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And HORNJ, THORNTHWAITE & WOOD, 41, STRAND, LONDON, W.C.
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Notes—Inside a Regulator—Hand-Cameras for Obtaining Slides for the Lantern (No. 13)—Experiences in India with the Ether-Oxygen Light—Experiences with Scott’s Warm Air Saturator—The Optics of the Lantern—Editorial Table—Society Meetings—Correspondence—(Magazine Hand-Cameras—Exchange of Lantern Slides—Cardiff Exhibition)—Notes and Queries.

NOTICES.

The Photographic Convention will meet at Bath on the 6th inst.; Mr. Wm. Bedford president. One of the many features of the opening meeting will be the exhibition of lantern slides from negatives taken by members at the outings of last Convention.

A fine of 40s. and 2s. costs was recently imposed on Mr. Herrick, Regent Street, W., for causing an obstruction in Clapham. He had a four-wheeled car on a piece of waste land in High Street, adjoining the public footway, and was exhibiting, by means of a magic lantern, heads of females with a luxuriant growth of hair—advertisements for a specific.

An International Photographic Exhibition will be held in Amsterdam during Sept. and Oct. It will include three Sections: A, Professionals; B, Amateurs; C, Apparatus, &c. We observe that lantern slides are open to amateurs only (Sec. B, No. 5). Full particulars may be obtained from the Secretary, Mr. Charles J. Schuver, P. C. Hooftstraat 72, Amsterdam.

In our issue of Dec. 1 we gave a description of Messrs. Swinden and Earp’s Hand-Camera; since then this firm have made a small alteration in the changing mechanism, whereby either plates in sheaths, or paper-backed plates can be used as required. This desirable alteration can be effected at small cost to any of their cameras made previous to the introduction of this improvement.

"The Rate of Explosion in Gases" was demonstrated a few weeks ago at the Royal Institution by Prof. Harold Dixon, when an interesting experiment was shown. A tube, 65 yards long, was hung round the theatre, and a mixture of oxygen and hydrogen prepared outside, admitted to the tube till it was filled, and then fired. The two ends of the tube were on the lecture table, and the equation of the one end and the puff
after 65 yards of travel at the other appeared simultaneous, though the professor said the chronograph could detect the difference.

Some time ago, we stated that Mr. Stocks, of Rye, was introducing a new oil lamp for optical lanterns. We have had an opportunity of trying this lamp, and find that it gives a strong white light. It is nearly ready to be put upon the market.

Mr. R. R. Beard, who until recently has been connected with the firm of W. Oakley and Co., of Bermondsey, has commenced the manufacture of Beard's Regulators on his own account; but, as his accommodation at present is not equal to the demand, he is arranging for larger manufacturing premises, due announcement of which will appear in our advertising columns.

Messrs. Newton and Co., Fleet Street, E.C., have received from Sir Frederick Bramwell, F.R.S., an appointment as Philosophical Instrument Makers to the Royal Institution, a position which has not been held by any firm for some years past.

The inventor of "Nameit" has just made some great improvements in this apparatus for naming photographic prints. The type is now made the reverse way, so that all that is now necessary is to "set up" the name, stamp it on negative, dust with powdered charcoal to increase the opacity, and varnish. The name will thus appear in neat white letters upon each print taken from the negative.

Inside a Regulator.

No. 2.

Beard's Regulator.—The regulator known as Beard's—after the name of the inventor, Mr. R. R. Beard—is perhaps one of the best-known regulators in use in this country.

The external appearance gives no idea whatever of the delicate internal mechanism by which the supply of compressed gas is governed, and as it is hardly likely that one would care to take the instrument to pieces in order to ascertain its mode of working, we have prepared the following sectional drawing, which, with the aid of the description, will enable our readers to readily understand its mode of operating.

It may be added that the regulator of which we are now speaking is Mr. Beard's latest improved pattern, that which he formerly introduced being larger, more complicated, and not quite so certain in its action as the present one.

The gas at high pressure is introduced at the tube \( A \), and issues through \( P \) at a low and constant pressure; \( B \) is a metal valve operating upon a seating at top of \( A \), and capable of completely closing the aperture; \( C \) is a rod to which the valve \( B \) is attached, and works on the tube, conveying the gas after it has passed the valve \( B \); \( D \) is a double frame, to the underpart of which the rod \( C \) is fastened, and which, as it rises or falls, opens and closes the valve \( B \); \( E \) represents two eccentrics working upon a common spindle, \( F \), which is permanently fixed in a forked nut.

