LUMIERE'S NEW RIGID VITROSE FILMS. All Cut Sizes in Stock. LUMIERE'S PLATES AND PAPERS, AND HAUFF'S DEVELOPERS.

.. THE OPTICAL ..

MAGIC LANTERN JOURNAL
And Photographic Enlarger.
A Magazine of Popular Science for the Lecture-Room and the Domestic Circle.
WITH WHICH IS INCORPORATED THE "LANTERN WORLD."

Vol. 10.—No. 121. JUNE, 1899. [Entered at Stationers' Hall.] Price 2d., Post Free 3d.

CINEMATOGRAPH S SERIES OF THREE FOC. SHORTEST GIVES LARGE IMAGE WHEN CLOSE TO SCREEN. CRISP DEFINITION. LENSES, EACH 28s.

"OPTIMUS" MAGIC LANTERNS SUITED FOR DRAWING ROOM AND LECTURE HALL.

Russian Iron Body, 63s.
Brass Stage and Focus Tubes.
STOCKS' LAMP to any of our Lanterns, 15s. extra.

PRICE LISTS POST FREE.

PERKEN, SON & RAYMENT, 99, HATTON GARDEN, HOLBORN VIADUCT, LONDON. "OPTIMUS."

USE LUMIERE'S CINEMATOGRAPH.
SOLE AGENTS:—FUERST BROS., 17. PHILPOT LANE, E.C.

WHOLESALE and RETAIL.

Apply to the Makers:
LANTERNs OF All KINDS.

A very Large Number (Second-hand) to be sold Wonderfully Cheap.

ALSO APPARATUS OF ALL KINDS.

PLEASE WRITE FOR LIST.

ARChEr & SONS, SPECIALISTS, 41 to 49, Lord Street, LIVERPOOL.

EStABLISHED 1848.

SPECIAL.

Optical Lanterns, with 4 inch Compound Condensers and Three-wick Lamps, 25s.; with Four-Wick Lamps, 24s. Hand-painted Slides from 4d.: Splendidly coloured 32 by 32 Slides in sets of 24, price 2s. 6d. per set; or four sets for 9s. 6d. Full-sized Changing Comic Slipping Slides, in mahogany frames, 7d. each or 6/6 per dozen. Lever Action Slides from 1s. 6d each. Rackwork Slides (including chromatropes), 2s. 6d. each. Best quality double motion Interchangeable Chromatropes, 4/6. Extra Discs from 6d. per pair. "Lightning" double-carrier Frames, from 3d. each. Slides for small Lanterns from 5d. per dozen. New Catalogue gratis and post free.

ROBERT H. CLARK, Wholesale Optician,
ROYSTON, HERTS.

C. W. LOCKE,
MAKER OF
High-class Optical Lanterns
AND ACCESSORIES.

Slides made and artistically coloured; best work only. Locke's Patent High-power J et, Lanterns, and Apparatus. Cinematograph and Lantern Entertainments; best and most perfect Apparatus only used. Cinematographs and Films.

Office and Works——
244, Tottenham Court Road, London, W.
MOTTO——"High Efficiency and No Misrepresentation."

WOOD'S "SPECIAL JET."

This Jet, which is constructed on the Ejector principle, has had its internal construction slightly modified by the addition of a coned head to the central or oxygen tube. The effect of this is to increase the brilliancy of the light given. It is the best Blow-through on the Market and absolutely safe.

PRICE.

With Bevel Wheel Adjustment and Lime Shield £1 11 6
With Double Cut-off Taps... ... ... 2 10 0

Send for Wood's Catalogue of Lanterns and Slides on Sale or Hire, post free, three stamps.

Spectacle and Photographic Price Lists Post Free.

E. G. WOOD, 1 & 2, Queen Street, Cheapside, LONDON.

PATENTS and TRADEMARKS.

W. P. THOMPSON & CO.,

Telegraphic Address: "DISCOVERY, LONDON" 322, HIGH HOLBORN, LONDON, W.C.

Also at 6, LORD ST., LIVERPOOL; 6, BANK ST., MANCHESTER: LOWER TEMPLE ST., BIRMINGHAM

Patents secured, maintained, defended and worked in all countries. Oppositions conducted, searches made, opinions on infringements given, and expert evidence arranged.

Trademarks, Designs and Copyrights secured and defended in all countries granting protection.

Handbook of Patent Law. Tenth Edition. British Portion, 6d  All countries, 2s. 6d
CONTENTS.

Notes .......................................................... 69
How to Connect up a Dissolver ................................ 71
Prominent Men in the Lantern World.—No. XVIII. Mr. R. J. Sambridge ........................................ 71
How Cinematograph Machines Work.—No. IX ........... 72
A New Light .................................................... 74
Lantern Slides and Slide Making .............................. 75
Some Hints on Summer Work .................................. 76
New Apparatus ................................................... 78
Patent Intelligence .............................................. 79
Notes and Queries .............................................. 80

NOTICES.

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

12 months, 3/- United States, 75 cents.

Exchange Column, General Wants, &c. (not Trade)—First 30 words, 6d.; and for every 3 additional words, 1d.

Small Advertisements must reach the office not later than the first post on the 24th of each month. All cheques and postal orders to be made payable to the Magic Lantern Journal Company, Limited.

Editorial communications must be addressed,

J. HAY TAYLOR, Advertisements and business communications to THE MAGIC LANTERN JOURNAL COMPANY, Limited, 9, Carthusian Street, London, E.C.

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

Oldham Photographic Society.—The members of the Oldham Photographic Society, many of whom are cyclists, have arranged a series of cycle runs for the summer, at which members may introduce ladies and friends. The first "run" is to take place on the 13th inst., at which it is expected there will be a large attendance.

Taylor, Taylor & Hobson's New List.—We have received a handsome list of lenses made by this firm; many illustrations of both the lenses and their capabilities are given, together with an interesting essay on the principles of a lens's action.

"Camera Obscura."—A new international photographic monthly magazine of this name is expected to make its entry this month. It will be published in Amsterdam by Binger Brothers, Warmoesstraat 174 and 175, and in London by Williams & Northgate, 14, Henrietta Street, W.C. We understand it is to be printed in four languages.
**Middlesex County Council.**—The Middlesex County Council have decided that no cinematographic entertainments can be given in premises licensed by them until they are perfectly satisfied that every precaution has been taken against accidents or danger. Six days’ clear notice must also be given to the clerk of any intended exhibition.

---

**The “Optical Lantern.”**—A new edition of the “Optical Lantern,” by Mr. Andrew Pringle, has been published by Hampton & Co., 13, Cursitor Street, London, W.C.; price 2s. 6d. It is thoroughly up-to-date.

