J. Traill Taylor, in British Journal of Photography, says:—"Messrs. Perken, Son, and Rayment claim to have produced a triple-wick oil lamp, in which the luminosity is equal to ONE HUNDRED CANDLE POWER—while the light is very pure, and the heat less than usual. We have been present at trials made with it, and find their allegations as to PURITY and INTENSITY OF FLAME are maintained."

T. Bolas, in Photographic World, says:—"The Optimus 100 Candle Power Oil Lamp—the light certainly surprised us. . . The brightness—and above all the whiteness—of the disc recalling a lime light..."

"Optimus" 1893-4 Patent Lamp for Projection Lantern.
3-wicks. 2-in. wide, with chimney - - 25/- each.

PERKEN, SON & RAYMENT, 99, HATTON GARDEN. LONDON. 'OPTIMUS.'

MAGIC LANTERNS and SLIDES.

Walter Tyler's Helioscopic is perfection of all Lanterns, supplied to the Indian Government, School Boards, science classes, clergy, and exhibitors throughout the world. Impossible to have lanterns give better definition or more satisfactory results; specially constructed lens, which no other lantern possesses.

Walter Tyler's Best Triples and Bi-unials are unsurpassed, and perfect in every detail. Good Bi-unials, mahogany bodied, brass fronts, and all improvements, £7 10s. Single Lantern with 4-in. condensers, portrait front lens, 4-wick lamp, complete in case, 27s. 6d.


Lanterns and Slides.—If you wish to Hire, Purchase, or Exchange, you cannot do better that go to Walter Tyler, who makes this business his speciality, and you will thus save dealer's and all intermediate profits.

Bi-unial Lanterns.—If you are in want of a really good Bi-unial Lantern, perfect in every respect, call and see Walter Tyler's entire brass-fronted, mahogany-bodied, lined with Russian iron, and fitted with new best quality lenses, and sold at a most moderate price. The top lantern will take a 4-wick lamp. These are great bargains.

HIRE DEPARTMENT is now perfect. Over 300,000 always in stock. Second-hand Lanterns & Slides.
WALTER TYLER, 48, Waterloo Road, LONDON.
Transparencies

OF THE FINEST QUALITY, MADE BY THE

COLLODION PROCESS.

STEDMAN & SOPER,

147, STRAND, LONDON, W.C.

Professional Mark. In answer to many inquiries, please note address.

W. R. HILL & SON,

OPTICAL SCENIC ARTISTS to the Royal Polytechnic

Institute since 1840 (by special appointment).

Also the London and Provincial Theatres, Colleges and Institutes, &c.

ORIGINALLY CHILDE & HILL,

Sole Inventors of Dissolving Views & Effects & Chromatrope,

Introducers of the Lime-light on to the Stage (Drury Lane, 1855).

Specially in first-class photo colouring with original and

striking sky effects.

NEW EFFECT SETS.—Statue of Liberty—God of the Harvest—

Launch of Lifeboat, with snow and rain, &c.—The Waits, with new

panoramic effect (special)—Cathedral (interior) grand effect from

windows.—Midnight Sun (Norway)—The Skiogedalos, Hardanger,

(Norway), &c., &c.

ROYAL POLYTECHNIC (London, June, 1878).

"The final illustration represents the parachute shell, which, being

fired from a mortar at night, bursts in the air and effectually lights

up the country. This effect, which is by Mr. W. R. Hill, and

beautifully rendered, brings a most instructive lecture to a close."

—Morning Advertiser.

"The audience is startled by the wonderful effect of the parachute

shell...... such as the original...... a clever imitation."—Times.

Price 2d. Marvellously Illustrated.

3/- per Annum. Post Free.

PERCY LUND & Co., The Country Press, Bradford

AND

MEMORIAL HALL, LONDON.

W. R. HILL & SON,

ROYAL POLYTECHNIC (London, June, 1878).

"The final illustration represents the parachute shell, which, being

fired from a mortar at night, bursts in the air and effectually lights

up the country. This effect, which is by Mr. W. R. Hill, and

beautifully rendered, brings a most instructive lecture to a close."

—Morning Advertiser.

"The audience is startled by the wonderful effect of the parachute

shell...... such as the original...... a clever imitation."—Times.

Price 2d. Marvellously Illustrated.

3/- per Annum. Post Free.

PERCY LUND & Co., The Country Press, Bradford

AND

MEMORIAL HALL, LONDON.

W. R. HILL & SON,

ROYAL POLYTECHNIC (London, June, 1878).

"The final illustration represents the parachute shell, which, being

fired from a mortar at night, bursts in the air and effectually lights

up the country. This effect, which is by Mr. W. R. Hill, and

beautifully rendered, brings a most instructive lecture to a close."

—Morning Advertiser.

"The audience is startled by the wonderful effect of the parachute

shell...... such as the original...... a clever imitation."—Times.

Price 2d. Marvellously Illustrated.

3/- per Annum. Post Free.

PERCY LUND & Co., The Country Press, Bradford

AND

MEMORIAL HALL, LONDON.
NOTICE.

It may not be generally known that all stone bottles of ginger beer which are ordered by the Prince of Wales are “sighted” by the manufacturers (in order to ascertain that no foreign particles are present), by means of a reflecting limelight apparatus, which enables them to be seen into with as much ease as if they had been made of transparent glass, instead of stone.

It has been stated, that within a few years the best seats in the principal London Theatres will each be provided with an opera glass, secured to an adjustable stand or arm, which will hold them in position in front of the user’s eyes.

CERTAIN improvements in illuminating by incandescence are said to be on the verge of being introduced, and it is claimed that a particular incandescent which can be applied to paraffin lamps, will increase the illuminating power 40 per cent. and at the same time decrease the consumption of oil 33 per cent. Should this prove correct, lanternists will await with interest the introduction of this incandescent.

MR. W. BASHALL, 21, Holland Villas Road, W., has succeeded Comr. Gladstone as Secretary of the Lantern Society. Duties in connection with the Royal Navy will shortly call Comr. Gladstone to foreign lands.

It is always pleasant to hear of the good relations existing between employer and employed. In the lantern-slide line we think the
The Optical Magic Lantern Journal and Photographic Enlarger.

following stands without a parallel. Messrs. E. G. Wood, of Cheapside, have had for nearly fifty years in their employ a family of clever slide artists, extending to three generations, and as the grandson of the first artist has a young son who has also marked talents in this direction, it would seem that there is every chance of the succession being assured.

In our last issue, when commenting on the excellent management of the lantern at the Royal Institution on the occasion of Dr. Dallinger’s lectures, we omitted to couple the name of Mr. J. W. Garbutt, of Upper Arnley, Leeds. Mr. Garbutt has for a long time had the entire management of the lantern for Dr. Dallinger, and the excellence of his management has often been commented upon.

The late P. T. Barnum used to have the “greatest show on earth” in connection with the circus. Is Mr. Walter Tyler, of Waterloo Road, S.E., trying to follow suit in the lantern stock line? Within the last twelve months he has bought up the stock-in-trade of three large dealers, the last being that of Messrs. Thomas & Co., of Acton, which was lately advertised in The Optical Magic Lantern Journal.

An optical and photographic exhibition is to be held at the Westminster Aquarium, from September 11th to October 6th.

On July 2nd we were the recipients of a handsome present from Mr. F. Brown, the maker, given, it was said, in recognition of the way we had defended the use of saturators in general. When the numerous folds of tissue paper had been undone, we found a Gridiron saturator of superb finish, the body of which was silver plated and polished bright, the tubes and fittings silver plated and frosted, with name and taps lettered and shaded in blue enamel. Mr. Winter, the London Manager of Mawson & Swan, when admiring the apparatus, took its measurement, and said “you must let us send you a glass shade and stand for this”—and in due course they arrived. The saturator at present stands ready charged for use, upon blue velvet, and so perfect is the finish that it would almost seem a pity to handle it without gloves. We take this opportunity of thanking Mr. F. Brown, Mr. Winter and Messrs. Mawson and Swan for their kindness, and should any of our readers wish to inspect the gift, we will be pleased to show it any time by appointment.

For many years past the old-established firm of J. Bernard & Sons, the well-known artists’ colour business, has been conducted by Mr. T. Claude Fairhead on behalf of the executors. This gentleman, in conjunction with Mr. F. Capel Cure, has purchased the business and plant, and will in future carry it on under the same name. With the same old name and two such energetic partners as the gentlemen mentioned at the helm, a great increase of business may be looked for.

Lantern Slide Illustrating Sound Waves.*

BY GEO. M. HOPKINS.

In demonstrating the theory of sound, it is usual to illustrate the condensations and rarefactions of air which produce sound waves by light and dark bands, which give an idea of the condition of the air at any instant in which it is transmitting sonorous vibrations. But these bands do not represent the progression of the sound waves. For an illustration of this, reference is often made to the concentric undulations produced on the surface of a mill pond by a pebble dropped in the water. This depends for its value upon the student having noticed the mill pond phenomenon and upon his ability to realise that these spreading rings relate only...
The Optical Magic Lantern Journal and Photographic Enlarger.