The rotation of the eccentrics causes the frame \( D \) to rise and fall, and so operate on the valve \( B \); \( HH \) is a corrugated tube of india-rubber, having a bellows motion; the ends of bellows are fastened to casing \( K \) and cap \( L \), which allow of expansion and retraction according to the quantity of gas admitted past valve \( B \); \( MM \) are levers arranged in the form known as lazy tongs; these are fastened, as shown, to cap \( L \), and, acting upon the eccentrics \( EE \), cause (when the cap \( L \) is raised) the frame \( D \) to fall, and thus to close the valve \( B \).

It will be seen from the above arrangement that the greater the quantity of gas admitted through \( B \) into the regulator the tighter \( B \) will be closed, and that as the contents are reduced the cap \( L \) will fall, and more gas will be introduced through \( B \).

The bellows is enclosed by a cover \( W \), within which is the spring \( O \) acting upon cap \( L \). This spring is regulated to give the required exit pressure.

It is obvious that the stronger the spring \( O \) the greater will be the pressure at which the gas will be emitted at \( P \).

In our next issue we hope to give a description and diagram of a new and simple form of regulator which has recently been placed on the market.
**GENERAL WANTS, &c.**

**LANTERN SLIDES from Negatives, Photos, Prints, &c. Enlarging, Printing, Copying, Developing. Price List free.** — BELLYE, Steeple Claydon, Bucks.

**SEND for List of High-class Photographic Slides, at 6s. and 8s. doz., equal to those costing treble. Sets taken in exchange.** — J. McLellan, 36, St. Paul’s Rd., London, N.

**WHAT OFFERS in Exchange for a new GRIFFITHS lantern slide reducing Camera.** — T. Russell, care of this Journal.

**WANTED AT ONCE, an experienced Photo-Salesman in a London House.** — PROMPT, care of this Journal.

**WANTED.** — Second-hand Bi-unial Lantern (Cheap), Screen, Gas Bags, &c. Particulars to A. S., Norris View, John St., Ryde, I.W.

**48 CHROMO LITHO SLIDES for Sale or Exchange.** New last season; cost £1 4s. will take los. 4 subjects. — J. Douglas, 3, Mill Street, Greenock.

**COMPETENT LANTERN OPERATOR (lime-light), can accept Ocasional Evening Engagement.** — H. 101, Boscley Road, S.E.

**EXCHANGE OR SALE.—”Mother’s Last Words,” 19, Life Models; ”Billy’s Rose,” 9; ”Holy Land,” 20, Coloured; ”Artist and his Model,” 5; ”Joseph and his Brethren,” 12, Chrono; Comic Slipping, 12; Miscellaneous, 36—S. Rixham, 33, Burrowee Road, Owlerton, Sheffield.

**WANTED. Operator for Triple Lantern, two weeks, July 18th, also permanency travelling from September.** — “ENTERTAINMENT,” Lancaster House, Gordon Road, Worthing.

**A COMPLETE Set of Optical Magic Lantern Journal, &c., from No. 1 to 21, for Sale. Price 4s. 6d. Early numbers are out of print.** — P., 19, Forrester Road, Walworth, London, S.E.

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THE TWO AND A HALF GUINEA, 5 by 4 size, the latest success.

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Gives instantaneous pictures eminently adapted for the Optical Lantern, Book Illustrations, or Sketches for the Artist; and is now in great demand by Tourists, Artists, Special Correspondents, and Missionaries.
It differs from all others in its compactness, but is invaluable in this special feature, that when its contents of one dozen plates have been exposed the reservoir containing them may be removed in open daylight, and a second, third, or fourth reservoir, each containing twelve or more plates, may be inserted in succession, no dark tent for changing plates being now necessary.
Lenses, Camera, and all fittings of very highest class, and made on our premises.
The Improved "Eureka" is covered by several Patents.
Price—For Lantern size Plates, £5 17s. 6d.; Quarter Plates, £6 12s. 6d.
If reservoir is made detachable, 10s. each instrument extra. Additional reservoirs fitted—Lantern size, £2 5s.; Quarter Plate, £2 10s.
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Full Particulars & Specimen Photo lettered by Nameit Process, Free.

A. GRAY, (G. DEPT.) 44, SNOW HILL, LONDON, E.C.
My Experience with the Oxy-Ether Light and Scott's Benzoline Saturator.

BY E. H. STEVENSON, NORWICH.

