns and Slides.

At this stage the transparency is ready for toning, if such be desired. This is a treatment that all the best slides are subjected to. The method of toning is made somewhat a mystery by some, and the best and most prized systems have not been published, or if so, do not seem to be generally known. This article would be unduly lengthened if we were to enter upon this subject here, so it must be reserved for our next.

Hand Cameras for Obtaining Slides for the Lantern.

No. 3.—THE "ECLIPSE" EXTENSION AND BOX FORMS.

The firm of J. F. Shew and Co. have introduced more than one camera of the hand nature, that bearing the name "Eclipse" being one of their make which is most generally known.

This camera, although used in the hand, is not of the detective type. There is no chance of mistaking it for a box, basket, or other hand package. It consists of a bellows camera of fixed focus, which by a simple movement can be folded up (without disturbing the lens, or undoing a screw) into a small package to enter any ordinary-sized pocket. (Fig. 1.)

The front and back are made of mahogany, as are also two wings which fold over the front when the camera is packed. The only movement necessary to "rig up" the camera is to pull forward the front, which causes the wings to extend and clamp it in a very rigid and secure manner, one fork being slipped in before the other. (See Fig. 2.)

The lens, which is a rapid rectilinear, gives good definition, and is supplied with a rotating diaphragm, and a shutter working between the lenses (Fig. 3). This is circular in shape, readily set and easily released.

There is also a simple device for regulating the tension of the spring which controls the shutter. The sensitive plates are contained in double backs. This camera and double dark slide weighs 100 oz., and measures 4 1/2 in. by 4 1/2 in. by 1 1/2 in when closed.

Another ingenious lantern-size camera by the same firm is shown at Fig. 4. It is capable of focussing from 3 in. to 8 in.; has a swing back, rack focussing, and sliding front for fitting lenses of various foci. Including the double dark slide, this camera folds to 4 1/2 in. by 4 1/2 in. by 2 in., and weighs only three quarters of a pound. The lens and mounting are of the same description as that on the Eclipse.

The most recent of Messrs. Shew's productions is a box hand camera (Fig. 5), which, although very small, has a wide range of capabilities, and can be focussed. This camera is covered in morocco, and has one projection only; a thumb-screw on top for focussing, a scale being attached to the sliding part of the apparatus. This is readily adjustable for any desired distance.

Two finders are fitted; the shutter is set by pulling a small cord at the upper part of the camera and released by a slight touch on a ring placed underneath. The lens is placed inside of the box proper, and the front is made to open so as to permit of the stop being changed.

This camera is supplied either with a roll holder for films, an automatic changing back (12 plates), or with double backs, all of which attach to the one fitting. The instrument (closed) with a double back, occupies the small dimensions of 5 1/2 in. by 5 1/2 in. by 5 1/2 in., and weighs complete 1 lb. 11 oz. The lens is the same as that in the Eclipse.

Any of the above cameras can be used on a stand if more time exposures are required. Light stands or a clip (Fig. 6) are being supplied for this purpose.

A special feature of this camera is that, owing to its wide range of focus, it can be readily adapted to suit the focus of one's own lens, by simply turning the thumb screw.

Lantern Slide Work.

(Continued from page 4.)

After fixing and clearing as above mentioned, the slide should be washed for a few hours in the same way as an ordinary negative.

On taking the plates out of the washing trough, it is advisable to give each a good rinse under the tap, so as to remove any particles of grit that may have been deposited on the film from the washing water, and then place them on edge to dry—not in a rack—where they will be kept quite free from dust.
There are several methods of toning slides, but I have not tried any of them, for I much prefer the rich brown, or even the black tone of the ordinary photograph, to the red or other tints that may be obtained by toning: and I believe there is considerable risk of a toned slide fading away.

When the film is thoroughly dry it is ready for mounting for the lantern. I am sorry to say there is often very little care exercised with this part of the work, and many an otherwise good slide is completely spoiled by the careless and slovenly way in which it is mounted.

The photograph and cover glasses should be absolutely clean, and free from all dust and finger marks. And here I would say a word as to the thickness of the cover glasses. Very thick glass adds much to the weight of the slide, as you will find to your cost if you have them to carry far. The extra thin covers are the nicest: but unfortunately they soon break when using the slides; even the pressure of the fingers will do this. Therefore I would say use a medium thickness of glass, and take care to have it free from scratches and air-bubbles.

The paper mask to be placed between the photograph and the cover glass should be of suitable shape, and carefully adjusted to the size of the photograph; on no account use the circular masks, as this shape is most inartistic, and frequently quite spoils the picture. The masks having one white side and the other coloured are the best, as the white side is an indication to the lantern operator as to the side of the photograph to be placed next the light, and it also enables the name of the slide to be written upon it.

The binding strips should be neatly put round the edges of the slide and two white or coloured discs placed on the two top corners of the front of the slide, to show at a glance which is the top of the view. Then carefully remove all finger and gum marks, and the slide is complete.

GODFREY BINGLEY.