ARCHER'S LANTERN NOVELTIES.

THE "IDEAL" LANTERN. The most perfect Single Lantern in the market. Enthusiastic Testimonials from Paul Lange, Esq., G. E. Thompson, Esq., Manchester Camera Club, and many others. Will show to perfection any distance, 8 feet to 80 feet from the screen.

THE "IDEAL" DISSOLVER AND CARRIER FRAME. The most perfect ever invented for Single Lanterns. Highly praised and used by the editor of this journal. Price 25s.

A Wonderfully Good Safety Jet. Price 16s.

The "Photinus," greatly improved, the most powerful Oil-Light Lantern in the world. Price complete £4 4s.


No. 1. Price - - £8 15s. Complete.
No. 2. Plainer Finish, £7 5s.
No. 3. " £6 10s.

New Illustrated Catalogue, Many Novelties, 80 pages. Post Free, One Stamp.

ARCHER & SONS, Patentees and Manufacturers, 43 to 49, L ORD ST., LIVERPOOL. Estd. 1848.
If You take an Interest

in Optical Lanterns, Apparatus and Slides, ask your Dealer to supply you with the latest Catalogue (just published), beautifully bound in red cloth cover, containing 434 pages, and more than 100 illustrations of Lanterns, Apparatus, and Mechanical Slides. If you cannot procure it from your Dealer, write direct to A. B. C. c/o Messrs. Truslove & Bray, Knight’s Hill Road, West Norwood (the printers of the Catalogue), enclosing 1s. 6d., when a copy will be forwarded, post free, and the name and address, given of a Dealer in your district, through whom you can purchase the goods.

The Insert sent with this Journal this month is a re-production on a very small scale of 96 of the pages from the Catalogue.

The manufacturers of the goods (who have supplied the Trade for over 78 years) are strictly wholesale, and, therefore, cannot allow their names and addresses to appear in this advertisement, but any bona-fide Dealer who does not know them can obtain their address by writing for it, enclosing his business card, to the address before mentioned, when a copy of the Catalogue will be forwarded free of charge, and discounts quoted.

Please see that you get the insert with your copy of this month’s Optical Magic Lantern Journal.
The feature of progression as it would present itself in a section taken through a sound sphere in any plane that would intersect the centre of the sphere at which is located the source of sound.

The mechanical slide shown in Fig. 1, when projected, is capable of producing on the screen a series of concentric rings of light and shade, representing the condensations and rarefactions of a succession of sound waves, and these waves, beginning at the centre, constantly enlarge in circumference until they disappear at the periphery of the disc. This effect is produced by means of two thin metal discs arranged to revolve on the same axis, and each provided with a spiral slot extending from centre to periphery, the slot of one disc being oppositely arranged with respect to that of the other disc. One disc is secured to a sleeve which fits on a stud supported by a fixed bar extending across the opening of the slide. The other disc turns on the sleeve. The sleeve and the disc which turns upon it are each provided with a small pulley. One of these pulleys is slightly larger in diameter than the other, so that when the two discs are projected and revolved rapidly in the same direction, one turning at a very slightly increased speed causes the points of intersection of the spiral slots to move outwardly and thus produce on the screen a series of light rings, which increase in diameter like mill pond waves. To cause the light rings and intervening dark rings to blend into each other, the slide is thrown a little out of focus.

To show interference of sound waves two images of the slide may be projected, one being superposed on the other as shown in Fig. 2. This is easily done by arranging at a suitable angle in front of the lantern objective a series of glass plates, such as are found in a glass plate polarizer, as in Fig. 3. A portion of the beam is transmitted, forming one image on the screen, and a portion is reflected upward and intercepted by a mirror which throws it upon the screen, forming a second which may be made to coincide with the first, or it may be made to overlap the first image so as to produce the interference effect shown in Fig. 2. In this case the centres or wave sources are separated more than the semi-diameters of the discs, and the interfering waves approach each other from opposite directions. In Fig 4, are shown diagrammatically, superposed wave discs with centres one wave length apart. The waves' "crests" coincide, and re-enforcement along a line joining the two centres is the result. If the centres were half a wave length apart, the "crests" would alternate and one set of waves would neutralize the other.

In Fig. 5 are shown diagrammatically two discs of different size produced by dividing the beam before it passes through the objective, projecting the two parts of the beam with objectives of slightly different power. In this case, owing to the difference in the size of the discs, the relative velocities of the wave rings differ, so that the waves of one series overtake the waves of the other series at a, thus illustrating the phenomenon of beats.

---

**Experiment.**—Write with dilute nitrate of silver, which when dry will be entirely invisible, hold the paper over a vessel containing sulphate of ammonia and the writing will appear very distinct, the letters shining with the metallic brilliancy of silver.
The Supply of Oxygen to Lantern Flames.—No. III.

By W. H. Harrison.

Some researches were afterwards made on the same subject by Dr. J. W. Draper, of New York, to whose records I have not access at the present moment, but will try to find them a few days hence.

The late Professor Graham investigated the subject scientifically at a later date, and communicated the results to the Royal Society. His paper was entitled, "The absorption and dialytic separation of gases by colloid septa," and was published in part by that Society in "Philosophical Transactions." Several parts were struck out in pencil from the author's manuscript, so that Professor Graham's full acknowledgment of the earlier work on the subject performed by Dr. Mitchell and Dr. Draper, did not appear in "Philosophical Transactions" with the rest of the memoir in 1866. The paper in full, free from these excisions, will be found in "Chemical and Physical Researches, by Thomas Graham, F.R.S., collected and printed for presentation only. Preface and analytical contents by Dr. Angus Smith, Edinburgh, 1876." Graham said in the paper: "The penetration of rubber by gases may be illustrated by their passage into a vacuum, as well as into an atmosphere of another gas, in the old experiments of Dr. Mitchell"; but, as we have already seen, Dr. Mitchell did experiment upon the passage into a vacuum, as in the case of the column of mercury in an inverted vessel over a mercury trough. Professor Graham then describes practically the same arrangement, but somewhat modified; he used a glass tube closed at its upper end by a thin plate of stucco, to support the film of india-rubber fixed over the top; the only difference is the insertion of the stucco. The way in which Graham fixed the edges of the india-rubber film, was to bind them round with copper wire and to cement them at the edges in contact with the glass, with gutta percha softened by heat. With the barometer and thermometer at invarying heights, he found the following to be the rates of penetration of rubber by equal volumes of gas:

<table>
<thead>
<tr>
<th>Gas</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonic Acid</td>
<td>1:000</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>2:470</td>
</tr>
<tr>
<td>Oxygen</td>
<td>5:316</td>
</tr>
<tr>
<td>Marsh Gas (CH₄)</td>
<td>6:825</td>
</tr>
<tr>
<td>Atmospheric Air</td>
<td>11:850</td>
</tr>
<tr>
<td>Carbonic Oxide</td>
<td>12:203</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>13:585</td>
</tr>
</tbody>
</table>

Graham found excessively thin films of rubber to be efficient for the purpose, and used one but slightly over a two-thousandth part of an inch thick. He says: "Such a film of rubber appears to have no porosity, and to resemble a film of liquid in its relation to gases—differing entirely in this respect from a thin sheet of paper, graphite, earthenware, or even gutta percha, as will appear hereafter." He also pointed out that the phenomena of gaseous penetration are due to each gas becoming liquid inside the rubber film, and then evaporating upon the other side.

He found that the rubber film becomes more permeable to gases as the temperature rises, within a certain range; it renders the rubber softer and more like a liquid. This was distinctively observed in operating with silk cloth varnished on one side with rubber, which was penetrated by the air from the atmosphere, passing into a vacuum at the following rates per square metre of surface:

At 4° C, by 0:56 cubic cent. of air in 1 minute.

14° C, by 2:25 
60° C, by 6:53 

With a colloid septum properly supported over a vacuous space, as the velocities of nitrogen and oxygen passing separately had been observed to be as 1 to 2:558, the mixed gases found on the other side, should, according to calculation, consist of 40:46 oxygen and 59:54 nitrogen, in 100 volumes. With the apparatus Graham used, he found 42:53 of oxygen in the dialysed air. He next tried experiments on a more extensive scale, by the use of a Sprengel pump with its joints well closed, in the manner specified by Dr. Sprengel. Using a common elastic carriage bag, measuring 18 in. by 15 in., made of india-rubber between double cotton cloth vulcanized, one cubic inch of air was drawn through in an hour, or at the rate of nearly three cubic inches per hour for one metre of cloth; the air contained close upon 40 per cent. of oxygen. Next he tried four yards of vulcanized india-rubber tubing, closed at one end, and the rate of penetration was found to be one-fifth of that of the previously used rubber cloth. Then he tried thin sheet rubber, not vulcanized; it was one millimetre in thickness, and made into a bag having a total surface of 231 square inches; a double thickness of felted carpet was placed inside the folds of the rubber to keep the sides apart. Of the dialysed air, 11:45 cubic centimetres were collected in four hours, containing 41:48 per cent. of oxygen, with a sensible trace of carbonic acid. From a larger bag of thin sheet rubber, with a surface of 640 square inches, and its sides distended
J. & R. OLDFIELD,
Specialists in the manufacture of RUSSIAN IRON and BEST BLACK OPTICAL LANTERNS, &c. Also Photographic DARK-ROOM LAMPS (absolutely light-proof) and other Photographic Accessories.
To the Trade Only.
26, GEORGE ST., PARADE, BIRMINGHAM.