In 1887 I found it necessary to use the limelight for my public illustrated lectures. I had not hitherto used it, and consequently was at a loss to know which form to take up; after much inquiry I determined to try the oxy-ether. For three seasons, night after night, under every circumstances, I have used it at drawing-room entertainments, where we have had select audiences of about a dozen or so; to an open-air entertainment where I have had an audience of over five thousand; in winter and in summer, indoors and out, never has it been anything but thoroughly satisfactory, and I have never had a hitch. I have used it with various jets, with gas-bags, and also with cylinders; but always with a single lantern. For several reasons I have used a special form of the patent porous saturators. About twelve months ago I thought I would try Scott's Saturators. First I tried the cold, this I did not find very satisfactory. If I were to tell you all my experience with the warm bath saturator I should occupy too much of your valuable space. At the first public lecture I gave with it my light went out with a bang fourteen times! However, I determined not to give it up without a further trial, and I wrote to Mr. Scott, and after having received his answer I tried again, and was very pleased with the result; and all through the season I have used it with very good results. A customer of mine, to whom I supplied the apparatus, has also used it for advertising purposes every night for three months; the disc has been much brighter than it could possibly have been with any other form of limelight, and the public have been able to read the advertisements at a distance of one-third of a mile.

Let me give one word of advice to all who use saturators of any kind. Never attempt to light up a second time until you have disconnected your tubes and blown through them.

A Mixing Jet—Oxygen from Bottle and Hydrogen (House Gas) from the Main.

BY ANDREW PRINGLE.

In the issue of June 1, I see under "Notes and Queries" a reply to a correspondent (Mr. W. Vicarey) about my way of using a mixing jet with hydrogen from the main. Nothing would be more grievous to me than that an accident should befall any lanternist through following instructions given by me, and, therefore, I venture to address a few words for the benefit of our readers.

I have for years employed the arrangement alluded to by the correspondent, and I have used it, as I may say, constantly. My gas is often lighted for a whole day, my "cut-off" arrangement being employed to prevent waste of gas. I take oxygen from a cylinder.
fitted with a Beard's regulator; the hydrogen comes from the main by a tube partly of "compo," partly of rubber.

The jet is of the ordinary make by Newton, the gauze which was originally in it having been removed. The nipple, as Mr. Vicary notes, is a specially small one — first, in order to compensate for the low pressure on the hydrogen; and second, because I do not require, and, in fact, could not use a strong light, my work with this light being only photo-micrographic.

During all the time I have used this arrangement I have never had the slightest hitch with it, and it was only after long use of it that I ventured to even mention it in public. If I thought that my somewhat long experience of the limelight alone conduced to my immunity from mishap, I should never have dared to suggest its use to the general public. I have used the same arrangement for projecting ordinary views on the screen, but I certainly do not recommend it for this purpose.

I am bound to say that within my knowledge an accident once occurred, producing some alarm, but no damage, when hydrogen was used from the main with a mixing jet; but in this case the oxygen was in a bag. The bag was used in a way I do not approve of for any purpose; and, further, the bag or the tube leading from the bag was accidentally trodden on, or in some other way meddled with. The nipple was of ordinary size.

In conclusion, be it clearly understood, that I do not recommend the arrangement for ordinary use. The nipple must be of a specially small bore, and the operator ought to be of as large a mental bore or calibre as possible. But I repeat, I have never had a symptom of danger with the arrangement.

How I Became a Lanternist.—V.

By the Vice-President of the Lantern Society.

(Continued from page 112.)

I EVENTUALLY invested in a Bi-unial, but why, it is rather difficult to say. It is true that in giving a certain subject before a popular audience there is a little attraction perhaps in being able to turn a morning mist into an evening thunderstorm, or a snow scene into a fire, or Tintern by daylight into Tintern by moonlight. At the same time it suggests to the audience a little trickiness which may be acceptable to the young people, and those who do not understand or who are mere outsiders. But to the practical lanternist who is in "the know" it is not an idea to profoundly wish for. Therefore, if I was having another lantern built, instead of having a double one I should have a single one, and instead of having the full size I should have one about 8 in. square, and made so light that I could carry it, together with the lens and burner, in a box of small dimensions to any place I wished without having to resort to the assistance of cab, carriage, bus, train or porter. I never could understand why lanterns were made so big, and I confess I do not understand it now; but having had a great deal of experience and inspected a large number, I can only say I think bigness to be a mistake.

I believe it to be possible, and I do speak as a partial outsider in this, to get a lantern that shall be duly ventilated, and thoroughly practicable of the small size just named.

My experience with the oil and with the lime-light impressed me with the advantages of a lantern that could be used with either sources of illumination, so I had my bi-unial divided, so that either half could be used as a single lantern with the oxygen light, or the one half used with a four-wick paraffin. Talking of paraffin as an illuminant for the lantern, I should like to know if it can be put through any treatment that would prevent the disagreeable stench that follows its track. I believe it to be impossible, however careful one may be to exhibit an oil lantern without some effluvia making the room most disagreeable, and for this reason, if I am only showing pictures to three or four, I hitch on the gas bottle and am more than satisfied at the extra expense.

But there is one advantage I find of being able to use the oil lantern in the house, and it is that at any time we may try the merits of slides one may be making. Having purchased, borrowed, or hired a new set of slides, one can readily run them through previous to public exhibition, with the aid of the oil light in any small room that may be at liberty; and if at any time the oxygen gives out, one is at any rate partially independent, and there is consolation as well as comfort in feeling that you are not altogether dependent on circumstances.