Experiments with the Optical Lantern.

(Continued from page 6.)

The demonstrations in spectrum analysis and the decomposition of light are almost endless; these we must leave for your own experiments. Removing the slit, and replacing it by a plate with a small hole in it, opposite the condenser, fixing the objective in this box as nearly opposite the opening as possible, we get a picture of any solid object. thrown backwards, and by turning the lantern nearly round get the picture on the screen. This is known as the aphengoscope, and with it sketches, photographs, pictures in books, watch movements, &c., can be shown. What you have seen is only a small part of what you can yourselves easily do with a little trouble and the expenditure of a few pence on an ordinary lantern.

We will now leave the simple arrangements, and turn to those which require special additions, which cannot be made by an amateur. First, we will take the lantern microscope, which is an arrangement taking the place of the objective. In this the ordinary microscope objectives and slides are used, and in the ordinary form both light and heat are concentrated that the micro slides would be destroyed if the heat were not stopped by a glass tank filled with a concentrated solution of alum. Mr. Furnivel has made for me a lantern microscope, which you see on the screen, and which has the special advantage of focussing the heat rays and the light rays in different places, and the result is that no alum screen is needed. The slides remaining quite cool under the most intense beams of light. We will now show you the kaleidoscope, which also goes in the place of the lantern objective. the best objects for this being bits of lace, asparagus leaves, designs made with the geometric pen, and similar objects, the lace, &c., being cemented on a circular glass plate which fits into a chromotrope frame.

We expected the pleasure of the assistance of Dr. Sidebottom, of Hyde, to give us a demonstration on polarized light, but he is not well enough to come. In one respect this is fortunate, as we hope to be able to persuade him next session to give us one evening devoted entirely to polarized light, a subject he has made peculiarly his own. When light is reflected at a certain angle, or passed through certain substances, it is split up into two parts, which have each very curious properties. The effect of this we will show you on the screen by passing it through various objects.

I will not attempt any explanation, as the subject is too great to be treated in a cursory manner, and we must hope for a future and more perfect demonstration by Dr. Sidebottom, if we can get him next session.

I may conclude with again saying our object to-night is to give information, and that any questions will be answered. and the apparatus used, which is almost entirely made by Mr. Furnivel, is open to your inspection, and that any information or facilities for copying any or all of the apparatus will be given either by Mr. Furnivel or myself.

THOS. FLETHER.

Enlargements.

(American Journal of Photography.)

It is much more desirable to have large pictures than it is to make them, and if it is practicable to make small original negatives, and obtain enlargements from them which shall be as sharp and full of detail as the prints from the original negatives, much labour and trouble in the field would be avoided.

In order to consider the question of the value of an
enlargement, and to estimate how near it may be considered to be comparable with a print from an original negative of the same size, it may be worth while to examine into the philosophy of the question, and see what really takes place when, instead of placing the small negative in contact with the paper, it is placed at a distance from it, and the divergence of the rays of light is used to obtain a larger picture. With the photographic details of the process it is not now proposed to deal, but the optical side of the question will bear examination, and some points connected with it may be found interesting.

If a negative is perfectly sharp and distinct in every portion, and the definition of objects at various distances equally good, it is surprising to observe the extent to which it will bear enlargement. Of course, to say that it is perfectly sharp would be to admit that it would bear an indefinite amount of magnification without any loss of definition, but using the word perfect in its ordinary acceptation two referring to a sharpness quite possible of ready attainment, the amount of enlargement which may be permitted is very great. On the contrary, a softness and lack of microscopic definition, which in no way detracts from the appearance of a print made from the original negative, and indeed in the opinion of many is more artistic and effective, unites it almost entirely for any enlargement without producing a blurriness and indistinctness which is almost painful.

A negative to be used for enlarging should, if possible, be taken with that object in view, and by the use of possible means rendered as sharp, clear, and well-defined as possible. A small stop in the lens, and a clearing reagent in the developer, together with ample time both in the field and in the dark room, are necessities.

It must not be forgotten that the picture, in any case, is simply a matter of the distribution of light, and that in enlarging an image already made by one impression of light, upon a sensitive surface, we are calling upon a second instalment of light to do the same work. This action is not greatly different from the use of a relay in telegraphing, where a feeble current passing along the main line supplies a local battery in and out of circuit, and the greater portion of the work is done by the strength of the local battery, while the feeble impulses along the main line must merely indicate the action.

The difference which may be seen in the brilliancy of a lantern-slide when thrown upon the screen by a good or a poor light, may serve to indicate the influence which this secondary illumination has upon the enlarged image, and it is an important element in the theory of enlarging. If we take two negatives of the same subject, one quite small and the other large, and then make an enlargement from the small one to the same size as the large direct picture, they will be comparable in several ways with interesting results.