DARLINGTON'S HAND-BOOKS TO NORTH WALES

DARLINGTON'S NATURALIST SERIES
The Birds, Wild Flowers, Ferns, Mosses & Grasses of N. Wales.
By Ralph Darlington, F.R.G.S., F.R.B.S., F.R.H.S.
Full Lists and Press Opinions on Application.
LLANGOLLEN: R. DARLINGTON & CO.
LONDON: SUTTON, DROWLE & CO.: W.H. SMITH & SON,
Railway Bookstalls and all Booksellers.

WHEELER'S NEW LINES.
Printing Register, for developed pictures, cloth 1/-, price 1½d. Mancunium Mounts. No pasting or trimming. In four sizes, 4¼, 5 x 3½; 4½, 10 x 8; 5, 11 x 9; 6, 12 x 10. Interchangeable Albums, to hold 134 lantern-slides size or From pictures, two on a page; strongly bound, 4½d. Stout White Mounting; pure material; all sizes: 120 sheets, 5 pl., 12 pl., 16 pl., 20 pl. Also in large sheets. Recording Negative Envelopes. Save time, trouble and money, and are reliable. Bold in 100's, 25 pl., to full pl. Order through the dealers, or send for Price List to GEO. WHEELE & Co., 46, King Street West, MANCHESTER.

OPTICAL LANTERN LECTURES,
By RALPH DARLINGTON, F.R.G.S.
My Travels in Egypt and Experiences on the Nile—150 Slides.
My Travels in Greece, Turkey and Asia Minor—100 Slides.
Across North Africa—90 Slides.
Pompeii, Past and Present, and the Bay of Naples—80 Slides.
The Sights of Rome—50 Slides.
Picturesque Italy: Past and Present—100 Slides.
Prospectuses and Terms for Lectures this winter on Application.
R. DARLINGTON, Greenheys, Llangollen, North Wales.

"Photographic Work" is under the management of Proprietors who bring to bear the experience of over a quarter of a century in connection with Photographic Literature. The paper meets the needs of the present busy age by giving information concisely, while care is taken that, though aiming at brevity rather than diffuseness, it no way fails to give before its readers details of all phases of photographic progress. It is conducted on lines to meet the wants of Amateurs and Professionals, from the tyro to the expert, and contains Reviews of Books (English and Foreign), Notices of Novelties in Apparatus, Reports upon New Processes, Records of the Proceedings of Photographic Societies, Lists and Abstracts of Photographic Patents, and all news appertaining to Photography, when the subject matter is interesting or instructive. "Photographic Work" will be found an admirable medium for the Announcements of Photographic Dealers, for Employers and Employees, and for all in any way connected with Photography.

PIPER AND CARTER,
PRINTERS, PUBLISHERS & ADVERTISING AGENTS, 5, Furnival St., Holborn, London E.C.
W. WATSON & SONS, 313, High Holborn, London,
MANUFACTURERS OF HIGHEST CLASS OPTICAL & SCIENTIFIC INSTRUMENTS.

BI-UNIAL AND TRIPLE LANTERNS,
THREE AND FOUR-WICK OIL LANTERNS,
of Highest Quality and Efficiency.

LANTERN TRIPODS, GAS APPARATUS, SCREENS, AND SCREEN STANDS.

An Illustrated Catalogue sent free to any address on application. Ask for Lantern List.

W. WATSON & SONS,
ESTABLISHED 1837.

JAMES W. GARBUtt,
LANTERN SLIDE MAKER, COLORIST, &c.

(Photographer to the “Gilchrist Lectures” by Appointment of the Trustees).

Slides made from Negatives, Prints, Engravings, &c., by WET COLLODION PROCESS ONLY.

Terms, Testimonials, &c., on Application.

Only Address:—10, EDINBURGH GROVE, UPPER ARMLEY, LEEDS.

Davenport’s
NEW SMALL ELECTRIC

ARC LAMP

FOCUS KEEPING

SIMPLE AND CERTAIN.

J. H. STEWARD,
SOLE MANUFACTURER AND AGENT,

This Lamp has been designed to use with Optical Lanterns, Theatre Lights, Enlarging Apparatus, and wherever a brilliant and steady light is required. It will fit into all Oil Lanterns, without alteration, and is adaptable to all kinds of Lenses and Dissolving View Apparatus.

LIST GRATIS, POST FREE.

THE OPTICS OF PHOTOGRAPHY AND PHOTOGRAPHIC LENSES,
By J. Traill Taylor.
London: WHITTAKER & CO., PATERNOSTER SQUARE.

Supplied with either
3-WICK OR 4-WICK LAMP

(3-Wick Recommended).

The Photogenic Lantern, in Case, Best Lamp and Best Lenses £4.

Bi-Unial and Triple Lanterns

With all the Latest Improvements

COMPRESSED GAS, CYLINDERS, REGULATORS, &c.

ILLUSTRATED CATALOGUES GRATIS.

406, STRAND; 457, WEST STRAND; 7, GRACECHURCH ST., LONDON.
with sawdust, 21.35 cubic centimetres of dialysed air were obtained in one hour, containing:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen</td>
<td>41.80</td>
<td></td>
</tr>
<tr>
<td>Carbonic Acid</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>Nitrogen</td>
<td>57.26</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Increased thickness of the rubber does not seem to tend to increase the proportion of oxygen.

Little balloons of india-rubber were next tried; they were filled with sawdust against which each balloon collapsed, and the rubber film still maintained a thickness of one-fiftieth of a millimetre. The rubber was not vulcanized. For each square metre of a surface of this kind, the passage of dialysed air was found to be at the rate of 16.9 cub. centims. per minute, or about fifty times faster than through a sheet of rubber one millimetre in thickness. When several such balloons are used at once, the air will pass through faster than a single Sprengel pump will carry off the dialysed product.

Graham says that the greatest amount of aerial dialysis per square metre was obtained by means of a rubber bag, larger than usual, and weighing 1.55 grm. When filled with sawdust and exhausted, this bag still remained of 143 millims in diameter, and with a surface therefore of 0.0642 square metre. The air which passed through amounted to 17.05 cubic centims. in ten minutes, the thermometer about 20°C. This air gave 40.7 per cent of oxygen.

His next experiments dealt with the dialysing of air with silk varnished on one side.

---

**A Stand for Opaque Screens.**

By R. Moss.

Now that the longest day of this year can be spoken of in the past tense, and numbers of the large army of lanternists will be devoting some of their time to overhauling their lanterns and appliances, a few suggestions on the above subject, based on the experiences of three seasons, may perhaps be acceptable.

Two statements concerning opaque screens are generally accepted; by their use a larger proportion of the light is arrested, and consequently a much better picture obtained than with a non-opaque screen, the improvement being variously estimated at from 10 to 30 per cent. The other statement is that opaque screens can only be used in a fixed position secured to a beam or wall. It is the repetition of this by the Doctor in the Optical Magic Lantern Journal for July, that induced me to write this article.

I certainly endorse the first statement respecting the improvement with an opaque screen, and this more especially for those who use oil illumination. With regard to the other assertion, I have proved by actual experience that opaque screens can be used much in the same way as ordinary linen sheets, and that they can be fixed quickly in position by the use of a very simple stand, which I will here describe:

Some may perhaps take exception on the ground of bulk and difficulty of transport, but this should however form no obstacle when all the advantages are considered. There are few lantern outfits that require a conveyance of some sort, and it is just as easy to carry an opaque screen, 10, 12 or 14 ft. long, as a number of smaller packages; this of course applies especially to the country where oil is almost generally used.

I have, with one assistant, fixed a 12-ft. opaque screen and had two lanterns all ready to commence in twenty-five minutes after arriving at a village, the room being already full of people. I have also fitted up ready for use, the screen only (as a trial), in three minutes, which I think is as quickly as any other screen can be erected and stretched. Of course all opaque screens are fitted with bail and roller. The stand or elevator should consist of two pairs of poles, one about a foot shorter than the other; these are fitted together by a hinge in pairs to open like a step ladder.

In fig. 1, A is a short pole 13 ft. long, 2 by 1.5 inches. B, a longer pole, 14 ft. long, 2 by 1.5 inches. C, two iron plates, 4 by 4 in. by 3/8 in., forming the hinge; it is secured by screws to each side of A, and works on a single bolt 3 ins. through B, with nut on one side and rose head on the other. X is a pin fixed in centre of one
pole to keep them level. \( \text{Pole} \) is a slot cut in the pole \( \text{B} \), just long enough and wide enough to allow the bail upon which screen is fastened to fit into it, but not too easily. \( \text{Pole} \) are iron plates, 1 1/4 in. coach hooping, about 8 inches long, secured by two 4-in. bolts and nuts to the pole, and by four small screws to the part where slot is cut out. \( \text{F} \). This end of shorter pole, indicated by dotted line, being under plate (A) is tapered just enough to allow of poles opening only about 4 feet at bottom; this is quite sufficient to give steadiness, but it can be used when only open about two feet or so.