As material for building lanterns, Mahogany is all very well, but seeing that they have a metal body, I should go for eliminating every ounce of weight that can be taken off to increase the portable qualities, and therefore for all practical purposes a metal lantern is as good as a mahogany one, and if it does not look so handsome that is perhaps the only disadvantage. It will be interesting for some one to inform the readers what will be the relative cost of Aluminium and Platinum for the purpose of building lanterns. The bright polish they take as well as the purity of the metals, their marvellous strength and almost unaccountable lightness, would be great advantages.

(To be continued.)

An Illuminated Fountain, and How to Make it.

By R. DORMER, NEWTOWNBARRY.

(Continued from page 111.)

All the water raised by the fountain could not be confined within the limit of thirty-six inches diameter, and as it would be very undesirable that it should be so confined, even if possible (the effect being much more beautiful when there is a considerable spreading of the water in descending), it is necessary to have a supplemental receptacle, easily attached to and detached from the receptacle proper, and, of course, emptying into it.

For this purpose I constructed an appliance, resembling when in position a monster umbrella inverted; the frame is made of stout laths, five feet long; to one end of each lath a piece of wood, with
The Optical Magic Lantern Journal and Photographic Enlarger.

Trade Mark, G.W.W. Registered.

DESCRIPTIVE LIST OF

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With reference to our Lantern Slide Sets, we beg to direct your attention to the fact

I.—That our Slides are not made from rough drawings or Woodcuts, but from direct photographs.

II.—No inferior or second rate negatives are used.

III.—Every Slide made in our works is individually tested.

Our Customers have thus a guarantee that the high standard of excellence of our Lantern Slides in former years will be more than maintained.

The Paradise of the Pacific: A Trip to the great Hawaiian Volcano and the Lepers' Home.

58 Slides.

Views of Honolulu, the capital of the Kingdom; portraits of the Hawaiian Royal Family; types of natives in various dresses; and specimens of different fruit are first shown. Then a short trip is made through the islands, visiting the Lepers' Settlements of Molokai, and finally visiting the great Crater of Kilauea Volcano. Among other interesting pictures in this set is a portrait of the late Father Damien on what eventually was his deathbed, and a series of views of a sugar plantation.

A Thousand Miles up the Nile.

70 Slides.

Starting from Alexandria, a visit is made first to Cairo, of which a dozen views are shown, and then to the Pyramids and Sphinx. Then taking to the Nile, the principal points of interest (including fourteen of the various ruins of Thebes) are shown in their order until Aboo Simbel, immediately north of the second cataract is reached. There the trip ends with a view of the immense Statue of Rameses II, carved out of the living rock. In the course of the lecture is shown a slide of the actual mummy of this king—a monarch who is doubly interesting to us on account of his being the Pharaoh of the Oppression. We are thus able to look on the veritable features of the Pharaoh whose heart was hardened against the Jews, and who played such an important part in Biblical history, four thousand years before the Christian Era.

The Architecture of Scotland.

50 Slides.

This reading traces the gradual rise and development of Scottish architecture from the earliest period down to the present day. It forms a companion reading to the one on "The Architecture of England" published last year.

English Cathedrals.

A series of short readings, each on a single cathedral. They are all arranged in the same way. First comes a general or distant view of the cathedral, then one or two near views, and the best interior views, with any specially interesting parts. Usually one or two interesting views of the town the cathedral is situated in are added. The following are additions to the series already done—

Durham Cathedral - - - 19 Slides.
Westminster Abbey - - - 15 "
Gloucester Cathedral - - - 24 "
Worcester Cathedral - - - 22 "

Kingsley's Home at Eversley.

8 Slides.

A series of views of Eversley Rectory and the Rectory Garden, one of the famous writer himself in the foreground, one or two of Eversley Church, and one of Kingsley's grave.

Whimsicalities.

3 Slides.

Three grotesque pictures—"Awful Warnings" to amateur photographers against the abuse of short-focused lenses. There is no reading, as the titles explain themselves.

Antiquities at Athens.

18 Slides.

A series of views of the chief Antiquities at Athens, the Acropolis, the Parthenon, &c., with a plan showing the sites of the various buildings. This is an enlarged and improved edition of the set bearing the same name published last year.

Sports and Athletics.

24 Slides.

(Accepted from the wonderful negatives by Mr. Louis Meldon.)

A series of twenty-four slides from instantaneous negatives of Tennis, Bicycling, Running, Cricket, Leaping, Diving, Coaching, Yachting, Golf, &c.

The Home of Grace Darling.