---

**Golden Colour for Brass.**—For the production of a golden colour for brass articles a German authority prescribes the following method:—Dissolve 50 grammes of caustic soda and 40 grammes of milk-sugar in 1 litre of water and boil a quarter of an hour. The solution finally acquires a dark yellow colour. Now add to the mixture, which is removed from the fire, 40 grammes of concentrated cold blue vitriol solution. A red precipitate is obtained from blue vitriol, which falls to the bottom at 75 deg. C. Next, a wooden sieve, fitting in the vessel, is put into the liquid with the polished brass articles. Towards the end of the second minute the golden colour is usually dark enough. The sieve with the articles is taken out, and the latter are washed and dried in sawdust. If they remain in the copper solution they soon assume a green colour, which in a short time passes into yellow and bluish green and finally into the iridescent colours. These shades must be produced slowly at a temperature of 56 deg.—57 deg. C.

---

**A New Film.**—A material that is pliable, will neither stretch nor contract, is not acted upon by developers, will lie perfectly flat, and is fireproof, is promised shortly under the name of Flexoid.

---

**Development after Fixing.**—Messrs. Fuerst Brothers recommend the following as the latest formula for development with metol after fixing:—Take ½ oz. to 1 oz. of the following solution: Metol, 120 grains; sulphite of sodium, 2½ oz.; water, 20 oz. After an hour or two, according to the exposure given (the plates should be strongly over-exposed and all traces of hypo removed) the positive image appears full of detail, visible by reflected light, but scarcely perceptible by transparent light. At the end of two hours the image has grown sufficiently to be intensified with mercury.

---

**Have you any old Slides to give away?**—In the course of a letter received from Mr. F. J. Scrimgeour, Edinburgh University Union, he says:—"In conversation with Dr. Cousland, a medical missionary returned from China on furlough, he told me that the magic lantern is a great source of attraction and enjoyment to the natives, and that lantern services are in great demand. Unfortunately his stock of slides is small, and those he has have been shown over and over again, until they are now painfully familiar. These are of all sorts, Scotch and English scenery, groups, etc.—a scratch lot in fact! but they have pleased the ‘Celestials’ immensely. Now, I have promised to give him some of my oldest slides, slides which have served their purpose but are now lying useless, and I feel quite sure that there are some of your readers who might care to follow my example in this matter. They may perhaps have odd slides, possibly amateur in origin, lying away in dusty boxes, which they will never use again. These they might be glad to have utilised in such a commendable way. If any reader would simply drop a post card to me at the University Union, I should be only too glad to communicate with him and pay all expense of transit."

---

**New Companies for Gas Compressing and Lime Making.**—A company has recently been registered with a capital of £3,000 to take over the business of T. Evans, near Swansea, for the production and compression of gases. A company has also been registered with a capital of £9,000 in the name of the Nottingham Incandescent Lime Cylinder Syndicate, Limited, to take over a business which had been carried on at Egerton Street, Nottingham. Two of the directors are Messrs. F. Brown and C. W. Locke.

---

**"A Friend in Need is a Friend Indeed."**—Lantern or photographic workers in the vicinity of Detroit, Michigan, U.S.A., who may require advice, either as to the working or purchase of apparatus, can rely on getting it conscientiously from the veteran expert, Mr. Jex Bardwell, 93, Cass Street, Detroit, Michigan, U.S.A. Few persons know more on such subjects than Mr. Bardwell, and many who have called upon him in their photographic or lantern troubles consider that in him "a friend in need is a friend indeed." Of course, it is not to be expected that one can send several questions and expect detailed answers by return for nothing. The amount of "consideration," which is small in return for the information given, can be obtained on application.
How to connect up a Dissolver.

No. I.—Bi-unial.

To the newly-fledged lanternist the numerous pipes used at the back of the lantern for connecting up the dissolver in a bi-unial or triple lantern looks somewhat bewildering, and to him it would appear no small job to join them up were all the tubes removed. In reality, this is by no means a task of any great magnitude once the principle is understood.

In the bi-unial lantern two methods may be pursued, and either one six-way dissolving tap or two four-way taps may be employed. We will take the six-way tap first, and would refer the reader to Fig. I. The entrance to this tap is at the two middle tubes, that on the right being for oxygen and that on the left side for hydrogen, the outlet for these gases being at the same sides as the respective inlets. This will be readily understood by blowing through the tap. The lower jet $A$ is connected to those outlet tubes which run in direct line, i.e., top right and bottom left; whereas for the upper jet $B$ it is connected bottom right and top left. It is perhaps preferable that each lantern should be controlled by a separate dissolving tap, and for this purpose two four-way taps are employed. The two side stand-pipes are secured to the lantern and are made of metal, connection being made to these by means of rubber tubing, as shown in Fig. II. In the former illustration one movement of the lever serves to turn one jet up and the other down; whereas in the second case, in order to dissolve the one lever is turned on, and immediately afterwards the other is turned off.

Prominent Men in the Lantern World.

No. XVIII.—Mr. R. J. Sambridge.

In St. Andrew's Grand Hall, Glasgow, Mr. Sambridge had during the week of our visit shown pictures to close on 80,000 people. We found him where a true lanternist loves best to be—beside his apparatus all ready for action. There was nothing more to be done before lighting up. Each glass was scrupulously clean, each brass adjustment polished until it shone, and the magnificent "Docwra" triple stood about 120 feet distant from the screen.

To the request for some information regarding his early lantern days, Mr. Sambridge smiled, and much to our surprise, said that he had never been a beginner in the usual sense of the term! He did not start with a "single and blow-through," and gradually climb up the ladder of experience to his present complicated lantern. "I knew little or nothing of lanternism," said Mr. Sambridge, "but I was well acquainted with mechanics, when Dr. Harry Guinness put me in charge of his fine new three-decker. That was about 10 years ago."

Since then the operator and his principal have travelled all over England, and also most of Scotland and Ireland. Almost invariably the largest available hall in each town is taken, and the crowded audiences which have gathered to hear and see, justify the high aim. "I have given over 1,000 exhibitions," said Mr. Sambridge in reply to the next question, and then with a burst of pardonable pride, he added, "and I have never had a single hitch!"

"And to what do you accredit such a feat?" we asked.

"Perhaps the chief reason lies in the fact that everything is always in absolute readiness before the doors are open to the public. I have made this a rule. Focusing, centering, and registration are all over before I let anyone into the hall. I thus test every tube and stop-cock in private before each exhibition. Another reason is that we carry duplicates of each piece of apparatus which are at all likely to break or get out of order, and that precaution has often saved me from trouble."

We had previously heard of Mr. Sambridge's partiality to long distance work, and he acknowledged that his 14 inch lenses were his favourites. Along with these he uses triple
condensers, and the combination gives a splendid disc at long range. When in the Albert Hall, London, Mr. Sambridge used his lantern a distance of 185 feet from the screen.