Unless the focal length of the lens with which the large negative is made is just as much greater than the small lens as the difference in the size of the pictures, the depth and definition in the shadows of the small negative will be much the better, and this advantage will be retained in the enlargement, and the reinforcement of the second instalment of light during the enlargement will bring out depth and effect from the small negative which the large one cannot possess. Again, this effect is shown again and again by the impression which is made by a good lantern-slide upon the screen, an effect which is due not only to the actual size of the picture, but also, and very largely, to the proportional increase in the focal distance at which the picture is viewed.

This question of the relation between the focal length of the lens with which a picture is taken, and the focal distance at which it is seen, is a matter which has hardly received the attention which it deserves, and it is of especial importance in connection with this matter of enlargements. As a matter of fact, there is but one focal length which is correct for each picture, and that distance is the distance at which the finished picture is to be held from the eye. The object of a picture is to produce upon the eye the same effect as the original subject. When the photograph is taken, the rays of light from the object pass through the lens, and form the image upon the ground glass at a definite distance behind the lens.

If now we make a transparency from the negative, and hold the transparency before the eye, moving it to and fro, until it just coincides with the actual view beyond, it will be found that this coincidence just occurs when the distance of the transparency from the eye is equal to the focal length of the lens with which the picture has been taken. If the picture is held at any other distance, either greater or less, it may be pleasing, but it will not be correct. The normal distance of distinct vision is about twelve inches, and this is the best focal length for lenses to be used in making photographs for illustration, or to be held in the hand for examination.

For large pictures, to be examined from a distance, however, it would be most difficult to work with lenses of long enough focus to follow this law. Now here that the enlargement has the advantage, since the magnification of size is also equivalent to a corresponding multiplication of the focal length, and the correct point of view is removed to a corresponding distance.

This question of the relation between the focal distance proportionally not so great, fails to look so natural or so effective.

HENRY HARRISON SUPPLEE.

Apparatus at the City Exhibition.

DURING the short period in which this exhibition was held at Drapers' Hall, a large concourse of visitors availed themselves of the opportunity of seeing the rapid strides photography has made of late, and also of inspecting the various apparatus employed in connection therewith.

Ross and Co.'s display consisted of a well-stocked case containing lenses and other photographic apparatus of which they make a speciality.

Perken, Son, and Rayment exhibited their magazine hand camera. their Opticus lenses, lanterns, cameras, shutters, and complete photographic sets being arranged in an attractive manner.

A fine display of chemicals occupied the stand of Mawson and Swan. Here also were to be found plates,
mounts, folding cameras, their new plate-lifters, which prevent the fingers from becoming contaminated by the various developing and other solutions; lamps, lanterns, and other selections from their extensive stock.

G. Smith's (Sciopicon Co.) exhibits consisted of a handsome gas or lamp shade and screen containing photo-transparencies, also lanterns of the Sciopicon type.

Large sheets of celluloid were hanging on the stand occupied by Morley and Cooper.

Prominent upon the table of Pearson and Denham was their justly-celebrated lantern-slide reducing camera, which is susceptible of varied movements. The Circumbra, Standard, and other cameras were also shown.

John Lewis and Co. had several clockwork rockers at work, which run for nearly an hour with one winding; also examples of kallitype printing, which is five or six times as sensitive as ordinary albumenised paper.

The "Scotia Camera" was shown by James Thomson & Co. This is a light field camera capable of various adjustments, and is a most complete instrument.

The display of Newton & Co. consisted of oil, oxygen, and electric light optical lanterns, prominent among them being the Scientist's lantern, described on p. 85 of the last volume of this journal. Several fine lantern transparencies of microscopic objects by Mr. T. E. Freshwater were also on the stand occupied by this firm.

J. Swift and Son had a large closed case, containing their widely known lenses and cameras, also two new forms of hand cameras—the Paragon and the Memorandum.

Isochromatic plates, specimen negatives and transparencies were exhibited by B. J. Edwards and Co. These were arranged on the sides of a square so as to be viewed by transmitted light, several electric lights being placed behind.

W. Watson and Son had a general display, including optical lanterns, cameras, lenses, rockers, dishes, stands, and a variety of other apparatus.

Henry Crouch's (Limited) exhibit included the Presto hand camera, which carries two dozen plates; lenses, Acme shutters, and tripods.

A closed case of general photographic apparatus was occupied by Morley and Cooper.

An ingenious German hand camera was shown by Otto Scholzig.

R. and J. Beck had a novel method of showing their aluminium lens mounts. A pair of scales contained on one side two brass-mounted lenses, and on the other side five aluminium-mounted lenses and an odd flange, which just balanced.

Sands and Hunter, in addition to general apparatus, exhibited several instantaneous pictures of athletic sports exposed with their shutter.

W. Wray's case contained lenses of all styles, and also some large pictures taken at the French Exhibition with their lenses.

A tastefully-arranged display of photographic sets was to be found upon the stall of the London Stereoscopic Company.

The well-known Dallmeyer lenses were to be seen in a prominent position.