20 Slides.

A description of the birthplace of this heroine in humble life, with views of the scenery amid which she lived and died. A slide of Grace Darling from the best portrait in existence is given.

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5 Slides.

Humorous photographs from life of various scenes in the life of cats.

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Cloud and Water Effects. Snow Scenes.
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THE 'BONANZA' AUTOMATIC MAGAZINE HAND CAMERA.

The simplest and most perfect Automatic Detective Camera yet invented. No intricate mechanism to get out of order. Plates changed instantly. No double exposures; no sticking of plates. Carries 12 plates; can also be used for films. Fitted with extra rapid Leus, Thornton Pickard Roller Blind Shutter, also safety Shutter, and recessed Finder. Measures 8 by 6 by 10in. Is compact, portable, and handy. This is essentially the Camera for high-class work. Price £3 3s.

Intending purchasers are invited to send for Lists giving detailed particulars.

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THE "TALMER" Perfected Automatic HAND CAMERA

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SUBSCRIPTION FORM.

To Messrs. TAYLOR BROTHERS,
Dorset Works, Salisbury Square, London, E.C.

Enclosed please find ________________________ for which send me

The Optical Magic Lantern Journal and Photographic Enlarger,
for ____________________ months, post-Free, commencing ____________________

Name ____________________
Address ____________________

POST-FREE. U.S.
12 months ..., 1/6. 60c.
6 ..., 1/9. 30c.
The fountain with fittings—which from the foregoing description it will be understood can be put together or taken asunder in a few minutes—is thus complete, and can be displayed for any length of time required, all that is necessary being to work the pump as long as it is desired to have the fountain playing, and turn on the stop-cocks. It will be evident that several different combinations of the jets can be made by turning some full on, others half on, &c., or by at times stopping off some altogether.

The height to which the water can be raised depends on the power of pump, and also, probably to a considerable extent, on the size of cask containing the stop-cocks, as the pressure is obtained by means of air being compressed in that cask in the process of pumping; and, therefore, its size would regulate the quantity of air to be compressed, and the amount of pressure that might be obtained. In connection with my fountain, I use a five-gallon vinegar cask, my pump being a rotary one, capable of pumping about fifteen gallons per minute. The water is raised through a centre jet, when playing alone, about 20ft., and when all the jets are playing simultaneously, about 12ft. to 15ft. I have no doubt I could get equally good results with a much smaller pump, as the operator has frequently to stop pumping for a time, the jet being large enough to take all the water as fast as it can be supplied, when the pressure is very great, which it often is after a few minutes' pumping.

Having thus described the fountain and fittings, and the manner of working, it now only remains for me to explain the best methods of applying the light. Of course, the more brilliant the light is the better will be the effect. I use the ethoxy light, but think a very pleasing result can be obtained by using the oxide of calcium, safety blow-through, or even a superior quality oil light, provided the lantern is a really good one. Of this, however, I cannot speak with certainty. The best position from which to manipulate the light is from the flies, directly over the centre jet, using a mirror at an angle, to reflect the light down on water. If showing in a hall or room in which there are no flies, the light may be shown to advantage from an elevation of about 8ft. behind the fountain, assuming the audience to be in front only; but this is only practicable when it is possible to get sufficiently far behind the fountain with lantern to throw a disc that will be the effect. I use the ethoxy light, but think a very pleasing result can be obtained by using the oxide of calcium, safety blow-through, or even a superior quality oil light, provided the lantern is a really good one.

The fountain with lantern to throw a disc that will be illuminated the water to the highest point to which it is desired to raise it. If shown in this way, a temporary cap of opaque paper might be tinted round the front tube of lantern, in which a V-shaped orifice should be cut, which will confine the light to the water, and thus prevent a portion of a coloured disc from showing on the surroundings.

The light may also be shown from underneath, but in that case a slight addition is required in construction of fountain receptacle; it is also necessary, if the light is reflected from underneath, to place the receptacle on a skeleton stand, not less than 18in. high, which may, however, constitute or form a part of the 4ft. elevation, on which in any case the fountain receptacle should be placed. The addition to receptacle consists of a tube, about 4in. in diameter, soldered to it in such position that it will be just behind and quite close to the centre jet; this tube should project about 5in. high, which may, however, constitute or form a part of the 4ft. elevation, on which in any case the fountain receptacle should be placed. The addition to receptacle consists of a tube, about 4in. in diameter, soldered to it in such position that it will be just behind and quite close to the centre jet; this tube should project about 5in. high, which may, however, constitute or form a part of the 4ft. elevation, on which in any case the fountain receptacle should be placed.

Other means of reflecting the light may suggest themselves to readers who may wish to construct a fountain as described; but it should be borne in mind that as the colours shine through the water, it is necessary that the light be manipulated either from above or underneath, or else that the fountain be placed between it and the audience, in order that the brilliancy of the display may be properly perceived and fully enjoyed.
Colouring Lantern Slides.—No. 1.