A characteristic of the "Guinness Missionary Lantern Lectures" is the comparative smallness of the picture on the screen. "To some extent merely a matter of taste," said Mr. Sambridge when asked the reason, "but it is also a question of 'quality v. quantity.' In too many cases the picture is made uselessly large, and thus the sparkle and depth of a smaller disc is lost. It is like spreading your pat of butter over a large or a small slice of bread!" After his unique experience with regard to hitches—or rather the absence of them—we were not surprised to learn that Mr. Sambridge considers smoothness as the most desirable qualification of a lantern exhibition.

Everything has its proper place in one or other of the packing cases, and on arrival at the hall a delightful mixture of humour and politeness soon wins the hearts of porter, janitor, and the message boy as well. No bustle, no hurry, an hour or so of steady systematic work and all is in position, a large soft cloth is thrown over the triple and Mr. Sambridge goes off to tea. About an hour before the doors are to be opened he returns, slips the cloth covering from the lantern and proceeds with the focusing and registration.

When this is done to a nicety, the gases are turned off, fresh limes put on the jets and the operator disappears. Then the doors are opened and the hall soon fills. At five minutes to the hour he slips in beside his triple bringing the slides with him. A general examination shows everything to be in order, and when Dr. Harry Guinness steps on to the platform "lighting up" is at once proceeded with. There is no splutter or hiss from the jets, not a noise from the lantern to break the silence, and when the hall lights are quite turned off, the top lens cap is removed and the first picture is revealed. On they go, slide after slide in perfect coincidence, all without the least signal from the lecturer to the operator. Focusing is done imperceptibly, and Mr. Sambridge called attention to the very small movement necessary to regain perfect definition. Some lanternists have been known to, as it were, jump at the lens rack-pinion and turn it an inch one way and then an inch the other in their anxiety to rectify a fault, which only requires the smallest touch of the screw, but there is nothing of this kind with Mr. Sambridge’s operating.

How Cinematographic Machines Work.—No. IX.

by Magnet.

The following is an account of an invention of Herman Casler, which contains many features of interest, especially in many of the small details which go to make up the efficient working of the machine:

Firstly, a web feeding apparatus; secondly, so arranging the parts as to cause the main feeding and take-up mechanism to feed, forward, and take up the web at the same speed, so as to avoid either the accumulation of loose film in the machine or drawing the film too tight; thirdly, an intermittently acting auxiliary feeding mechanism; fourthly, a means for compensating for slipping or shrinkage of the film, and for varying the length of the film fed forward each time the auxiliary feeding mechanism acts; fifthly, compensating automatically for variations in the speed with which the film is fed to the winding-up gear, and for the gradual increasing diameter of the winding reel; sixthly, a reel for holding the web, so constructed that a web wound upon it may be removed laterally without unwinding, and another web placed upon it; seventhly, an arrangement to retard the feeding of the web from the supply reel.

By referring to the accompanying two sketches, of which Fig. XXI. is a view looking at one side of the machine and Fig. XXII. a view looking upon the opposite side, it will be easy to understand the action of the machine.

The film 33 is in the shape of an endless web, the greater portion of which is carried by the reel 34. When the web has threaded into the position shown, motion is given to the driving belt by rotating the main shaft through the power belt 4. This rotates the worm shaft 7 and the pulley 14, which gives motion to the driving belt 15.

The speed can be varied by turning the crank shaft 9 to the right or left, which carries the friction wheel 6 nearer to or further from the centre of the friction disc 5, through the action of the pinion 17 and rack 16.

The driving belt, in co-operation with the pulley 26 and 25, imparts this motion to the web 33. The pulleys 41 and 42 act as an intermittent feed tending to jerk the web 33 through the guide 40 of the projecting apparatus.
The Optical Magic Lantern Journal and Photographic Enlarger.

A PROFESSIONAL lanternist and cinematographist of great experience is open to engagements, with or without his own apparatus, in town or country, on very moderate terms. Reference, Editor of this Journal. Address, Optics, 13, York-street, Walworth, London.

EFFECT slides painted to order, from 3 inch to 10 inch or 12 inch diameter, for high-class dioramic exhibitions; hand-painted and coloured photos also made from owner's negatives and drawings, etc.; list of standard effects 1d., free.—Wilkinson & Co., Slide Makers, Wholesale Opticians, Sunderland.

REND new effect sets in exquisite hand work; unique and unequalled; new and original subjects and novelties. Exhibitors wishing to secure for their entertainments a reputation for brilliancy and novelty of effect, will do well to send for lists of high-class specialties. Reproductions of the grand effects formerly exhibited at the late Royal Polytechnic Institution. Special highly finished flower studies; elaborate opening pictures and designs. Special attention given to artistic colouring of photographs in oil colour, water colour, varnish colour, or by the beautiful American process; brilliant results, hitherto unattainable.—Edmund H. Wilkie, as below.

THE economic series of lantern effects, principally based on natural photographs, first-class work at first hand prices; many entirely original subjects, all are above the average, some of exceptional value.—Edmund H. Wilkie, as below.

WANTED.—Films, slides, and mechanical effects, naval and military subjects, comics, travels, etc., etc., also films and slides of sacred subjects, suitable for lantern touring company.—Full particulars to A. V. Vidler, Lincoln.

WANTED, cinematograph; will exchange bi-unial, new last winter, cost £10.—Particulars to White, High-street, Deal, Kent.

WANTED, cinematograph operator; must be steady and reliable; permanent situation offered experienced man; references required.—Ray, Prospect House, Bolton-le-Sands, Carnforth.

EDWARD'S Solar Fruit Limes, in air-tight tins, 2s. 6d. per dozen, post free; special large limes, 2½ inches in diameter, in tins of six each, 2s. 3d., post free.—Edmund H. Wilkie, 114, Maygrove-road, West Hampstead, London.

ANTERN slides for sale.—Several views of S.S. "Milwaukee," 1s. each.—W. J. Herbert, Wallsend Studio, Wallsend-on-Tyne.

SIGNS photographic slides illustrating "The Life-boat" seven illustrating "The Little Hero"; 2s. each set.—W. H. Rowlands, 61, Capworth-street, Leyton, E.

SITUATION wanted by an experienced slide artist or painter; well acquainted with lantern work and could lecture; also could write accounts of athletic sports.—Address, J. L. Harris, 14, Silvermere-road, Catford, S.E.

NEWTON & CO.'S
NEW PATENT
"DEMONSTRATOR'S" LANTERN
FOR OIL OR LIMELIGHT.
With Prism for Erecting, and for Vertical Projection.
PRICE £3 9s.

"NEWTONIAN" LAMP.
The MOST POWERFUL and SIMPLE LAMP yet constructed.

The English Kinematograph,
With sub-stage Condenser and Front Lens, £15 15s.

NEWTON & CO., 3, Fleet St., LONDON.
DARLINGTON'S HANDBOOKS.