F. W. Hart exhibited four different varieties of flash lamps, several of which were connected with an automatic discharger, capable of working a hundred lamps simultaneously; also some soft and well-illuminated "flash lamp" pictures; a convenient air-tight magnesium wire reservoir, from which any desired length in inches could be drawn; also a new bamboo stand, which can be used for several purposes, such as holding an arrangement of flash lamps, a photographic background, or a magic lantern screen. Special provision being made for inclining the screen when the lantern is tilted, and also for stretching it. The stand for a 16 ft. screen can be packed in an ordinary cricketing bag.

Developing tents, enlarging lanterns, and a novel panoramic camera, from the French Exhibition, were exhibited by Geo. Houghton and Son.

Robert Abraham's display occupied a large portion of the side of one of the halls, and included various kinds and forms of cameras, optical lanterns, stands, burnishers, washers, sets, lenses, mounters, and various other apparatus. The working of the Victor lantern was shown in this stand.

A number of pictures taken with these two cameras were exhibited.

Gott's patent camera, turn-tables and iron printing paper, and Suter's aplanatic lenses and specimen prints were included in the exhibit of J. R. Gott.

H. Clarkson showed cases for keeping times, and also his gas regulator.

Walter Tyler had a display of lanterns in all sizes and forms, jets, condensers, slides, lenses, saturators. The glare from the polished brass work of the numerous lantern fronts conduced to the attractiveness of this exhibit. Fallowfield's Facile hand-camera was also shown in this stand.

Marion and Co.'s stand, though very large, was well-stocked with mounts, easels, cameras, stands, and general apparatus, including a folding lamp invented by Mr. Cade, and a combination stereoscope and camera (by Ransom). Various apparatus connected with optical lanterns were also to be found here.

Editorial Table.

An ingenious instrument for calculating exposures has been devised by Mr. Alfred Watkins, of Hereford. It consists of a brass cylinder, upon which rotate four rings, each provided with a pointer and a scale. At one end of the cylinder is a supply of sensitive paper, and at the other a cap connected with a chain to act as a pendulum for counting seconds. The chain having been set swinging, the end containing the sensitive paper is exposed to light, and the duration of time noted that it takes to acquire the density of a coloured mark immediately alongside. This we will assume to take twelve seconds. The actinic force of the light is.

COWAN'S Gelatino Chloro-Bromide Plates.

(MARION & CO., SOLE PROPRIETORS.)

Specially prepared for making transparencies, in the Camera, or by contact printing with gas or other artificial light, also eminently suitable for reproduction of negatives and general copying purposes.

These plates are much slower than the ordinary Bromide used for Portrait and Landscape work, but much quicker than the pure Chloride Plates; in the camera they will be found to give, with full exposure, very brilliant images with clear glass in the unexposed parts, making them specially valuable for general copying purposes.

The exposure for contact printing by gaslight (using an ordinary spirit burner at 12 inches distant) varies from 10 to 15 seconds upwards, according to the density of the negative: and with the camera, using lens with diaphragm about F/11, and reflected sky as a source of light, 1 to 2 minutes will be required.

Any developers may be employed that work well with Bromide Plates, but the following are recommended:—The proportions are given for 10 ounces of developer only, so that by easy calculation each one may mix the quantity best suited to his requirements.

COWAN'S Gelatino-Chloride Plates.

MANUFACTURED AT SOUTHGATE BY


These plates in appearance differ entirely from the usual Bromide films, being very transparent, and of a deep orange colour by transmitted light, but are capable of development to any density required.

Though extremely sensitive to daylight, they are much less so to gaslight; so that more artificial light may be used during development than with Bromide Plates. This will be found to be of great advantage, as the plates may be examined from time to time within a reasonable distance of gas flame, and the density thus regulated to a great nicety.

The exposure to diffused daylight will vary from 1 to 3 seconds upwards, according to the density of the negative. For the reasons mentioned above, it is not recommended to make the exposure by gaslight, but a very reliable method, when a number of pictures are required exactly alike—or when it is necessary to work at night—is to burn a few inches of magnesium ribbon at from 6 to 12 inches from the negative, according to its density.

LANTERN SLIDE MAKING CAMERA.

This Camera meets the long-felt want for an Instrument that is always ready at a moment's notice to produce Lantern Slides from the Photographer's Negative.

The usual preparations necessary (especially in the case of Amateurs) to take a Lantern Slide are only too well remembered for their inconveniences and vexations. Though extremely sensitive to daylight, they are much less so to gaslight; and it is easy to use the Camera at night. The charm in always working from one size negative is, that there is never any setting to do.

The Camera is made in three sizes:—the smallest making slides from 1-1/4 plate negative; the next making them from 1-1/2 plate negative; and the largest, an adjustable one, taking all sizes, from 12 by 10 downwards, must useful to the professional—but it must be remembered it requires setting for every size, like ordinary Cameras. The charm in always working from one size negative is, that there is never any setting to do.

Prices complete with excellent lens:

- 1-1/4 plate: 12.6.
- 1-1/2 plate: 15.
- 12 by 10, adjustable to any size, 21.