These poles, as indicated above, fit one each side of the bail, as shewn in diagram 2, and are prevented from moving sideways by either wood blocks or pieces of angle iron, \( \text{H} \), which it is advisable to put a little on the angle so that poles are about a foot wider apart at bottom than where they fit on the bail, as this gives increased steadiness; \( \text{X} \) represents a light iron stay, 36 by 1 by 1/4 in. secured to pole \( \text{B} \) by a stout screw (acting as hinge) \( \text{L} \), the other end having a hole drilled in it to fit over a pin, \( \text{M} \), and secured by a button or spring. \( \text{N} \). This stay I did not find necessary at first, but as after a season's use without it, the joints at \( \text{X} \) became rather shaky, it made the affair perfectly secure, and at any rate gave me peace of mind during the exhibitions.

In order to erect screen it is simply necessary to lay screen face downward, slip poles between blocks, \( \text{H} \) (which should be fitted on both sides of bail), fasten stays \( \text{X} \), see that ropes to lower screen are free; either get some one to hold them to prevent screen rolling down while being elevated, or better still, secure to a hook on front of pole \( \text{A} \); place bottom of poles against the wall where screen is to stand, then take hold of poles near to screen, one person to each side, and raise hand over hand, in the same way as a ladder when upright; draw pole \( \text{A} \) forward and lower screen; it will then appear as in Fig. 3.

The whole of my stand (not screen) with the exception of iron work (which any blacksmith will make for three or four shillings) being home made, did not cost more than seven or eight shillings. The great advantage is that by placing screen at an angle you can thus use the whole space of a room by placing the lantern at the side. Stands of smaller sizes, such as for 8, 9, or 10 ft. screens, could be made much lighter than the dimensions I have mentioned, and should any reader find my suggestion of value, I should be glad to give any further information required.

A stand, of the style mentioned, has been used in our Band of Hope work for three seasons with perfect success.

---

A Singular Experience in Lantern Slide Making.—II.

By G. Thorne.

I made two resolutions on my way home, one was to bring someone with me as a possible witness, and another was to take some photographs of the road during the continuation of the sounds. Having made the acquaintance of a young medical man in the neighbouring village, who had just taken up photography as an amusement, what could be better than to ask him to join me in an excursion for the next day, should he fortunately disengaged and willing, and the weather suitable? As luck would have it he gladly acquiesced; so saying nothing of the real motive of our trip, the next morning found us favoured with splendid weather in the locality where my experiment was to take place. I pointed out some pretty view for my companion to take from the same spot in which I had worked myself, whilst I fixed up my camera on the road in such position and focus so that anything visible about the position the sounds had apparently proceeded from, would be included in the picture.

I had previously asked my friend that in case he heard anyone singing coming along the road he would signal me by a whistle. My request somewhat puzzled him, but he readily promised compliance. I told him I would explain afterwards. I had not long to wait, the warning whistle sounded. I made several exposures during the time the incidents were supposed to last, although nothing was visible. I had no doubt the whole
SOLIO

Keeps the Best of all Gelatino-Chloride Papers.

As good nearly two years after manufacture as when first made.
Coated, July, 1892; printed on, April, 1894.

Mr. J. Traill Taylor (editor), in the May 4th (1894) number of the British Journal of Photography, in an article entitled “Developed Solio Prints,” writes as follows:—

“All of our trials were made on a paper that had been recently sensitized—all but one. This one was a portion of a packet we received from the Eastman Company on the opening day of the Convention at Edinburgh, viz., July 11th, 1892, and it forms not the least delicate of the charming series. The tones can be varied at will. Those we aimed for and got are a delicate purple-brown, in all but one instance, where a darker tone was considered to be more suitable for the subject.”

Mr. Traill Taylor, in a letter sent to us later, referring to the same subject, says:—

“Herewith I send you a portrait printed on your Solio paper and finished by development. You will observe the excellence of the lights and the delicacy of the half tones.

“As I printed it on April 28th, 1894, you will see that it has kept well.”

Price Lists free on Application.

EASTMAN Photographic Materials Co. Limited,
115-117 Oxford Street, London, W.
PARIS; 4 Place Vendome.
SPECIAL ANNOUNCEMENT.

The enormous success last season, of the production of Lantern Slides from

LIFE MODELS,

to illustrate "Horner's Popular Penny Stories for the People," has induced me
to produce the following Seven Sets, all by the kind permission of Messrs. Horner
and Son. Great care has been taken to select the best and most telling subjects
from each story; and the necessary number of slides to each set has been care-
fully planned, and all attempts at overcrowding too many pictures to each series
have been avoided.

EVERY SET HAS DIFFERENT PEOPLE TO ILLUSTRATE THE CHARACTERS,

And a similarity in the sets is thus evaded, this is a great advance on
many of the published Life Model Sets.

EACH SET HAS A SPECIALLY PREPARED LECTURE IN GOOD BOLD TYPE.

"Kitty." A Lancashire Temperance Story, by the
Author of ' Little Nell." 24 Slides.
"Shadowed by Sin." A Temperance Story, by Grace
Pettman. 24 Slides.
"Nell." A Story of a London Waif, by Florence M.
Gower. 24 Slides.
24 Slides.
"Charlie Coulson, the Drummer Boy," by Dr. M.
L. Rossvally (late Surgeon in the United States
Army). This story is founded on fact. 12 Slides.
"True as Steel." The Story of Two Orphan Boys, by
Fanny Eden.
"The Californian Nugget." A Story of the Far,
Far West. 24 Slides.

ALL HAVE SPECIALLY PREPARED LECTURES. 6d. EACH.
The Six Stories named below from Life Models, illustrating "Horner’s Penny Stories for the People," were produced late last season, and should form a valuable addition for the coming season’s work.


"Father come home!" A Temperance Story, by Fanny Eden. 24 Slides.


"Left Alone, or the Orphans of Pinewood Cottage." By Fannie Eden. 24 Slides.

ALL HAVE SPECIALLY PREPARED LECTURES, PRINTED IN GOOD BOLD TYPE. PRICE 6d. EACH.

The following stories, illustrated by Life Models, have been produced by the kind permission of the Church of England Temperance Society:—

"Farmer Brown’s Awakening, or So as by Fire." A Temperance Service of Song, by Frances Evans. A Story of Farm Life. Reading 4d. 18 Slides.


"The Christmas Goose Club at the ‘White Hart.’" A Temperance Story, by Edith M. Dauglish. 16 Slides.

Other Sets in Course of Preparation will be announced later.

Several sets of first-class COMIC SLIDES are being prepared. Lists of information will be issued when ready.

COMIC AND OTHER GROUPS FROM LIFE.

Each slide is complete in itself. This series is now published for the first time as Lantern Slides. They are printed from the original negatives, several of the subjects are well known, and have a world-wide reputation, and a very large sale is anticipated.

Sold Coloured only. The following are a few of the subjects:—

When shall we three meet again?
Impudent Barney O’Hear.
Little Bo Peep.
The Stage Struck Barber.
I’m going to be Married.
Caudle Lectures.
May and December.
After a Storm.
What is there for Dinner to Day, Mary?
Last in Bed to put out the Light.
Kiss me First. then.
Roses without Thorns.
Love laughs at Locksmiths.
Mary Jane’s Young Man.
Cold Mutton Again.
Her Brother.
Santa Claus. By Appointment, 1st April. And about 80 other Subjects.

NEW SETS FROM NATURE.

Tour Through Italy. 60 Slides. Reading 6d.
Sunny Spain. 50 Slides. Reading 6d.

Modern Rome. 50 Slides. Reading 6d.
Sweden and Denmark. 50 Slides. Reading 6d.

All other Sets of Slides from the General Trade List Supplied.

All the New Life Model Sets, &c., are PRODUCED BY AN IMPROVED PROCESS, which renders them Soft and Transparent.

ON SALE OR HIRE OF YOUR OPTICIAN OR DEALER.

FULL LISTS OF OTHER NEW SETS WILL BE PUBLISHED SHORTLY.

RAY’S INN ROAD, LONDON, W.C.

ESTABLISHED TWENTY-TWO YEARS.
Answers to Correspondents

"Stereo, Manchester."

(Telegraphic Address)

All communications relating to this column should be addressed to—
2, St. Mary's Street, Manchester.

E. Colin.—The Manchester Oxygen Company have appointed a new manager, and we hope things will go on better now.

Condenser.—1. No fixed combination condenser, double or triple, is suitable for long and short focus objectives. 2. Chadwick's triple condenser is the subject of a patent, and we have seen the superiority of it demonstrated on several occasions, viz., in London, Glasgow, Liverpool, and Manchester. It gives 50% more light than double condensers, or saves practically 50% of gas, with equal illumination given by double condensers.