"Sir Henry Ponsonby is commanded by the Queen to thank Mr. Darlington for a copy of his handbook.

"Nothing better could be wished for."—British Weekly.

"Far superior to ordinary guides."—London Daily Chronicle.

DARLINGTON'S HANDBOOKS.

The Isle of Wight.
The Channel Islands.
The Vale of Llangollen.
The North Wales Coast.
The Wye Valley.
Brighton, Eastbourne, Hastings, and St. Leonards.
Bournemouth and the New Forest.
Bristol, Bath, Cheltenham, and Weston-super-Mare.
Aberystwyth, Towyn, Barmouth, and Dolgelly.
Llandrindod Wells, and the Spas of Mid-Wales.

zs. each. 10d. Maps by JOHN BARTHOLOMEW, F.R.G.S.


35. 6d. net. 66 Illustrations. 24 Maps and Plans.

BOUND VOLUMES OF THE OPTICAL MAGIC LANTERN JOURNAL FOR 1898

Now Ready. Price 3s.

THOMAS'S PLATES AND FILMS, ORDINARY or ISOCHEMIC, IN THREE RAPIDITIES.

WHITE LABELS.

MEDIUM ORDINARY.

EXTRA RAPID do.

"A1" do.

The Extra Rapid are three times and "A1" six times faster than the Ordinary.

5 feet by 3 feet.... £1 5 0
10 feet by 5 feet.... £1 10 0

PRICE 20/-

THE SCOTCH & IRISH OXYGEN CO., LTD., Rosehill Works, Polmadie, GLASGOW.

SILVER LANTERN SCREEN (Patent).

Lewis Wright and Anderton's SILVER SCREEN For Cinematograph, Lantern, and all other projection purposes.

Using a Silver Lantern Screen is equivalent to doubling the brilliancy of illuminant, whether it be Arc, Limelight, Acetylene, Incandescent Gas, or Oil Lamp, and cost of this great increase is nothing after first outlay.

Each Screen is supplied with Roller and Moulding, and is as portable as any other.

PRICES.

£ 5 0 5 feet by 3 feet
£ 4 0 0 10 feet by 10 feet
£ 4 10 0

6 • 6 • 1 15 0
6 • 12 • 2 15 0

7 • 7 • 2 5 0
7 • 18 • 3 0 0

8 • 8 • 3 0 0
8 • 24 • 4 15 0

9 • 9 • 3 7 6

Sole Makers: R. FIELD & CO., 142, Suffolk St., BIRMINGHAM. ESTABLISHED 1817.

THE PRATICAL PHOTOGRAPHER

An Illustrated Monthly intended for the higher ranks of Professional and Amateur Photographers. Devoted equally to the art, science, and applications of photography.

THE THORNTON-PICKARD SHUTTER

Is the only Roller Blind Capable of giving SHORT TIME EXPOSURES Of 1/3, 1/6, and 1/2, 1/4 and 1/3 seconds.

INSTANTANEOUS EXPOSURES Up to 1/2 second.

“Amber” & “Ruby” CAMERAS, FOR HAND OR STAND, Price from £2 12s. 6d.

New Patent Exposure Valve, 3s. 6d. extra.

Price from £2 12s. 6d.

ILLUSTRATED CATALOGUES POST FREE FROM The Thornton-Pickard Manufacturing Co., Ltd., ALTRINCHAM.
at regular intervals. They tend to pull the web along at each operation by an amount equal to the length of the full-faced portion 62 of the pulley 42. This amount is equal to or slightly in excess of the greatest amount of feed which the variable feed apparatus can give in the interval of time of one revolution of the pulley 42. The pulley 41 has its face felted, so that the two pulleys will have only a yielding grip on the film, and can slip over it after it has been pulled taut.

To permit this action a certain amount of slack must exist in the web 33 between the intermittent feed apparatus and the take-up apparatus, which operates continuously. This is indicated in the lower portion of Figs. XXI., XXII., XXIII. of the drawings. The web then passes through the guide 43 and around the pulleys 22 and 23, in contact with another portion of the driving belt 15. It then passes around the pulley 44 to the reel. It is evident that the variable feed mechanism and the take-up mechanism must operate at exactly the same speed under all conditions. In both of these two mechanisms the film is fed by contact with what are simply different portions of the}

It is evident also that the intermittent feed given the web of film must exactly equal the distance between the centres of successive pictures on the film, otherwise the pictures will gradually creep out of registry one way or the other, and instead of throwing the whole of each picture on the screen, portions of two successive pictures will be thrown on the screen and the illusion destroyed. It is impossible to predetermine this distance with exactness, and it varies in different films, in the same film at different times, and even in different portions of the same film at any one time, by reason of the uneven expansion and contraction of the film in drying and under different atmospheric conditions. This accuracy of registry is secured by making the intermittent feed of the cut away pulley 42 slightly in excess of the greatest distance between centres of adjacent pictures and placing the variable feed mechanism under exact control of the operator, who has his hand upon the crank shaft 9. If he sees that the pictures are creeping off the screen in a direction which indicates that the web 33 is not travelling
fast enough, he turns the crank shaft 9 to the left, thereby lifting the friction wheel 6 away from the centre of the friction disc 5, and increasing the speed of rotation of the worm shaft 7. When the portion of the web is reached that has shrunk a little, so that a slower speed is necessary, and opposite motion if the crank shaft 9 produces the desired result. After passing through the machine the web is wound up on the winding drum or wheel 35.

It is evident that as the web is wound up on this drum, and the diameter of the outer circle increases, the speed of rotation of the drum must decrease, so that the circumferential speed shall remain approximately uniform. This is accomplished automatically by reason of the fact that the driving worm shaft 52 is ordinarily held by its own weight. When the worm shaft is rotated by the friction disc, the resistance to motion of the worm wheel 55 causes the worm 54 to start to screw up on the worm wheel; thus raising the worm shaft and carrying the friction wheel higher up on the friction disc, and its action continues until the speed of the worm shaft has become such as to put the proper and predetermined amount of tension upon the web which is winding up upon the reel 35 mounted upon the shaft 56 of the worm wheel 55, and it will appear that as the diameter of this reel grows greater, the friction wheel 51 will be carried further up upon the friction disc 5, thus reducing the angular velocity of the web reel, and maintaining the tension upon the web practically uniform.

It is frequently desirable, after a strip of film has been wound upon one of the wheels 34 or 35, to remove the strip therefrom bodily without unwinding it, and to place another strip thereon. In order that this may be done one portion of the rim of the reel is hinged, as shown in connection with the reel 35 in Fig. XXI. Being hinged this section is capable of being swung inward, as shown in dotted lines in Fig. XXI., thus loosening the film somewhat. The band 63 prevents the elasticity of the film from taking up the slack which is produced when the hinged section of the rim of the reel is swung inward. The band 63 is provided with projections 64, which are adapted to enter slots between the body of the rim and the hinged section 65, so holding the band in place on the reel. The ends of the strip of metal which forms the band 63 overlap, and are not riveted together at the very end, so that a slot is left into which the end of the film when folded over may be placed, in order to hold it to the band. A latch 66 is provided to hold the hinged section 65 of the rim of the reel in place when the reel is in use.