NOTE.—Lantern Slides being square, it is usual to copy a square of the negative. These Cameras are square, and take in the full width of the negative, and an equal extent of the length: but when desired they are made the same shape as the negative, so as to take in the whole of it—its being of course necessary to employ a specially shaped mask to mount the slide up to advantage. We provide the mask of the required shape. The latter form of Camera is 2/- extra on the half-plate, and 2½ extra on the whole plate.

GRIFFITH'S ECONOMICAL ENLARGING CAMERA.

Having received a considerable number of enquiries and requests for an Enlarging Apparatus of the same style as the Lantern Camera, we have had a modification made which is properly adapted to enlarge from the ordinary negative, in a simple, quick, and effective manner, making the production of Enlargements as easy and pleasant an occupation as the Lantern Slides Camera has rendered Slide making.

Its outward appearance and size is very similar to the 12 by 10 Lantern Camera. One end has a carrier to hold either 1-1/4 plate or 1-1/2 plate negative. A good and suitable lens is mounted in the sliding partition in the middle of Camera, while the other end "draws out" to focus, and is fitted with a specially designed "dark slide," in which either paper or glass, and opal plates, may be held for exposure.

Price Complete, with lens, 30/-; packing extra, 2/6.
VI.

**The Optical Magic Lantern Journal and Photographic Enlarger.**

Post Free, 12.9.

Send for particulars and testimonials.

**“WATKINS” EXPOSURE METER.**

Far in advance of previous attempts. Thoroughly reliable for enlarging & copying.

From W. HAINES, Photo Chemist, Hereford, and all dealers.

Wholesale only from ALFRED WATKINS, Hereford.

**BEST French Sensitised Rives Paper, double albuminized; first quality warranted. Rose, Mauve, or White, in 9 kilo paper, 10/- a quire. 53 half-quire; in 10 kilo paper, 106 a quire. 59 half-quire. Post free. Cash with order.—EUTROPE GRILLAND, Manufacturer, Paris.**

**SOLE AGENT for the United Kingdom:**

C. MUSSARED, 74, Milton Street, London, E.C.

**F.W. ART, Patente & Manufacturer**

8 & 9, KINGSLAND GREEN (EASTON) JUNCTION.

LONDON, N.E.

Portable Adjustable Magic Lantern Screen Stands, Garden Studios and Background Stands. FLASH LAMPS.—Original Patent for distribution and other Appliances for Photographic, Scenic, and Signal Purposes. PHOTOGRAPHIC APPARATUS, CHEMICALS, &c., SUPPLY STORE.

**IF YOU WISH TO KNOW**

1.—What focus of lens is required to produce a certain size of disc, at a given distance;
2.—What size of disc can be produced by a lens of given focus at a stated distance;
3.—What distance a lantern must be from the screen to produce a certain sized disc with a lens of given focus:

Send 1/4d. for a READY REFERENCE TABLE (post-free).

**TAYLOR BROS., Dorset Works, Salisbury Square, Fleet Street, London, E.C.**

**THE OPTICAL MAGIC LANTERN JOURNAL MAY BE OBTAINED FROM THE FOLLOWING SPECIAL AGENTS.**

**LONDON.**

E. W. Allen & Co., Ave Maria Lane, E.C. (and all wholesale news agents).

R. Abraham, 38, Aldersgate Street, E.C.

American Camera Co., 93, Oxford Street, W.

R. & J. Beck, 63, Cornhill, E.C.

J. E. Brown, 26, Bowling Green Lane, E.C.

T. H. Doublet, 11, Moorgate Street, E.C.

C. E. Elliott, 36, Jewin Street, E.C.

J. Fallowfield, Charing Cross Road.

S. Fry & Co., 5, Chandos Street, Strand.

Hinton & Co., 38, Bedford Street, Strand, W.C.

Horn, Thornwaite & Wood, 416, Strand, W.C.

G. Houghton & Sons, 89, High Holborn, W.C.

E. Hart, Alexander Terrace, Noel Park, N.

F. W. Hart, Kingsland Green, N.

H. Hughes & Son, 59, Fenchurch Street, E.C.


Walter Lawley, 78, Farrington Street, E.C.

James Motherrell, 6, Southampton Row, W.C.

60, Holloway Road, N.

J. Orme & Co., 63, Barbican, E.C.

Photographic Artists & Co-operative Supply Association, 43, Charterhouse Square, E.C.

St. Bride's Stores, 60 & 67, Fleet Street, E.C.

J. F. Shew & Co., 39, Newman St., W.

Sands and Hunter, 29, Swissmore Street, W.C.

W. Sharman, F.C.S., 247, Mare Street, Hackney, E.

Walter Tyler, 48, Waterloo Road, S.W.

J. Verge, 11A, Berners Street, W.

A. E. Wade, 188A, Walworth Road, S.E.

W. Watson & Sons, 313, High Holborn, W.C.

E. G. Wood, 74, Cheapside, E.C.

**BIRMINGHAM.**

S. Hulme, Exchange Buildings, New Street.

**BURNLEY.**

J. W. Wright, 141, St. James Street.

**CORK.**

Wickie and Son, King Street.