F. Sutcliffe.—Certainly, Mr. Chadwick was the first to introduce the bellows front to the single lantern—in fact Mr. Chadwick has revolutionized the modern magic lantern, and his instruments are of the highest class, though he has many imitators.

Changing Slide.—There can be no doubt Chadwick's Eclipse Carrier is the most effective and simplest of all previous efforts. We believe the price is 5s.

Lecturer.—The reason Popular Science sets are not kept in stock by most dealers is that they are not so profitable as such slides as 'Midnight Adventures with a Flea,' but Mr. Chadwick, of Manchester is personally very fond of scientific slides, and keeps a large stock of these for sale or hire. Send for his catalogue.

T. Brown.—Some automatic regulators are better than others, the most practical and reliable regulator for a single lantern is the properly made screw regulator supplied by Chadwick.

Schoolmaster.—In the selection of a lantern we cannot do better than advise you to send to Mr. Chadwick for his catalogue, and note carefully pages 1 to 3.

J. Burton.—The charge for hire of slides varies. We note that Chadwick's price is 2s. 6d. per lecture set from 50 to 80 slides, but send for his catalogue.

J. Wild.—You need not be afraid of lime-light; but if your wife won't have cylinders about the house, try oil light with a translucent screw, as supplied by Chadwick, with portable stand and waterproof case, for 10s. 6d. We have seen 100 people entertained by this arrangement.

Amateur.—There are many firms who make lantern slides from amateur's negatives and book illustrations; but the best work in this line we have ever seen, is done by Chadwick, of Manchester. He keeps a lantern always "on tap," and tries the slides on the screen before delivery.
tragedy was again performed, when I heard my
friend rapidly running along, and soon quite out
of breath, scrambling over the fence into the
road. His blank look of amazement at seeing me
standing quietly by the camera and no one
else about, was amusing.

"Where are they—what's up?" he ejacu-
lated as soon as he had recovered his breath,
telling me he quite thought he had heard some-
body murdered, if sounds did not deceive him,
for he heard precisely the same in every
particular as I had on the two previous occa-
sions; but what was curious I heard no sounds
whatever, as I stood photographing on the road.
I then told him all that had occurred, and why
I so particularly wished his companionship to
corroborate or refute my impressions. He
promised to make an exhaustive enquiry in the
neighbourhood, and let me know the results; in
the meantime I was to develop my negatives,
which we both hoped would record something
abnormal. Not being prepared on my trip to
do more than make exposures, the develop-
ment being done on my return home, it took some
few days to get the necessary appliances and
chemicals to work with in that out-of-the-way
spot, the doctor's supplies being of doubtful
quality, and not wishing to risk spoiling the plates,
I deemed it better to wait for reliable materials.

We went to the place several times after
that, before the development was proceeded
with, but heard no more. The result of our
enquiries also failed to supply any information
until happening to question an old ex-police
officer which came to his surgery for advice,
ascertained that about fifty years ago a
young farmer who had won a large prize in a
lottery, was watched after drawing his money
from the bank, murdered and robbed on his
way home somewhere between the White
Horse Inn and the toll bar on the Henchly
Upper Road; but the murderers were never
discovered, as far as he knew. It was a lonely
road, nobody was suspected. The idea enter-
tained was, that someone from a distance,
knowing about the business, had watched and
waited his opportunity and quietly followed
and stabbed him to the heart, emptied his
pockets and decamped. Anyway, the money,
about two thousand pounds in Bank of England
notes, was never heard of, and gradually the
affair passed out of mind. One thing was
certain, the notes had never been presented up
to the present time or he would have been sure
to have heard of it, as he had the business in
hand with a couple of men sent up from head-
quarters, but not the slightest clue had ever
turned up.

It happened to be winter, everything
was against discovery; the roads were hard
as nails, and a heavy snowfall had blocked
the road for a week or more, the lower road
being used by preference, and it was not until
the snow melted that the body was discovered;
by that time the perpetrators had got clean
away. Nothing was missing as far as could be
ascertained but the money and the pocket-
book in which we ascertained the drawer
carefully stowed it away. Why the notes
had never turned up puzzled him; he did not
suppose it ever would be found out now. This
information seemed to have considerable bear-
ing on the matter, and in my own mind I felt
certain the mysterious sounds were ghostly
repetitions of a real occurrence; so was my
friend, who was as anxious as myself to see if the
negatives would disclose anything. He offered
me the use of his dark room, and every precau-
tion was taken to avoid any failure, from a
photographic point of view. I first developed
the frost scenes taken from that spot, and they
turned out excellent pictures, and as the plates
were all out of one parcel, there was no reason
why the others should not be all right. The first
exposure was developed with the utmost care,
but looked foggy and queer. "No good," we
both exclaimed, as we intently watched the
process; much over exposed, or the light has
got to it somehow. I concluded anyway that
it was no good, but put it in the hypo and tried
the next; this was the same, and so were all
the rest, hopelessly fogged, much to our chagrin
and disappointment, although what we expected
we hardly knew.

What we did not expect was utter failure,
for not even the landscape showed up; so one after the other were slipped into the
hypo dish, whilst we took a turn outside to
smoke a cigar and chat over our failures. My
friend was called into the house for something
or other, and had left me but a few minutes
when I heard my name called with considerable
gusto from our dark room. I at once answered
his call, and found him intently examining one
of the plates. Sure enough they were not
failures, after all; each plate showed one or
another phase of the occurrence, as we supposed
we had heard it, beautifully distinct and
absolutely sharp, but rather thin. Here, one
was a single figure of a young man twirling a
stick in his hand, with three figures in the dis-
tance—one showing the very act of murder, the
face of the murderer perfectly made out, as were
the faces of all in one or other of the negatives.
Another showed the abstraction of a large
pocket book curiously ornamented. Another,
the retreating figures, with the murdered man lying on the ground. A peculiarity in all these plates was a kind of veil that I had never noticed on my negatives before, at any rate, with that make of plate, and which had deceived me during the developments. Anyway, here were some extraordinary results beyond anything I had before experienced, and such that might possibly lead to the elucidation of a mystery. Who could tell?

The next step was to make good lantern slides from them, and also transparencies for reproduction in case of accidents. It so happened that a bazaar and lantern entertainment were to take place shortly at the adjoining town that was sure to be patronised by most of the leading inhabitants. The affair was to be continued for three days, concluding with the lantern show. The doctor being well known, there was no difficulty in getting my slides put on the screen with the rest, without giving any explanation about them, at least beforehand, as we had agreed not to mention this matter to anyone, until this show had taken place; as several local amateurs, having contributed slides, were anxious to get them shown, ours were reserved till towards the close of the entertainment; as it happened it was very lucky they were. Those to whom the slides belonged were expected to describe them, or get someone to do it for them. Ours came on, and the sensation they caused will not readily be forgotten. The doctor explained "they were genuine ghost pictures of an occurrence that had taken place years ago in that very neighbourhood. The older residents might remember a murder that was never found out somewhere about fifty years since." He had explained so far when there was a commotion in the hall, the lights were turned up, and the exhibition brought to an abrupt end; carriages were called, and the greatest excitement prevailed. The Mayor of the place was carried out in an insensible condition from which he never recovered. He was the actual murderer. After his death his executors found the identical pocket book with the notes intact in a carefully secured packet. The book was faithfully represented in the photographs. The portraits of the other two men were recognised, but both had been dead some years. It is needless to say the stir this discovery locally made; the affair was hushed up, although the faces had been recognised by several persons present. The money was paid to the brother of the murdered man, with interest, with a hint the less said about it the better, as the tragedy had taken place so long ago, and the reputation of some living might be injured by publicity.

The brother was a highly respectable farmer in the locality, and, I am proud to say, one of my best friends, proving that not only is truth stranger than fiction, but that the very air we breathe is peopled with invisible records of those who have passed away and occasionally permitted in some mysterious fashion to influence the lives of those who have not yet shaken off the mortal coil.

The Decline of Lantern Lectures.

By Walter D. Welford.

It is beyond question that lantern lectures are gradually declining in public interest. First, however, let me distinguish between a lantern lecture and a lecture illustrated by lantern slides, for there is a much greater difference than some may imagine at the first glance. A lantern lecture is the display of a series of slides, described or identified as each subject appears. The other is a lecture with some slides to more clearly illustrate certain points of it.

Much has been written of late upon the question, and indeed I hardly know whether these notes will convey any new ideas. Mr. Perkins in a recent issue goes very much to the root of the matter in a general way, and with his conclusions we must pretty well all agree. But there are still other considerations which he has not touched upon, or at least, he dismissed them in a few words.

At the doors of the ordinary photographic society or club, much of the decline of public interest may safely be placed. In the old days lectures were thoroughly prepared and delivered by able men, with experienced operators at the lantern. In those days the interest was quite as much in the lecture and lecturer as in the projections upon the sheet. So much care, too, was taken to make the whole entertainment work smoothly, that things were rehearsed beforehand. With the introduction of dry plates, the enormous increase of amateurs, and the facility with which slides could be made soon brought about an abrupt change. From one or two good, we jumped to fifty fair and indifferent to bad shows. Let us then study these latter.