BY A. W. SCOTT.

The art of painting in transparent colours is an attractive one to persons who possess patience and taste in the arrangement of tints. When the outline and shading of a picture have been already done by photographic means, the application of a few washes of colour will frequently enhance the beauty of the picture considerably, although the work may only occupy a few minutes.

The superiority of coloured pictures over plain photographs as a means of entertaining the general public in a lantern exhibition is admitted by all lanternists of experience. Even the finest uncoloured slides become monotonous to an audience after a score or so have been exhibited, while the varying effects of colour producible in the skies of landscapes, and in the details of most pictures, impart a charm which is always appreciated.

Slide-painting in its higher branches requires great skill and experience; there are trade secrets in the business, by which special colours are produced, and certain effects obtained, which to a beginner seem to defy attempts to imitate them; in short, the art presents special technical difficulties, with which I propose to deal. The simple tinting of a good photographic slide is not difficult, provided that the proper materials are at hand, and the right method is adopted.

There are two systems of colouring slides; oil and varnish colours may be used, or we can employ watercolours. Professional slide-painters generally use varnish colours, and there is no doubt that these are the best, because they are the most durable. Water-colours are capable of fine effects, but they should be always protected by a coat of varnish. The heat of a powerful limelight, such as would be used in a first-class exhibition, is considerable, and only varnish colours will stand the ordeal without detriment. Brilliant tints can also be produced by dyes, and gelatine slides may be coloured by simply staining the film; but this is the lowest class of colouring, and a lanternist of experience would buy such slides, for they are sure to deteriorate if often shown by limelight. Some dyes are much more durable than others, but the safest plan is to avoid their use as much as possible.

Varnish colours are pigments mixed with a varnish; oil colours are the same pigments ground in a slow-drying oil. For lantern slides there is no doubt that varnish colours are the best; they dry quickly, and are more transparent. Varnish colours can be obtained from lantern opticians and from slide-painters. If these are not obtainable the ordinary artist's oil colours may be employed.

There are some transparent colours included in the series of oil paints sold by a few firms which are valuable to slide-painters, and a few remarks upon these may be useful.

Prussian Blue.—This is invaluable for skies and all stippled tints. It is perfectly transparent, rich in colour, and remarkable for its intensity, a very thin layer of the pigment producing a powerful colour. This property of intensity renders it easy to produce tints even of any depth by the tapping action of the finger tip, called "dabbing," which spreads the colour over the glass in a layer so even and smooth as to be comparable with stained glass. Prussian blue has a slight greenish tint, especially when viewed by artificial light; this may be corrected by adding a trace of crimson lake, mauve, or French ultramarine. For moonlight skies a little burnt umber or lamp-black is frequently added; while for evening effects, just after sunset, the colour can be used pure. Good purples and violets may be obtained by mixing Prussian blue with mauve, crimson lake, or pink madder; brilliant greens by uniting it with any of the yellows; and sober greens by combining it with burnt sienna and the brown pigments. In short, Prussian blue is an indispensable colour to the slide-painter; it dries quickly, if mixed with mastic varnish or other suitablemedium. Antwerp Blue is equivalent to Prussian blue, diluted with megilp; it has no special advantages, and although an excellent colour in itself, yet with Prussian blue at our service, it is practically useless to the slide artist.

French Ultramarine.—This blue is quite transparent and free from any green tinge, even when viewed by oil-light. It is useful for making purples by mixture with pink colours; it has little intensity, dries rather slowly, and is better adapted for brushwork than for dabbing.

Crimson Lake.—This colour is the best red available to the slide artist, but is not so perfect as might be wished. It has little intensity, and is capable only of comparatively pale tints in the dabbing process; deeper tints can be produced with the brush, but owing to a slight translucency of the pigment the colour is apt to look darker on the screen than it appears on the slide. However, some crimsons are much more transparent than others, and if prepared in varnish instead of oil, satisfactory results can be obtained. Crimson lake in oil dries slowly. A good scarlet is obtainable by mixing crimson lake with gamboge; and flesh tints by adding it to burnt sienna and the brown pigments.

(To be continued.)

Useful Hints for Operators.

BY HORACE HILTON.