**COVENTRY.**

W. Clarke, Hampton House, Cross Cheaping.

**DUBLIN.**

J. Robinson & Sons, 65, Grafton Street.

**EDINBURGH.**

W. Hume, 1, Lothian Street.

**GLASGOW.**

George Mason & Co., 180, Sauchiehall St.

McGhie & Co., 75, St. Vincent Street.

**HULL.**

C. P. Gibson, Chemist, 16, Whitefriar Gate.

**KEIGHLEY.**

A. N. Kershaw, Corn Mill Bridge.

**LEEDS.**

Pearson & Denham, 3, New Station St.

**LIVERPOOL.**

Archers & Sons, 43 to 49, Lord Street.

Sharp & Hitchmough, 101, Dale Street.

**MANCHESTER.**

J. T. Chapman, Albert Square.

John Heywood.

**NEWCASTLE-ON-TYNE.**

Mawson & Swan, 39, Sackville Street.

**STOCKTON-ON-TEES.**

Fr d. A. Graham, Albion Stores, Mill Lane.

**WASHINGTON.**

F. J. Chappell, Bewsey Street.

**WEST HARTLEPOOL.**

J. C. Winn, 36, Lynn Street.

**AMERICA.**

The International News Co., Duane Street, New York and at Toronto, and Montreal.
then marked off on the first scale by turning the ring
A until its pointer is at 12. The second ring P is
then rotated until its pointer reaches the figure on the
scale of the first ring denoting the sensitiveness of the
plate to be used, which may be 3. The third pointer
S is then turned to the figure on the second ring cor-
responding to the particular colour or character of the
subject, which for an average landscape is 7.

This having been done, the fourth ring D is made
to point in a similar way to the stop used, say F8, when
the point E will be found to give the duration of ex-
posure (four seconds) according to the condition of the
light, the make of plate, nature of subject, and the stop
employed.

Tables giving the most suitable number for each
make of plate, &c., are supplied with each instrument.
The meter, which is only 23 in. long, is neat and
strong. It is constructed on strictly scientific
principles, and reflects great credit upon its inventor,
and can be relied upon as a correct means of calculat-
ing exposures.

An interesting treatise on Aluminium, its uses
and alloys, has been received from the Alliance Aluminium
Company, Limited, 7, Great Winchester-street, E.C.
Varied applications are suggested for the use of this
metal, which is of beautiful colour and lustre, is very
light, strong, and hard, will not oxidize, and can be
easily worked. Amongst the different articles enum-
errated in which this metal can be better employed
than others are photographic apparatus and magic
lampions.

A new catalogue has lately been prepared by F. E.
Becker and Co., of Hatton Wall, London, E.C. In
it is to be found a comprehensive list of photographic
goods stocked by this firm. To enumerate the various
novelties would make a long list, so we leave our
readers to judge for themselves, as they can obtain
the catalogue on application. The cover is of striking
appearance.

Mr. A. W. Scott, of Weston-super-Mare, has sent
us one of his new Saturators. This is well-finished in
brass, and is the same in general detail as that first
introduced by him. An illustration will be found in
his advertisement on page 4v.

Correspondence.

CAMERA OBSCURA.

[To the Editor.]

Mr. Davis can be produced; but as he does not give any
particulars of the nature of his camera, it is somewhat diffi-
cult to advise him how to alter his; but perhaps he can
obtain the information he desires from these few lines:—

The building should be conical in shape, the lens fixed in
one side of a box surmounted on top, which must be capable
of being rotated. In this box is a mirror, inclined at an
angle of 45 degs. This will cause the rays of light passing
through the lens to fall upon the table; the focussing may
be done by raising or lowering the table.

In order to see a person standing at the doorway (i.e.,
looking down, as it were, upon the person's head) a mirror
must be placed above the door, immediately in front of the
lens and in such a position that a perpendicular line from it
will be slightly outside of the entrance. The image will
thus be reflected by the outside mirror through the lens,
thence by the reflector behind the lens upon the table. This
effect at best is not satisfactory, and it may be the case,
as it is upwards of 30 years since Mr. Davis saw this
effect, that "distance (of time) has lent enchantment to the
view."—Yours, &c.,

Thirsk, Yorks.

[To the Editor.]

Dear Sir,—Will you, through the medium of your useful
little journal, inform me what is the best pigment for blocking
out statuary? The same pigment would be useful for coating
glasses for slides to be written upon, as I find the writing
comes out brighter and clearer when written upon a prepared
black slide than when written in black upon a ground or
mat surface slide.

I should like to get a compound dense enough to prevent
light going through it, and yet fluid enough to coat a glass
in the same way as one would use collodium or varnish.
The surface would be more even than if put on with a brush.—
Yours faithfully,

J. W. Spencer.

Trowbridge, June 14, 1890.

[To the Editor.]