First the jumbled up collection of a society; good enough lantern but badly worked; humour imported into the proceedings by slides wrong way round, upside down, or in the wrong order;
Cyclopedia of Photo-Brasswork
SECOND EDITION
500 ILLUSTRATIONS
Post 4½d. Free.

HUGHES' MARVELLOUS PAMPHENOS. —
Finest oil-lighted lantern, equals limelight, stood the test against all imitations. Over 3,000 sold; supplied to the Government, School Boards, &c., &c., high-class lenses, unequalled. £2 10s. each. Lamps £1 15s. each.

HUGHES' BISHOU ENLARGING LANTERNS.—
Finest results with Hughes's patent rectangular condensers, used by Van der Weyde and other eminent photographers, half the size, superior definition, proper diffusion of light, scientifically constructed, not commercial. Particulars free.

MAGIC LANTERNS.—Cheapest and best. The Universal Lantern, 4-in. double condensers, portrait lenses, rack and pinion four-wick lamp. £1 5s. 6d.
The DCWRA TRIPLE, Prize medal, highest award. Supplied to Dr. H. Guinness, Madame Adelina Patti, and the Royal Polytechnic, &c.

MINIATURE MALDEN TRIPLE.—A perfect Bijou model, ventilation perfect; will carry the largest lenses, scientifically constructed. Supplied to B. J. Malden, Esq.: unparalleled results. Particulars free.

SPECIAL TRIPLE.—Mahogany, body lined, entire solid brass fronts £2 12s. unequalled. "THE ART OF PROJECTION." By an expert. Over 100 choice illustrations, priceless, from oil, limelight, enlarging to electric lanterns. £2 10s. Each.

ELEGANT MAHOGANY BUNIAL.—brass fronts, £1 5s. 6d.; bow-throgh safety jets; 6s. 6d.; mixed gas jet, 12s. 6d.; with lime Turners; Maldon double dissolving tap, 15s. 6d.; marvellous effects.

HIRE DEPARTMENT.—50 Slides. all beautifully coloured, not rubbish, on loan for 3s. in special despatch boxes.

HUGHES' PATENT METALLIC BINDINGS.—
Most perfect. No more unbound slides, 18s. per gross. Trade supplied. Paper ditto, 16d. per 100.


Hughes' Special Portable Patent Brass-grooved Metal Boxes. Great strength and portability, to hold 50, 4s. 6d.

HUGHES' AIGUISCOPIC LANTERN OBJECTIVE giving magnificent definition, special and high-class solid fronts, double milled heads, slot for coloured glasses Price £1 7s. 6d. incomparable at the price.

HUGHES' EXTRA SUPERIOR LANTERN OBJECTIVES, double combination, in sets, giving finest results, price of rackwork front, double milled heads, £1 15s. 6d., in cylindrical tubes to slide in 4, 6 and 8 inch foci, 15s. each.

HUGHES' PATENT REGISTERING CARRIERS mechanical, self-centring, bevelled edges, every picture dead centre; compensating platform, simple, perfect, effective, £1 7s. 6d. each.

HUGHES' Patent Automatic Incandescent Limelight Shutters, worked from dissolving tap. Price £1 7s. 6d.

HUGHES' Anti-Incandescent Glare-preventing Shield. 5s. 6d. each.

Mr. Hughes' Grandly Illustrated Catalogue, over 160 original wood engravings, not made up with commercial blocks from wholesale houses, price 6d., postage 3d. Pamphlets free. List of 60,000 Slides free, 6d.
TO LANTERNISTS.

Those requiring the most Practical Apparatus at a reasonable price, should send for our New Illustrated Catalogue of Apparatus and Slides, upwards of 350 pages, containing "Practical Instructions to Practical Lanternists by Practical Men," by Messrs. D. W. NOAKES and C. W. LOCKE. Post free 12 stamps,—Apparatus only, 6 stamps. Containing particulars and illustrations of all our recent and Patented Lantern Novelties.

Every improvement in our Apparatus suggested by long personal experience, Mr. D. W. Noakes and Mr. C. W. Locke, two principals of the firm, having personally operated at 5,000 Exhibitions.

To LECTURERS and INSTITUTIONS.

FOR SALE. A BARGAIN.—A duplicate of the High-Class Triple used by us at the Royal Albert Hall, complete with our Patent Triple Dissolver, "Patent Compound Chamber Jets," "Patent Self-Centreing Jet Clamps," Instantaneous Grip Elevator, and other practical improvements, giving the highest possible screen results attainable by the most costly Instruments. Price £50. For full particulars apply to:

D. NOAKES & SON,
South London Optical Works, Greenwich, London, S.E.

ANOTHER NOVELTY.

NOAKES’ New Combined TRAVELLING CASES & STANDS for CYLINDERS.

10 ft., 5½; 12 ft., 6½; 15 ft., 7½; 20 ft., 8½, and 30 ft., 9½.
humour of the audience as distinguished from the lecturer, such as he may be; no sort of order or arrangement, either as to quality or subject; each member shows just what he chooses. Thus Mr. Smith’s exhibits consist of the following:

Mr. Smith’s House, Front View
Mr. Smith’s House from the Garden
Entrance to Mr. Smith’s House
Lane near Mr. Smith’s House
Mr. Smith up a tree
The Young Smiths.

The front view of the house is fearfully drunk, owing to the tilting of the camera, and the view from the garden only takes in the kitchen window of the house. Mr. Smith up a tree looks as though he is surprised at being there, and wondering how in thunder he’s going to get down. The young Smiths is so dense a slide, that whether the children are boys or girls is left for individual opinion. After this, comes “some pictures taken in Norway,” by Mr. Jones; then a mixed collection by Mr. Brown, ranging from some awful attempts at home portraiture to one or two sunset effects. Mr. Robinson contributes a few badly stained landscapes, and this is followed by micro-photos which can be put in the lantern any way up. The lecturer—no, let’s have a little mercy—the describer of the slides reads out the titles from a written list, being corrected now and then when a slide appears out of order by the member himself, who is of course present with lady friends. And this is termed a lantern display.

Then there is the personal narrations of foreign travel. This is usually a big event for the member himself, and occasionally the society make big efforts also to make the evening a success. The ordinary meeting room is not large enough, and so a special hall or place is secured for the event. Every lady and gentleman friend the member can induce to come by free distribution of tickets will be present of course, and a good sprinkling of other members and their friends. The member, resplendent in evening dress, is on the spot early of course, to see that the lantern is all right, and to instruct the operator. He may know nothing of lantern work, but yet at his own lecture he worries and fidgets about the light, the screen, and other matters.

With profusion of compliment he is introduced by the chairman, and commences with some remarks about his work not perhaps being equal to that of professional slide makers, but, &c., &c. The lecture itself gives but little idea of the country or its life and character, but consists of explanations of his own connection with the view on the sheet. This road is the one he walked with his apparatus four miles, the waterfall was a very difficult subject to take owing to, &c. We see views in which he, his friend, or his wife, are in nine cases out of ten to be found in a prominent position. The whole lecture is an account of himself and his doings, not of the country or inhabitants. Possibly, too, it is his first visit abroad, and the audience is bored by references to things that are “different over there.” They do not speak the same language, their hours for meals are different, their customs funny, &c. He has to apologise for the weakness or density of the slides, as he has had but very little time to get them done, and moreover he “is only an amateur, you know.” In acknowledging the vote of thanks, he is profuse in his self-abasement, and hopes at some future time to again have the pleasure, &c. The audience hope not.

The profuse circulation of prize slides by our periodicals has also had an ill effect; at least it is so when the exhibition of them is made an open night, the attendance of friends and the general public being solicited. To start with, the collection must be a very mixed lot, owing to the numerous classes into which the competition is divided. The descriptions are scrappy in the majority of cases consisting of the title only, and even when any information is given, it is usually of interest to photographers solely. The slides are numerous and are rushed through, the lecturer or describer reads at random, and lastly the public cannot understand the placing by the judges. When we ourselves oftimes are puzzled by judging eccentricities, how can we wonder at the general non-photographic public finding fault. Moreover, the friends and relations of members that attend are apt to be attracted by humorous subjects, catchy bits, home-life shots, a pretty face, or a pretty child, and cloud studies.

This deliberate invitation to criticism is decidedly a bad point. The audience is told that this set won the silver medal as the best; that, the bronze medal as second best, and so on. If the views of each particular member of the audience differs from that of the judges, the effect of the display is thereby marred. For this reason also the exhibition of prize slides and “selections” at photographic exhibitions has also done harm.