A New Light.

By G. R. BAKER.

The success of incandescent gas lighting has been so great that many scientific men have been experimenting with a view to discover some of the rare earths that could be used in a form that would be durable, if not everlasting, and therefore not of the delicate nature of the well-known mantles of Welsbach. Professor Walther Nernst, of the University of Gottengen, has invented a most ingenious and at the same time simple electric incandescent lamp that bids fair to revolutionise electric lighting. It is claimed for it that it is extremely durable, if not quite indestructible, and not of such a limited life as the filament of the ordinary (Edison or Swan) incandescent electric lamp. Nernst, by choosing a material that will stand a lighter temperature than carbon, gets a strong substance to work with, but as these materials, in the ordinary course of things, are bad conductors of electricity—in fact when cold are insulators—they have rarely been employed, even in experimental work. In the Nernst lamp the material is worked up into little white rods, each of which is mounted on two platinum wires, and a little paste, made of refractory oxides, applied to the joints. This has to be heated in order for the material to conduct electricity, but a very little rise in temperature is necessary, and can be performed by either a small spirit lamp or by a match. It can also be automatically heated by electricity, and
ORDERS FOR OVER 800 BIOKAMS ALREADY BOOKED.

All Orders filled in rotation.

The Biokam. REGISTERED

A Combining Cinematograph and Snapshot Camera, Printer, Projector, Reverser, and Enlarger . . . . . .

Fitted with

TWO SPECIAL VOIGTLANDER LENSES.

Price Complete, £6 6 0.

BIOKAM PROJECTOR only.

WILL FIT ANY . . . . EXISTING LANTERN.

Price - - - £4 4 0.

SENSITIZED FILM (length 25 feet).

Price 3/6 per Roll.

BIOKAM FILM SUBJECTS . .

(25 feet long). Price 10/-.

Send for Illustrated Catalogue.

For Sale by all Photographic Dealers.

THE WARWICK TRADING CO., Ltd., 4 and 5, Warwick Court, High Holborn, London, W.C.
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. HAY TAYLOR.

FASTEN IT ON THE LID OF LANTERN BOX.
The Optical Magic Lantern Journal and Photographic Enlarger.

when at the temperature of conductivity, the rods become incandescent and give a splendid light. As the rods fall in resistance as the temperature increases, there is a tendency to give instability in running in parallel on supply circuits. This is neutralised by using a resistance of exceedingly fine wire in series, and amounts to 10 or 12 per cent. of the whole resistance of the lamp.

Mr. James Swinburne, in describing this lamp at the Society of Arts, said, "Once the Nernst lamp becomes so general that systems of distribution are laid out to suit it, instead of to suit the carbon lamp, the carbon lamp is practically 'out of the running.'" As to the suitability of this light for the optical lantern it is a little early to speak, but no doubt modifications will be designed that will be useful.

At the Royal Society's soirée, a distinct improvement on the early pattern was shown in operation, and I had the opportunity of handling one of the little rods of rare earth. The lamp was about the same size as the 16 candle-power electric incandescent lamp, and as it is not necessary to have a vacuum, the protecting glass can be removed and the "works" examined. The arrangement was most ingenious and simple, for the rod of rare earth was held in position inside a coil of fine platinum wire. When the electric current was passed through this wire it

gradually heated,

and the warmth radiated from it raised the temperature of the oxide rod until it was sufficient for the electric current to pass through it. As soon as this occurs the platinum wire is cut out of circuit automatically by the agency of a selenium disc arranged near the terminals of the lamp.

It seems as if there was a future before this lamp, but as to the commercial aspect of the matter, it was, like many other clever inventions, boomed too soon; the financiers getting hold of it and asking the public to subscribe something like £150,000 before they had even a chance of seeing the working; and I believe I am right in saying without any other public demonstration of its use than that which took place at the Society of Arts. It was interesting to see, at the Royal Society's soirée, the various types of lamp made in the course of the development of the invention, and how from a large size globe of 6 or 8 inches diameter the lamp has been reduced to the ordinary size of the filament carbon electric lamp. The electrolytic conductor of the Nernst lamp (that is the rod of rare earth), when raised to the suitable temperature to give incandescence, and consequently a beautiful light, is below the melting point, but sufficiently high to admit of a high efficiency as the conductor of the most refractory materials known, namely, the oxides or rare earth. The development of the Nernst lamp will be watched by all interested in electric lighting, and among them must be classed lanternists, for notwithstanding the great superiority of the arc lamp for optical projection, there are times and instances when an incandescent electric lamp of strong make is useful.

Lantern Slides and Slide Making.

In a recent paper given by M. A. P. Hoole, before the members of the Croydon Microoscopic Club (Photo. Section), the lecturer stated that:

Opinions are very much divided as to the superiority of slides made by reduction in the camera over those made by contact. One argument against the latter is that the glass used for plate-making is sometimes not absolutely flat, and therefore it is impossible to obtain perfect contact, resulting in a slight loss of sharpness in the slide.

I believe that this objection is more theoretical than real, but the difficulty can, to a great extent, be got over by exposing at a greater distance from the source of light, and avoiding side reflections by placing the printing frame at the end of a deep black-lined box. In ordinary slide making, however, it is quite unnecessary to do so. For black tones, I think gas is the best illuminant, except, perhaps, for very dense negatives, when magnesium ribbon may be used. In making a slide from a negative with great contrasts, expose much closer to the light than usual, about 6 inches from gas or 1 foot from magnesium, and give a rather full exposure; by this means it is often possible to obtain presentable slides from very hard negatives; thin ones, on the other hand, should be printed from a greater distance, and, if very thin, a rather weak light should be used, of course increasing the time of exposure accordingly. With thin and flat negatives, however, over-exposure must be avoided, as greater contrast in the slide is to be aimed at. For warm tones the exposure must be greatly increased; from four to eight or ten times that required for blacks may be given, the warmth of
colour increasing with the length of exposure, and magnesium ribbon should be used except in the case of very weak negatives, when gas will give a better result.