PIPING ON FLOOR.—In working blow-through jets in strange halls, &c., some little difficulty is often experienced by operators in securing their hydrogen supply pipe against accidents and practical jokes. The difficulty may at once be removed, by threading the rubber pipe through a few lengths of iron gas barrel, loosely connected. Six four-ft. lengths of 3 in. inside diameter pipe will be found very convenient, and the threading process is accomplished much quicker if the rubber pipe is slipped on the end of a long rod—say the end portion of a lecturer's pointer. If 3 in. pipe is used, it can be made to supply direct, and can be connected with indiarubber ferrules, cut from suitable sized pipe. This latter plan can be fixed quicker, and the piping will weigh considerably less, but it is not so secure as the first plan suggested; but in either case the supply is protected, and although the piping reposes on the floor, the operator's peace of mind is not disturbed nor his temper aroused, and the lecturer's patience is not tried. Such bliss as this is well worth what little trouble is necessary in laying on or looking after one more piece of luggage.
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By not being a Magazine it has the merit of simplicity, and by being provided with Barnett’s Patent Dark Slides (for which I am the sole agent in Europe) it has the virtue of efficiency, besides other advantages, such as portability, lightness, &c., &c. (and these are not all; you must read the pamphlet).

But just try and think of the scores of times a Hand Camera is required for perhaps two or three exposures only. With this Camera, two or three, four or five, or six plates may be carried in the pocket as little memoranda books, and we can sally forth with a perfect little instrument no bigger than a cigar box. But with a Magazine Camera we must trudge off with the whole affair, sometimes as big as a portmanteau, for the sake of one or two exposures, and to change the Plates we must set some machinery in motion, “turn this button first, push up this knob and release that spring,” and adjust the whole so carefully, or it won’t go, “hold it quite level, then turn the whole thing over,” or fiddle about with a black bag, and so on, and so on. In fact, the whole thing is too ridiculous in the face of a simpler method.

My method of holding a Hand Camera—viz., under the chin—has, since it was first published in the British Journal of Photography, met with such approval, that there can be little doubt it will become universal. It was only one of the common-sense ideas connected with my Camera.

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PIPING SUSPENDED.—If rubber pipe is suspended with long intervals, or has to encounter several sharp angles, "doubling up" may be prevented by tying a piece of string tightly round pipe in advance of point of suspension, taking up the weight and tying back to where the "doubling" would take place. This plan has never once failed me, though resorted to numberless times.

Dissolver Attachment.—With reference to the dissolver, it will be found very advantageous not to screw same direct to lantern body, but to fasten on instead a pair of slotted plates, into which the dissolver will slide tightly. This plan allows of the lantern being packed into less space, the attachment of pipes, &c., can be made much easier and quicker, and the dissolver more readily removed for cleaning and adjusting. Since fitting my triple in this manner, the experiment has proved an undoubted improvement.

Turning Times.—If any one has a jet with an obstinate spiral spring-time-turning arrangement, caused by the spiral's fondness for one particular position, the defect can be easily set right by inserting on turning rod a small brass counteracting spring pressing against the bearing block. One of my jets was once afflicted in this manner, but by treating same as proposed, its defect was at once remedied.

Correspondence.

ETHER-OXYGEN LIGHT IN AFRICA.

[To the Editor.]

Sir,—Having read Colonel T. Deane's experience with the Ether-Oxygen Light in India, I should like to say something about experiences I had with it in Africa. Last year I exhibited and lectured upon Edison's latest phonograph throughout South Africa—viz., Cape Colony, Natal, Transvaal, and the Orange Free State. The first part of my tour I used a patent four-wick oil lantern to illustrate sound waves (and the uses of the phonograph) on the screen. During the latter part of my tour I exhibited with the phonograph, a diorama of the Paris Exhibition, &c., by the aid of a bi-unial lantern and saturator. My assistant had a few difficulties with the saturator at first, but they were soon overcome. The first was owing to bad ether, the next too much weight which caused the pipes to be blown off. I found the saturator will not stand the amount of weight that is required for the oxy-hydrogen light. After the first three exhibitions I found the saturator a great success, and the light excellent. I must confess it requires very great care and attention; with that I have every reason to say I found ether-oxygen light is all one could wish it to be. The manufacture of hydrogen gas when travelling is very troublesome. There are only two towns in South Africa where coal gas can be obtained—Cape Town and Port Elizabeth. The difficulties of travelling in Africa when off the railway sometimes are great (some of the towns I visited are hundreds of miles from any railway). To give you one instance of it, I started from one town at three o'clock in the morning to arrive at the next town as I calculated about two in the afternoon. I arrived after six in the evening. Then had to make the gas, fix screen, set up electric phonograph, battery, &c., dress, dine, and commence my lecture at eight o'clock, which I did, and so successful was the entertainment that the resident magistrate got up and publicly invited me to stay another night and he would guarantee a good audience, an offer I could not accept owing to other engagements. Now, if the ether-oxygen light was a success under the difficulties I had to contend with in Africa, it should be a success anywhere. —I beg to remain, yours,

STANLEY A. PAGE.

Kyle, I. W.

ETHER SATURATORS.

[To the Editor.]