Sr.—Double reflection is the only way by which the effect
of the representation of the man at the door of camera ob-
scura can be produced, and then only if the light is very
good; but the image will only be that of the person end on
when at the door. Of course, the further the person is away
the less the mirror must be inclined, and the more the figure
of the individual will appear.—Yours, &c.,

Kensington, W.

Jas. S. Robertson.

BLOCKING OUT STATUARY, &c.

[To the Editor.]

Sr.—During my experience I have had considerable
trouble with the cracking of limes, and I have been trying a
every experiment to prevent this. I have, after some trouble,
mixed up some lamp-black, until when spread upon glass it
comes out brighter and clearer when written upon a prepared
black slide than when written in black upon a ground or
mat surface slide.

I should like to get a compound dense enough to prevent
light going through it, and yet fluid enough to coat a glass
in the same way as one would use collodium or varnish.
The surface would be more even than if put on with a brush.—
Yours faithfully,

Herbert G. Wallis.

Society Meetings.

ENFIELD CAMERA CLUB. — A meeting to consider the
desirability of forming a camera club for Enfield and the
neighbourhood has been held at the Lancaster Coffee Tavern,
Baker-street, Enfield. Eventually it was resolved to form a
society to be called the Enfield Camera Club. An entrance
fee of 2s. 6d. and an annual subscription of 5s. were fixed,
and it was agreed to admit ladies and professional photo-
graphers to membership. Mr. D. G. Pinkney was asked to
accept the presidency, and Mr. Dudding the post of honorary
secretary pro tempore.

STOCKPORT PHOTOGRAPHIC SOCIETY.—The first annual
meeting was held on the 11th ult., Mr. W. Banks in the
chair. The report showed a membership roll of 40 mem-
bers, with a cash balance in hand and an amount of £8 3s.
towards the optical lantern. The following were elected as
officers for the year:—President, Mr. Thomas Kay, J.P.;
vice-presidents, Mr. Thos. Hiderley and Mr. W. Banks;

MASON COLLEGE, BIRMINGHAM.—The inaugural meeting of the Photographic section was held in the College on Thursday, June 5. The president (D. Nicol) delivered the inaugural address on "Book and Newspaper Illustrations," exhibiting very interesting illustrations; a series of lantern slides were also shown, sent by the Birmingham Photographic Society.

PHOTOGRAPHIC SOCIETY OF IRELAND.—The monthly excursion of this society was held on the 14th ult. to Lucan and Leixlip, under the guidance of R. H. Blakenehy. The day was very favourable and brought out a number of members. The above places afforded many instances for views of river and woodland scenery. A number of plates were exposed, and, judging from the fineness of the day, some excellent and well-chosen pictures will doubtless be added to the albums of those who attended this excursion. On the 21st June a whole day excursion to the Devil's Glen, in the county of Wicklow, under the superintendence of J. H. Hargrave, Esq.. There was a large attendance, and it appeared that during the day nearly a hundred plates were exposed. The day—the longest of all the year—was very favourable. A few showers, but unimportant, with their attendant clouds, varied the actinic power of the light. The Glen is wild and very picturesque, in the centre of a somewhat flat and dreary country.

HOLBORN CAMERA CLUB.—The usual meeting was held on Friday, June 6th, when about thirty members assembled to see a demonstration, and hear a few words about Alpha printing by Mr. John Howson, of the Britannia Works, Ilford, who had kindly consented to give the demonstration. In concluding, Mr. Howson said that there was not more trouble in working the paper than albumenized papers. "I trust our operations here to-night will readily convince you, and if you try Alpha, as I hope you will, you will find a new power placed in your hands—a power of producing prints independently of daylight, in any colour, black, sepia, red, or purple; and any surface, ordinary, highly enamelled or mat, and what is also most important, the pictures obtained are as permanent as the paper on which they are printed." After a hearty vote of thanks to the Britannia Company in general, and Mr. Howson in particular, with which was also offered and accepted hon. membership of the club, the meeting was brought to a conclusion.

Notes and Queries.

RECEIVED.—The rules and list of members of the Hackney Photo Society. This society, which has just entered upon its second year, has nearly one hundred members. Applications should be made to the hon. sec., W. Fenton Jones, F. S. A., Victoria-street, King Edward-road, Hackney.

J. M. Stanley.—Sketch received. We think it will answer very well, although if you attach three thin rods from the base to the upright it would be much firmer. Rods sliding inside of tubes with a pinch screw will enable the table to be readily secured in any position.

W. P. asks if instead of a pin to set the lime on, it would not be better to have three thin spring claws and put the limestone between them. A. answer. This style has been employed, but we think they are rather in the way, for, if not fixed, they must be tolerably long, and this prevents a large proportion of the lime from being utilised. A correspondent in this issue gives it as his opinion that perforations through limes (graphicliopticon) is an advantage.

Subscriber writes: "What kind of instrument is the Graphicliopticon mentioned in last issue?" Reply.—We are unable at present to say anything further than the notice in the previous issue of this Journal.