For reducing by daylight, the simplest apparatus is a board with a frame at one end to hold the negative. A ½-plate camera is adjusted at the requisite distance, and fastened with the tripod screw to the board, and if a narrow slot is cut in the latter for about half its length, the camera can be moved nearer to or further from the negative, according to the amount of reduction required. The whole is pointed towards the sky and the exposure made. It is rather difficult to give an estimate as to the time required. At this time of the year on a bright day with a fairly quick-printing negative, using Thomas's plates, reducing from whole-plate with the lens working at \( \frac{1}{4} \), about three-quarters of a minute would be enough for a black-toned slide, and for brown tones 5 minutes or more, according to the colour wanted. For reducing by artificial light, a lantern with a condenser of sufficient diameter to cover the whole of the negative is certainly the most convenient system; but, as there are not many who have one large enough for ½-plates, and still fewer for the larger sizes, there are other methods by which reduction by artificial light can be carried out.

One way is to place a piece of ground glass about 3 inches behind the negative, and to pass a strip of burning magnesium ribbon backwards and forwards, and up and down, at an inch or two behind the ground glass, taking care to make the illumination as even as possible; the amount of ribbon used depending on the density of the negative and the colour required in the slide.

Another way, and, if time is not much object, perhaps a better, is to place an incandescent gas burner, or a good lamp, on each side of the negative, just far enough back to prevent the rays striking the glass. A piece of white cardboard, or ground opal, is then stood up in the position which will best reflect the light through the negative and give the strongest and most even illumination. Very good results may be got in this way, but the time required is rather long; for brown tones, with the lens at \( \frac{1}{4} \), about 20 minutes will be necessary for an average negative on Thomas's plates.

Many people have very exaggerated ideas of the difficulty of printing clouds on to lantern slides. By careful masking they may be printed on the same plate as the view, but there is some difficulty in timing the exposure so that the whole slide will develop equally. A far easier plan is to keep the sky part of the view clear glass, and to print the clouds on a separate plate, which is afterwards used for the cover glass. In working this way it must be remembered that the clouds are viewed through the glass instead of the usual way, so that, in choosing the cloud negative, it must be looked at from the film side for the direction of the lighting, etc. The lantern plate and slide should be held, back to back, up to the yellow light, and the limits of the view marked with a pencil on each edge of the lantern plate; a line on the film about \( \frac{1}{4} \) of an inch long is sufficient as a guide. The plate is then placed in the printing frame in contact with the cloud negative, and the lower portion masked off with a folded cloth, keeping the line of the view as nearly as possible, the marks on the edge of the film showing the amount of the plate that must be covered. It is advisable to give the part near the horizon rather less exposure than the upper part receives, by moving the cloth slowly up and down for a short distance. The time of exposure requires some care, or the clouds will develop with a different tint than the landscape, and that is the chief drawback to this method. Should they appear too warm, they can be slightly toned with gold, which will often bring them to the right colour, taking care to stop toning before they are quite cool enough, as the tone is colder when dry.

After development and fixing, the cloud slide and the view are held back to back, and any part of the cloud projecting over the landscape is cleared away with reducing solution, applied with a small mop of cotton wool or a soft brush, and with a little care a very exact join can be made. If the clouds have been over-developed they can easily be brought to proper density with the reducing solution, and the lower portion lightened if necessary, but be careful to avoid over-reduction, as the solution acts rather quickly on weak prints. The reducer used with a brush can also be locally applied to any part of the slide which is too much veiled, or which has acquired too great a density. I may mention here that the perchloride of iron reducer is not suitable for warm-toned slides on bromide plates, as it changes the colour to a blue tint, but Howard Farmer's ferricyanide and hypo reducer will do all that is required.

The colour of the slide should also receive some consideration. Warm brown or red has a curious effect if used for snow or frost studies; these are cases for black or grey tones.
THE "ABINGDON SAFETY"

Acetylene Gas Generator.

An immense success.
No trouble.
No waiting.
Needs no attention when once started.
No gas escapes when lights are turned down.
Water does not spill.
Safe. Simple. Efficient. Can be recharged when lights are burning.
Acknowledged by practical experts to be the best for lantern work.
Every apparatus tested and guaranteed.

Price 37/6.

THE "MOSS" LANTERN JET will give a brilliant picture 30 feet from screen. Price 10/6.

EVERY LANTERN DEALER SHOULD STOCK THEM. AGENTS WANTED.

The Abingdon Acetylene Illuminating Co., LIMITED, 97, GREAT HAMPTON ST., BIRMINGHAM.

NO MORE OF THAT ABOMINABLE OIL FOR THE LANTERN, With its attendant mess of filling, trimming wicks, etc., to say nothing of that vile smoke and smell.

I offer you a Substitute that gives a brighter light, that is less trouble to prepare for use, and that is better and cleaner in every way. It is acknowledged by all who have seen it to be the most compact and best thought out thing of its kind. Its small bulk, its absolute simplicity and safety at once commend it. It is so simple that a child can master and use it in five minutes.

It is useful for the Lantern, for Enlarging by the Camera, for Reducing by the Camera, for Copying. It fits any standard size of optical lantern, being the same width as an ordinary 3 inch oil lamp, and gives two hours light at a cost of 2d.

Price each, £1 7s. 6d.; or carriage paid, £1 8s. 6d. Size, 7 x 4 x 5/16 inch.

TYLAR'S SHARPSHOOTER CARRIER. A Self-Centering Carrier for the Lantern allowing of Rapid Changing of Slides. Works smoothly and with absolute certainty.

Well made in solid mahogany. Price 37/6.

Or all Dealers, or from W. TYLAR, 41, High St., Aston, BIRMINGHAM.

Catalogue, 250 pages, 400 Wood Cuts, post free, 6d.

BRIN'S OXYGEN.

For Limelight, Medical, Metallurgical, and other purposes.

OXYGEN of Guaranteed Purity supplied in Cylinders of the Best BRITISH Manufacture, and complying with all the established Trade and Railway Regulations

The public are respectfully informed that all Cylinders which are filled by the Brin Companies (whether their own or their Customers) are labelled with the Companies' Trade Mark. This label guarantees the purity of the Gas, and is a further guarantee that the Cylinder has been tested and proved sound in every respect by the Brin Company which has filled it. Customers who wish to procure Brin's Oxygen are requested to see that the Cylinders supplied to them bear this label, which is also stamped with the date on which the Cylinder was filled.

The Works of the Brin Companies are open during business hours to the inspection of their Customers, who are at liberty to test the quality of Gas being manufactured, and to watch their own Cylinders being tested and filled.

Price Lists of Gases, Cylinders, and all Accessories, can be obtained from the Company's accredited Agents, or will be sent Post free on application.

BRIN'S OXYGEN COMPANY, Limited, 34, Victoria Street, WESTMINSTER, S.W.

Works—69, Horseferry Road, WESTMINSTER, S.W.

MANCHESTER OXYGEN COMPANY, Limited, Great Marlborough Street, MANCHESTER.

BRITISH OXYGEN COMPANY, Limited, Saltley Works BIRMINGHAM.
HUGHES' SPECIALTIES IN PERFECT CINEMATOGRAPHS.