Sir,—Mr. Pumphrey is not quite correct in his supposition that I have had little experience with saturators. I have three, one of which has been in use nearly two years. Specting the safety of this light, the very fact that teted flame extinguishers are recommended is a tacit admission that there is an element of danger, as no professional operator uses them with the oxy-hydrogen light. He trusts to constant pressure for safety.

A short time ago I was shown a saturator which had been blown to pieces, and in this case pumice chambers were used (I do not say they were Mr. Pumphrey's); the pumice-stone was scattered the whole length of the indiarubber tubing. A hot brick or hot-water bottle is recommended if the temperature of the atmosphere is low. Where is the travelling operator to get a hot brick from? He goes into many places where there is neither fire nor means to get hot water. Any apparatus for the production of limelight is of no practical use unless it is ready at all times and available at all places. A light that will not burn two hours without attention is most inconvenient, as if two or three lanterns were used it would only last one and a-half hours or so, according to what description of slides were used. The vendors of the Porous Safety Saturator expressly say that the light should be turned off at the jet first (they have provided no taps to the saturator, see woodcut in any London dealer's catalogue).

Editorial Table.

CATALOGUES.—Messrs. G. W. Wilson and Co., of Aberdeen, send us a list of new sets of lantern slides which are about ready for publication. These include A Visit to the Lepers' Home. Up the Nile, English Cathedrals, Sports, Animal Studies, and several others. Comic slides and stories are not forgotten, and Demonic Cat (26 slides), will be found to be very amusing sets. Every slide, we are informed, is individually tested before it leaves the works of Messrs. Wilson and Co.

A handsome bound catalogue from Messrs. Taylor, Taylor, and Hobson, of Leicester and London, is before us. Besides containing illustrations and prices of this firm's numerous styles of lenses, finders, and levels, the principles of a lens' action is explained, and instructions for the preservation of lenses are given. The flange fittings are made in accordance with the standards of the Photographic Society of Great Britain, and standard screw adapters are supplied to carry any lens in a flange larger than its own.

One of the special features in the catalogue of Mr. William Hume, Edinburgh, is the cantilever enlarging lantern, which is filled for oil or limelight. Cameras, lenses, and other photographic sundries swell this list to about 60 pages.

Frames.—We have a couple of picture frames made by Mr. W. F. Slater, Southampton-street, Cumberwell, and a careful examination of them testifies to the high-class workmanship of this firm. Mr. Slater is also a dealer in photographic apparatus, and issues a monthly list of new and second-hand apparatus for sale or exchange.
Notes and Queries.

No. 152.—If you send us your card we may perhaps be able to give you some information about lamps. You give neither name nor address.

E. Sinclair.—Make a light frame and cover it with a couple of thicknesses of brown paper. That should answer your purpose for darkening the room occasionally; the frames can be set away for future use, they will not occupy much room. If you want it for one occasion only, tack the sheets of paper on the window-frames.

Wright and Jones ask: "Kindly say how a lantern can be used in an illuminated hall. I understand it can be used in class-rooms which are lighted with gas." Answer.—By using side and top wings to the screen, causing them to stand towards the audience. The gas should be somewhat subdued.

C. G. NORTON.

HOLIDAY HOMES.

[To the Editor.]

Sir,—May I plead with your readers the cause of the Holiday Homes movement of the Ragged School Union? Its object is a fortnight's holiday in the country for the poor children attending the two hundred ragged-schools and mission schools connected with the Union. There is, or should be, a fellow-feeling between us and your readers. It is now many years since we included the magic lantern among our educational and entertaining agencies; and if any of your readers care to make life studies among our pupils they will find material both for moving figures and graphic groups. Our needs in the matter of the Holiday Homes movement are pounds, shillings, and pence, and if, wherever or whenever your readers are gathered together, they will make a joint effort on our behalf, the result will be to increase the number of children by whom this holiday is so much needed.—Yours obediently, JOHN KIRK, Secretary.

Holiday Homes Fund, Ragged School Union, Exeter Hall, Strand, W.C.

EXCESS OF ETHER—A CAUSE OF POPS WITH A SATURATOR.

[To the Editor.]

Sir,—Having given upwards of fifteen exhibitions during the last winter with the above light, I should like to record my opinion in its favour. My custom is to add 50 c.c. of ether each night to the saturator, then incline it at an angle of about 45 degs., and at the expiration of an hour, pour back into a bottle as much of the liquid as will leave the saturator at that angle. Having read the different expressions of opinion that "Society Reports" and several matters of interest have to be held over.

For general purposes the hand camera will be the camera of the future. Small negatives can be enlarged as required, and lantern slides can be made from its negatives without apparatus.—C. Benson.

Notice.—We have such demand on our space this issue that "Society Reports" and several matters of interest have to be held over.

C. G. NORTON.
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