S.—(1) Both instruments are good, but perhaps No. 2 will answer your purpose best. (2) Yes, the maker can fit your lenses. (3) We are not familiar with the name.

E. J. A.—We note your remarks. In future, when you have to move the gas bags during an exhibition it will be much safer to turn off the oxygen tap, if not the hydrogen too.

G. Goodwin and H. Adams.—We cannot supply the information wanted, nor do we know the conditions; better write to office of the paper.

Combustion.—We do not understand your query. If you call by appointment we may perhaps be able to help you.

H. Corbett (Calais).—H. Morgan, Pengbryn Ho, Walter-road, Swansea, would like to communicate with you respecting the subject of your letter on gas taps in last issue.

G. H. S.—By presenting your official card at Brinn's oxygen works you would probably be shown the system of compression employed, and be given every information required for your purpose.

Lantern (Rye).—The single object lenses, as drawn by you, can be removed and their place supplied with achromatic lenses of the same focus. Many lanterns are thus fitted, the advantage over the ordinary portrait combinations being that much larger disc can be got at a comparatively small distance from the screen. All lantern manufacturers keep achromatic lenses in-stock mounted in cells and ready to be screwed into the focussing-tube, and they are usually made so that one lens can screw into the other to provide for either a long or a short focus. (2) Of course, no experienced lanternist would think of allowing cold air to play upon the condenser while it is hot. (3) In throwing images on the ceiling a simple plane mirror is sufficient. (4) There is no way by which the reds of the negatives from coloured pictures can be reversed; something however may be done by local treatment with a reducing agent, or by throwing the image on a second screen. (5) The correct treatment is well worth trying. (6) There is no way by which the reds of the negatives from coloured pictures can be reversed; something however may be done by local treatment with a reducing agent, or by throwing the image on a second screen. (7) The correct treatment is well worth trying. (8) There is no way by which the reds of the negatives from coloured pictures can be reversed; something however may be done by local treatment with a reducing agent, or by throwing the image on a second screen. (9) The correct treatment is well worth trying. (10) There is no way by which the reds of the negatives from coloured pictures can be reversed; something however may be done by local treatment with a reducing agent, or by throwing the image on a second screen.

P. J. B. writes: "I want to use the condensers of my binocular to throw coloured lights on the stage for tableaux vivants. Will you kindly say in next issue how it can be done; also, is coloured glass or gelatine best?" Reply.—Better use object glass along with condensers; coloured gelatine will answer, but coloured glass is better, as it obstructs less light. If only one half of the condenser is used (and this may be done without the object glass) see that the flat side is next the light.

Lantern (Tidal Basin).—(1) The lens mentioned will answer the purpose; (2) Gaudy colours are preferable for a juvenile entertainment; (3) This is an advertisement; (4) If the A. B. C. Guide will not supply the information you desire, get the Tourist's Road Map of England and Wales, 170, Strand, W.C.; (5) We shall look forward to the description of your lantern. "Lantern" also writes: "I notice that Mr. Tempest, in last issue, alluded to asbestos as packing. I should like to ask about quality and mode of fixing. I shall not hesitate to give an account of my bi-annual lantern exhibition of new and curious objects collected in the present number.

F. J. W. writes: "I want to use the condensers of my binocular to throw coloured lights on the stage for tableaux vivants. Will you kindly say in next issue how it can be done; also, is coloured glass or gelatine best?" Reply.—Better use object glass along with condensers; coloured gelatine will answer, but coloured glass is better, as it obstructs less light. If only one half of the condenser is used (and this may be done without the object glass) see that the flat side is next the light.

L. Proctor.—The transparency received is very good, but the subject is one which would look better in a mat with an oval instead of a circular opening.

Notes.—If you do not wish your name to appear you can use a nom de plume.

II. W.—Too late. In our next.
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North Lodge, Melton Mowbray, December 11th, 1889.

Dear Sirs,—My satisfaction with your Lantern Plates is unbounded. Their quality is so consummately excellent that with the quinol developer, a tyro need not fail in getting good slides. Add two gross lanterns to my order in your hands for other plates.

To R. W. Thomas & Co.

WILLIAM ADCOCK.

Rayapuram, Madras, 27th July, 1889.

Dear Sirs,—Mr. F. York was kind enough to send me a sample dozen of your Lantern Plates for trial, and I have much pleasure in stating that in my opinion they are the most perfect Plates of their kind.

I do not think you exaggerate in the least in saying that Collodio-Bromide is superseded, for when one can get such perfect Plates for 1s. a dozen, no one would think of going to the trouble of making Collodion Emulsion with its uncertainty and worry.

I spoilt the first of the dozen purposely by giving different exposures on the two halves of the Plate to ascertain their rapidity, but after that I got eleven very beautiful transparencies with the remainder of the dozen, and since that I have used many dozens of your plates with the most gratifying success. I have had some thirty dozen out, and find they keep exceedingly well in this climate, for I used some that had been in a cardboard box some four months and they were perfect as at first.

Yours faithfully,

FRED DÜNSTERVILLE.

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