Another point I should like to mention that has spoilt many displays, and for that reason has exerted a deleterious effect. It is the impertinence of society members showing some of their own slides after a lecture. If the latter was a good one, carefully prepared and interestingly de-
livered, with good slides, the effect is rendered
grotesque by the after display of a few mediocre
amateur slides of a member's back garden, with
a few figures stuck about like plaster figures,
worthing what in thunder they are doing.
To sum up I should put part of the decline
down to what might be termed "scrappiness." Slides mixed in quality and subject, some de-
ccribed, others not, and lecturers (sic) fair to
downright bad—mostly bad.
There is the cause, and the remedy is simple;
nevertheless the decline cannot now be stayed
by any remedy whatever.

---:

Summer Work.—II.

By T. Perkins.

The best plates are those that have thick
films, as they suffer less from halation than
those that are thinner, and it is well, especially
when working in dimly-lighted interiors, to back
the plates with some of the preparations sold for
the purpose, applied with a brush or roller. I
have not found any great advantage from the
use of backing papers stuck on to the plates,
and, of course, nothing simply placed behind
the plates, and not in optical contact with
them, is of the slightest use. Celluloid films
have some advantages, but, on the whole, I
prefer glass, especially when lantern slides are
to be made by reduction, as it is difficult to get
the films to lie absolutely flat in the reducing
camera, and any want of perfect flatness results
in loss of sharpness and possible distortion.
For a developer I do not know of any better
than pyrogallol and ammonia, especially for
interior work.
The exteriors of all churches and cathedrals
may generally be photographed without any
special permission, though sometimes the key
of the gate must be obtained before the photo-
graher can enter the church-yard. Before
attempting to photograph the interior of a
cathedral an order to do so must be obtained
of the dean. Churches are now, happily,
generally left unlocked in the day time, and
the interiors can often be photographed with-
out any hindrance, but if there is any doubt
as to whether photography will be allowed or not,
it is best to ask permission at the rectory or
vicarage, as the case may be, and it will
generally be freely granted.
The beauty of an exterior is greatly en-
hanced by good lighting; moderately bright
sunlight falling from one side, which will
bring out the details of the carving, and yet
not so bright as to overdo the high lights,
while the shadows are still black, is the best.
Pictures of well-chosen parts are generally
more interesting than general views of the
whole, and when the latter are taken it is
desirable that such a position for the camera
should be chosen as will give the most graceful
balance of parts; it is not well to go too close
to the building for instance that the east end gable
appears higher in the picture than the western
tower, or to take the church with the south
wall exactly at right angles to the direction in
which the lens is pointed. If these few hints
are attended to, and the photographer possesses
the requisite amount of architectural knowledge
to enable him to photograph what is really
worth doing, he will find no difficulty in exterior
work. When focussing, however, he must
remember that since his ultimate aim is a lan-
tern slide, he must get his negatives very sharp.
This, however, does not necessarily mean that
the smallest stop must be used; when once by
stopping down sharpness is arrived at, there is
no need to carry the process further.
When, however, we enter the building we
shall find our difficulties greatly increased; at
times the light may be so weak that we can
hardly see the picture on the focussing screen,
much less focus it sharply. A lighted candle
held by an assistant may sometimes help us out
of the difficulty. Then at times we may find
considerable difficulty in placing our camera
exactly where we wish, owing to the obstacles
that interfere with one or more of the tripod
legs. Sliding legs are very useful in overcom-
ing these; but the most common difficulty is
the presence of windows; if one of these is of
white glass, and it comes into the picture,
especially when the rest of the interior is dark,
it is almost hopeless to attempt to take the
photograph, for even if by means of backing and
other precautions halation is avoided, the
window is apt to be so much over-exposed that
reversal takes place. Something, however, may
be done by choosing a time of day and condition
of the weather that weakens the light coming
in through the objectionable window, or possibly
we may manage by a judicious selection of our
position to hide it by a pillar. It may be well
to say that absolute verticality of the focussing
screen is necessary, and this can only be deter-
mmed by a spirit-level or plumb-line, and can-
not be judged by the apparent uprightness of
pillars, for these in old buildings are often thrust
out of the vertical by the weight of roof or
tower. When, however, the picture is duly
focussed on the screen it is no easy matter
to settle what the exposure should be. A
The Optical Magic Lantern Journal and Photographic Enlarger.

YORK'S
Optical Lanterns & Slides
FOR EDUCATIONAL PURPOSES,
Embracing every branch of Science, as well as INTERESTING and MORAL TALES.
Many of the latter are Illustrated from Life.


THIRTEEN MEDALS AWARDED FOR EXCELLENCE.

Lists for ensuing Season now ready, and may be had from all the leading Opticians, Photo-Dealers and Chemists.
Wholesale Prices on Application.


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 2½d. FOR A
Ready Reference Table
(On Cardboard) By J. H. TAYLOR.
FASTEN IT ON THE LID OF LANTERN BOX.

TAYLOR BROS., 56, Chancery Lane, London, W.C.
The Optical Magic Lantern Journal and Photographic Enlarger.

ASK YOUR OPTICIAN FOR
DUPLEX REGULATOR
PERFECT FOR DISSOLVING.

30s. OXYGEN
Speciality from CHLORATE OF POTASH.
Patentee of the Bourdon Safety Gauge.

30s. CYLINDERS
ALL SIZES IN STOCK.
Valves and Fittings.
Patentee of the Bourdon Safety Gauge.

CYLINDERS FILLED WHILE CUSTOMER WAITS.
Manufacturer—A. CLARKSON,
28, BARTLETT'S BUILDINGS, HOLBORN CIRCUS, LONDON.

In reply to numerous enquiries the

Timberlake Saturator

Will fit any Lantern, and is now ready,
This Saturator, the result of 25 years' experiments, is acknowledged to be the best by all who have tried it. Will be
SENT ON APPROVAL for one week on receipt of Remittance.
Light from 1 to 500 candle power at will of User.

Thomas Timberlake, Queen Street Cycle Works, Maidenhead.


THE BOOK OF THE LANTERN.
By T. C. HEPWORTH, F.C.S.
Practical Guide to the Working of the Optical (or Magic) Lantern—either as an Educational Instrument, for Exhibition Purposes, or as an Enlarging Apparatus for Photographers.
With Full and Precise Directions for Making and Colouring Lantern Pictures.

London:
Hazell, Watson & Viney, Ltd. 1, Creed Lane, E.C.
slight green or yellow tint in the glass of the windows, scarcely perceptible to the eye, may make a vast difference in the actinic power of the light.

(To be continued.)

---

**Patent Intelligence.**

The following list, relating to current Patent Applications, is compiled expressly for "The Optical Magic Lantern Journal" by a registered Patent Agent. For further information apply to S. Dicker, c/o "The Optical Magic Lantern Journal," 56, Chancery Lane, London, W.C.

No. **RECENT PATENT APPLICATIONS.**


---

**Editorial Table.**

"Knowledge Through the Eye" is the title of a fifty-page book brought out by Messrs. Phillips & Co. of Fleet-street, E.C. It describes the various uses that the lantern can be put to in connection with class teaching. From its perusal one will be enabled to gain much useful information. The price is is.

**CATALOGUE OF SUN CAMERA CO., LEEDS.** — Unlike some catalogues this one contains information as to how to make some of the goods that are advertised therein. Articles descriptive of how to make a camera, lantern, tripod and hand-camera are given; chapters are also devoted to lacquering, finishing brass, &c. A large portion is devoted to materials and workshop fittings, the sketches and prices being given, for the most part, on alternate pages. Almost anything one may select in the brass fitting line will be found illustrated. The catalogue may be obtained post free from this firm, whose offices have lately been removed to Claypit-lane, Leeds.

**THE INSTITUTE AND LECTURERS' GAZETTE** for July contains a concise account of the various professional lectures given throughout the country during the previous months, together with a goodly list of advertisers who are open to accept engagements. The handbook containing list of lecturers belonging to the Lecturers' Institution (High-street, Newport Pagnell) is also to hand. It contains a full list of the members, and sets forth the particular features in which each excels.

**BESSUS PLATE HOLDER.** — This inexpensive yet effective plate holder has been introduced by Messrs. Airs & Co., 142, Parragon-road, E.C. It can be used for holding the plate during manipulation of developing, &c., the plate being securely held without fear of scratching its surface. The prices are from 4d. each.

**PHOTOGRAPHY ANNUAL.** (1894) London, Iliffe & Son, 2s. 6d. — This Annual is to hand, in point of size, it contains many more pages than that for last year, whilst as regards the contents the articles and general information are of interest, and well up-to-date. Several high-class illustrations are dispersed throughout the 1,500 pages.

**CATALOGUES.** G. W. Wilson & Co., (Ltd.), Aberdeen. — Many new sets of Slides, are to be found in the new catalogue of this firm, including travel, manufacturing, illustrations of Burns poems, portraits, characters and types, sports of various kinds, a new comic set "North again, golfing this time," will be sure to make a hit this season. A London depot has lately been opened by this firm at 8, Catherine-street, Strand, W.C.

---

**Correspondence.**

Re **WEEKS' PATENT METHOD OF MAKING SLIDES.**

To the Editor.