HUGHES' CREAT MOTOR-PICTOROSCOPE for showing animated pictures. No shutter, therefore no flickering. 12 to 20 feet pictures. Perfection. Eclipses all others. No eyes ache, no headache as with most machines. The improvements in this are beyond description. It is most simple, and the result magnificent. A superb piece of mechanism.

HUGHES' LIVING PICTURE PHOTO-ROTOSCOPE, a little gem instrument; flickering reduced to a minimum, can be attached to any lantern, will give with oil 4 feet pictures; limelight, 16 to 14 feet pictures. Price with lantern complete, £13 13s. and £15 15s.; without, £9 9s. and £11 1ls.; superior to many machines on the market costing £23 to £30 each.


GRANDLY ILLUSTRATED CINEMATOGRAPH LIST, 6d.

HUGHES' Marvellous Pamphengos Magic Lantern. OVER 3,000 SOLD.

The finest oil-lighted Lantern extant. Gives brilliant 12 to 14 feet pictures. No smell, no smoke. No broken glass. 1 inch finest Condensers, and large front Lenses; elegant brass sliding fronts. The £6 6s. reduced to £4 4s. The £14 is reduced to £10s. Particulars free. The Universal four-wick Lantern, £6 6s. id. Marvellous value. Handsome brass-fronted Bินial Lanterns, 8s. 6d. Blow-through Jets, 6s. 6d. Mixed Gas, 12s. Mr. Hughes has the Greatest Display of High-Class Projecting Lanterns and Effects the world has ever seen. The Diorama, the Grand and the Miniature Malden Triples. Superb instruments as supplied to Madame Patti, Professor Malden, Royal Polytechnic, etc. Before purchasing get Hughes' Grandly Illustrated Catalogue, 100 original engravings, price 6d., postage 3d. Giving valuable information. Illustrated Pamphlets, 2d.; Price List of 60,000 Slides, 1d. Postage 2d. Cheapest and Best Lantern Outfits in the World. 50 Slides loaned for 3s.

W. C. HUGHES, Specialist in Optical Projection, Established over 30 Years.

Brewster House, 82, Mortimer Road, Kingsland, London, N.

IMPORTANT TO ALL LIMELIGHT USERS!

BORLAND'S PATENT SCISSORS ARC LAMPS

For Direct and Alternating Currents.

Made in Three Types
Hand Feeding.
Self-Striking & Hand Feeding.

The " Dot." The only automatic Arc Lamp in the market which fits all ordinary Optical Lanterns on the limelight tray without any alterations.


Prices, Particulars, and Testimonials free on application to—

F. J. BORLAND,
Sheepscar Grove, LEEDS.

R. R. BEARD,
BEARD'S REGULATORS are the most perfect Regulators for producing the Best Light with Compressed Gas.—Price 30s.

BEARD'S PRESSURE GAUGE, fitted with Schaffer's & Budenberg's Patent Spring Back and Steel Tube, 30s.

BEARD'S NEW JET.

Established 1886.

FREDERICK J. STEDMAN,
Lantern Slide Maker and Colourist,
103, ALBERT ROAD, BATTERSEA PARK,

LONDON, S.W.
Architecture, or at any rate an interior, is usually more effectively rendered in not too warm colours. I must own to preference for brown tones myself, which I like to use when possible; but, after all, the colour is chiefly a matter for individual preference.

Whether warm or cold tones are used, however, it is a good plan to have a few of the less favoured colours interspersed among the others, so as to break the monotony in a long series of slides.

(To be continued.)

Some Hints on Summer Work.
By T. Perkins.

The time is at hand when hundreds of lanternists who make their own slides from negatives that they themselves have taken, will be afield with cameras all over the country, busy securing fresh negatives from which to produce slides for exhibition when once again the lantern season, in its strict sense, comes round. Many, no doubt, will devote their attention chiefly to that most fascinating branch of the work—architecture—which lends itself so well to representation on the lantern screen. I have already, in the pages of the Optical Magic Lantern Journal, dwelt upon the points that must be attended to in order to ensure success in this work, that I need not treat at any length of this part of the subject, but will only briefly glance at it.

First, some knowledge of architecture is necessary that the photographer may know what is worth reproducing, whether he devotes himself to detail work or aims at pictorial reproduction of the whole of the building before his lens, in order that he choose the best point of view to show off to advantage the proportion and balance of his subject, a thing which he is hardly likely to be able to do unless he can enter somewhat into the spirit of those master builders who have left us those priceless gems of architectural work which too often the modern restorer does his best to destroy. Next, good weather and light are indispensable, neither too bright nor too dull, neither the glaring sunlight of a cloudless summer day, under which the building has the aspect of being "framed of ebony and ivory," to use poetic language, or of "soot and chalk" to use the common photographic phrase, owing to the difficulty of getting detail in the shadows without over-exposing the high lights, nor, on the contrary, the diffused light of a completely overcast sky, when no shadows are thrown and the resulting negative is flat, no relief being obtained in the main features or the carving; but a light such as is given when the sun is just covered by thin clouds, enough to take off the glare, but not sufficient to prevent objects throwing shadows. This of course applies only to exterior work. For interiors the absence of direct sunlight is generally an advantage, as there are almost always sufficient contrasts, since the light is admitted through windows and so is concentrated. A good lens—preferably one that will cover sharply a large area in proportion to its focal length, and working with perfect definition at a large aperture, such as the Platy-stigmat or other modern lens of the same character—is a desideratum.

Negatives not too dense and full of detail make the best slides.

However, as I have said above, it is not of architectural photography that this article is intended to treat, but of general landscape work. And I wish especially to emphasise the fact that quite a different style of negatives must be made for the production of slides, from that which is most suitable for direct printing on paper. Of course a topographical negative, with every detail shown with the utmost sharpness obtained by a good lens and accurate focusing, is equally suitable for the production of a print on paper or a lantern slide, but the results will be equally uninteresting and equally valueless, save as records. The exhibition of a series of slides of this nature is apt to become intensely wearying to those who are condemned to sit out an hour's "entertainment"; just as the looking through an album of topographical prints soon palls upon one, still the prints have the advantage that they can be casually glanced at, turned over quickly, or the album can be closed, whereas, when one is once seated before the screen, one must patiently endure the show or run the risk of hurting the feelings of the exhibitor. Something more is needed than mere topographical views to make a lantern show a success; it is, I believe, largely due to the fact that so many slides of this kind are exhibited that lantern entertainments do not attract as they should do.

Great advances have been made of late years in landscape photography on paper, as is shown by the annual exhibitions at the Salon, but an equal advance has not been made in landscapes shown on the screen. Probably paper lends
is hard under the light of a cloudless mid-day
darker hue of the water. In fact the landscape
sets up his easel when all the scene before him
only when nature shows herself in her most
poetic moods; and just as the painter rarely
also of beautiful effects of shipping on calm |
objects stand out clear against a delicate and |
sun, owing to its reddish colour, has not fogged
white upon the background of grey, the reflec-
tion of it likewise showing up well upon the
plate, but is represented by a disc of perfect
sky in perfectly transparent atmosphere, so the
photographer who aims at producing pictorial
slides should refrain from exposing plates under
like conditions.