**DEAR SIR,—** In last issue a somewhat sarcastic letter appeared by Mr. Hinkins, who describes himself as a slide designer and maker. He asks for details of my special patent process. If he is a man of business, he ought to know that now-a-days people are apt to keep certain information to themselves as long as they can. I happen to be one of that class, and unless he likes to wait until the patent specification is published, no amount of letter-writing on his part will persuade me to give him information, or go further into the subject.

In reply to the latter portion of the letter, Mr. Hinkins may perhaps be unaware that those who draw up patent applications do not usually give the title in such a manner as will enable a reader to fathom the whole affair; and as for his offer for he and I to meet at your office and compare the relative merits of slides, I fail to see why I should put myself to this trouble to satisfy him.

I know some firms who spend large amounts yearly upon their productions in a certain line, of which our patented methods absolutely and entirely does without. If the result to be gained by my method had been available before I sprang the idea, such firms would have avoided this expense all along, and would now if they could. We can, that is good enough for us, we are satisfied. I have been known "professionally" by every first-class firm in the trade since 1875, during which time I have made, professionally, nearly 7,000 slide designs, and so, with such experience, am not quite the novice Mr. H. seems to imagine me to be. Business, however, is business, and should he want information on the subject with which our patent deals, we have no objection to give him any information he may require, but it will entail on his part an expenditure of a large sum of money; so perhaps he will in the meantime find it better to mind his own business, and not try the old dodge of getting himself advertised on the cheap.

Thanking you in anticipation of your insertion of this letter in your columns. — I am, your truly,

FRANK F. WEEKS.
A STRANGE EXPLOSION.

To the Editor.

Sir,—A short time ago I mixed up some chlorate of potash and manganese, and in the course of an experiment placed a small quantity in a saucer with a few drops of sulphuric acid. By accident some water fell on the mixture, when a smart explosion, like a pistol shot occurred, and the contents of the saucer were scattered in all directions. Can any reader tell me the cause and what combination was brought about.

Yours truly,
FRIGHTENED.

THE LANTERN SOCIETY.
[How to Make it Popular.]

To the Editor.

Sir,—When the Lantern Society was first started it was stated at the inaugural meeting that one of its objects would be, that facilities would be given to its members to learn, or perfect themselves in the practical manipulation of the lantern itself, and appliances pertaining to such. Now, I ask, has this been carried out in any one way? True, the lantern has been used to describe, for the most part, pleasure tours made by its members and others; but have the members had any opportunity of preserving at the lantern and had their faults or omissions criticised "in a friendly way," as put forth as an inducement for members to join. With the way that the pictures have been shown there has been no fault to find, for if I mistake not, the instrument has been handled by the Secretary, a lanternist of experience and surely not in want of practice.

During the coming season I would suggest that members be afforded an opportunity in turn to rig-up and work the lantern, and that such a fault be made, that it will be pointed out by some member competent of doing so.

It is some considerable time since I ceased membership, as I rightly or wrongly came to the conclusion that unless one was a member of Parliament, the civil service, or held some such high position, they were not worthy of a voice in any management. True, I enjoyed two good evenings there, viz., when you, Mr. Editor, had the control of the evenings, and gave (3) practical demonstrations of the working of a triple lantern (2) saturators; and it was owing to the general invitation which you extended to readers to apply to you for tickets.

Cannot a series of good practical discussions, &c. be started. These I am sure, would be of much greater interest than the penny-reading style of thing that has occupied nine out of ten of the evenings. Should such a change be brought about, I, and I speak for others too, will have pleasure of rejoining the society.

Yours truly,
AN EX-MEMBER.

Re "C.'s" ENQUIRY ABOUT WEIGHTS FOR GAS BAGS.

To the Editor.

Sir,—I used to carry two canvas bags costing 1/-, measuring 15 x 20 inches, and fill them, more or less full according to weight required, at the place of exhibition with sand or gravel, previously requesting for sand or gravel to be ready. The empty bags take little room, not likely to leak, lay well on pressure boards in any position, and are easily obtained.

I am, sir, yours faithfully,
KNOWLEDGE IS POWER.
"Gwynne-Pilsen" Patent Lantern Lamp

**THE**

**"Gwynne-Pilsen" Patent Lantern Lamp**

**AUTOMATIC.**

**RELIABLE.**

**SAFE. STEADY.**

**AUTOMATIC AND HAND-FED LAMPS.**

**PATENT ELECTRIC PHOTO APPARATUS.**

The Various Plants on view at the Works, only address—

**Gwynne & Co.,**

Patentees, Engineers & Manufacturers,

BROOKE STREET WORKS, LONDON, E.C.

**SPECIAL.**

Optical Lanterns, with 4-in. Compound Condensers, and Three-Wick Lamps, 22/-; with Four-wick Lamps. 23/-: Hand-painted Slides from 4d.: Splendelly coloured 3½ x 3½ Slides in sets of 12, price 2/- per set; or four sets for 9/-.

**NO MORE FUMES.**

THE ONLY PRACTICAL LAMP FOR LANTERN WORK.

NO TROUBLE.

ANYONE CAN WORK IT.

BEAUTIFUL EFFECTS.

The Various Plants on view at the Works, only address—

**Gwynne & Co.,**

Patentees, Engineers & Manufacturers,

BROOKE STREET WORKS, LONDON, E.C.

**NOW READY.**

LIST OF ENTIRELY NEW LANTERN SLIDE SETS For Season 1894 & 1895.

SENT POST FREE ON DEMAND.

G. W. WILSON & Co., Limited,

2, St. Swithin Street, ABERDEEN.

**LANTERN PROJECTION LENSES,**

As used by the LANTERN SOCIETY.

Prices with Rack and Pinion £ a. d.

- 6 inch equivalent focus aperture nearly 1/5... 4 10 0
- 9 inch aperture fully 1/4... 5 10 0
- 5 inch and 9 inch lenses both fitting one rack jacket... 9 10 0

3% Discount for Cash with Order.

List of Photographic Lenses free.

ILLUSTRATED CATALOGUE OF TELESCOPES AND MICROSCOPES FOR STAMP.

**W. Wray,**

OPTICIAN,

NORTH HILL, HIGHGATE, LONDON, N.
A NEW LANTERN PLATE
Which gives WARM or COLD TONES at will.

LANTERN SLIDES made with these MAGNIFICENT PLATES cannot be excelled (if equalled) by any other Process.

PRICE WITH FULL INSTRUCTIONS, FORMULE, &c.,
PER 1/- DOZEN.

Try them and prove the truth of the above.

ELLIOIT & SON,
BARNET, HERTS.

The prices of the Back Numbers of the Optical Magic Lantern Journal are at present as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1...1</td>
<td>June 1889, 2/6</td>
<td>1...10</td>
<td>March 1890 1d.</td>
</tr>
<tr>
<td>1...2</td>
<td>July 1/</td>
<td>1...11</td>
<td>April 1d.</td>
</tr>
<tr>
<td>1...3</td>
<td>Aug. 1/</td>
<td>1...12</td>
<td>May 1d.</td>
</tr>
<tr>
<td>1...4</td>
<td>Sept. 1/</td>
<td>2...13</td>
<td>June 1d.</td>
</tr>
<tr>
<td>1...5</td>
<td>Oct. 1d.</td>
<td>2...14</td>
<td>July 1d.</td>
</tr>
<tr>
<td>1...6</td>
<td>Nov. 1d.</td>
<td>2...15</td>
<td>Aug. 1d.</td>
</tr>
<tr>
<td>1...7</td>
<td>Dec. 1d.</td>
<td>2...16</td>
<td>Sept. 1d.</td>
</tr>
<tr>
<td>1...8</td>
<td>Jan. 1890, 1d.</td>
<td>2...17</td>
<td>Oct. 1d.</td>
</tr>
<tr>
<td>1...9</td>
<td>Feb. 1d.</td>
<td>2...18</td>
<td>Nov. 1d.</td>
</tr>
</tbody>
</table>

No. 37 & up to Date 1d. each.

BUY ONLY
THE BEST
STEEL CYLINDERS
For Compressed Gases.

Price Lists and Trade Terms on application.
The OLDEST FIRM of Manufacturers in the Trade.

LEA & SON,
STEEL CYLINDER MANUFACTURERS,
RUNCORN.

OPTICAL LANTERNS & SLIDES
Of the Highest Quality only.
NEWTON & CO.,
Scientific Instrument Makers to Her Majesty the Queen, B.R.H.
The Prince of Wales, The Admiralty, The War Department, The
Indian and Foreign Governments.

By Special Appointment
To the Royal Institution of Great Britain, and the Science and Art
Department, &c.

SOLD MAKERS OF
The Patent "Newtonian" Lamps.
Wright's Lantern Microscopes.
Wright's Oxygen Hydrogen Jets with "Pringle" cut-off.
The "Miniature" Lanterns, The "Scientist's" Bi-unial.
The Triple Rotating Electric Lantern, etc.
Illustrated Catalogue with Detailed List of Slides, 4d.

3, FLEET STREET, LONDON.

guide to the use of the Magic Lantern, the Lantern Microscope,
Nett 4s. 6d. Plain Photographic Slides, 12s. per dozen.