The most pleasing results in summer are
obtained either in the early morning when the
landscape is half veiled by mist and the dew is
on the grass, or near sundown when the long
shadows lie across the landscape, or even in
the gloaming when calm peace holds all the
scene, or on grey days when cloud masses cover
the sky, or if the photographer is fortunate
eough when by the sea to find the air made
misty by the driven spray above the breaking
waves.

Nature has many moods, and he who is
content to wait and watch will find plenty of
them well suited to be seized upon for slide
making; let him only shun the common place
and hesitate to expose a plate when she is in
her ordinary work-a-day prosaic garb.

The man who, owing to the fatal facility of
the hand camera, cannot resist the temptation
of snapshotting at anything and everything
until he has used up all the plates or films in
his well stocked magazine, and has not the
moral courage to destroy nine-tenths of his
developed negatives, is not likely to improve
the standard of lantern exhibitions, and he
need not be surprised if he attempts to give
public entertainments to find

empty benches

before him on the second occasion when he is
announced to lecture, or to find his friends have
other engagements when he asks them to come
in to see on the screen at home "a few slides
that I have made you know from the negatives
I took during my summer holiday," unless the
well-known excellence of his cigars and whisky
induce them to put up with a set of indifferent
lantern views.

There are many who think that any day
during a holiday has been photographically
wasted unless at least a dozen plates have been
exposed, whereas it often happens that when
this number of exposures have been made not
only has the time but also good photographic
material been worse than wasted, the manu-
facturers and dealers only having been
benefited, while art has suffered, and lantern
exhibitions are likely to be lowered in popular
estimation. In all photographic work it is wise
to think well before exposing a plate, and if
this is true when only prints are aimed at, it
is still more true when lantern slide making
is the object with which negative plates are
exposed.
Hughes, of Kingsland, which enabled several people to view at one time an exhibition of cinematographic views by daylight. Since the first style was brought out, Mr. Hughes has devised another which to a great extent is a duplex attachment for placing on the style first introduced. The apparatus can easily be carried by a couple of men, or can be quickly erected, as all parts are bolted together. As will be seen from the illustration, the lantern with cinematographic attachment is placed at one end, and the small screen upon which the pictures are projected, in the centre; thus enabling each of the persons who place their eyes at the peepholes to view the pictures in comfort even in daylight, and as there are forty peepholes on each apparatus accommodation is thus afforded for a goodly audience. The outfit is designed specially for street use, but for many other uses, such as bazaars, etc., it will be found compact and convenient. When desired, the portion beyond the screen can be removed, thus leaving half the peephole capacity of the complete outfit.

Hughes, of Kingsland, which enabled several people to view at one time an exhibition of cinematographic views by daylight. Since the first style was brought out, Mr. Hughes has devised another which to a great extent is a duplex attachment for placing on the style first introduced. The apparatus can easily be carried by a couple of men, or can be quickly erected, as all parts are bolted together. As will be seen from the illustration, the lantern with cinematographic attachment is placed at one end, and the small screen upon which the pictures are projected, in the centre; thus enabling each of the persons who place their eyes at the peepholes to view the pictures in comfort even in daylight, and as there are forty peepholes on each apparatus accommodation is thus afforded for a goodly audience. The outfit is designed specially for street use, but for many other uses, such as bazaars, etc., it will be found compact and convenient. When desired, the portion beyond the screen can be removed, thus leaving half the peephole capacity of the complete outfit.
19th April, 1899. Gerard Eliot Hodgkin. Improvements in or pertaining to consecutive view apparatus.


19th April, 1899. Mark Barr. Improvements in apparatus for displaying photographs of moving objects. (Complete)

20th April, 1899. Richard Poxon. Improvements in or relating to lanterns or lamps.

20th April, 1899. Charles Raleigh. Improvements in the production of animated pictures.


29th April, 1899. Thomas Edward Taylor, Jun. Improvements in or relating to animated photographic apparatus.

29th April, 1899. Thomas Morton. Improvements in magic lantern screens.


Copies of the following specifications may be obtained by remitting 1/- for each specification to W. P. Thompson & Co., Patent Agents, 322, High Holborn, London, W.C.


8338 of 1898. Koopman. Apparatus for exhibiting a succession of pictures, giving them an appearance of motion, and coin-freed mechanism therefor.


12012 of 1898. Falk. Lamp or lantern for burning acetylene gas.


13134 of 1898. Raleigh. Use of kinetoscopes.

13644 of 1898. Raleigh. Obtaining stereoscopic effects.

13993 of 1898. Lorrain. (Northern Advertising Company, Nordisk; Reclame Kompagni, Aktieselskab) Optical projection apparatus.


W. B. Hertz.—One or two firms are selling the apparatus below ordinary price, but we understand that the makers have refused to sell them further supplies. It is not for us to try and discover the channels through which they get supplies, you must find this out for yourself.

Reader.—Draw the light away from the condenser until the disc is clear.

Lime writes asking how to turn a number of lime cylinders. Ans.—Rough-shape pieces of lime, and apply each in turn to a drill held in a turning lathe, so as to bore a hole through each; then secure a rat-tail file in the lathe and slip the lime on this; it can then be turned with an ordinary chisel. The roughness on the file, you will observe, is spiral, which serves to hold the lime from slipping off whilst turning.

Jos. Palmer.—Mr. Wilkie’s series of articles will be continued shortly. The author has lately had all his spare time taken up in connection with other matters of importance, but he hopes to have a chapter ready for next journal.

W. A. Wilson.—Mix Chinese white with gum water.

A. H. Y.—(1) We think you can charge for tickets if sold in advance, but no money must be taken at the doors. (2) Some of the slides are very good, but many are little account. We think they are not likely to take well.

R. H.—Sort the slides into two lots, viz., thin and dense, and keep the former for use with an oil light, and the latter for limelight. Had we, however, seen the slides it would have been better, but in giving reply we are strictly adhering to your own description.

L.—You are mistaken about the slides both being from the same negative. They are the two halves of a stereoscopic negative, and being taken a few inches apart, will not answer very well to convert into a dissolving effect, that is if you aim for absolute coincidence in the two pictures. If both pictures are projected together a blurred effect will be noticed.

Mat.—The particular mat trimmer about which you enquire was first brought out in America, and shortly afterwards Messrs. Thomas & Co., the plate makers, sold trimmers of the same description at their premises at Pall Mall. These premises were given up some years ago, and we think their apparatus department was discontinued about the same time. It is, however, possible that they may yet have some in hand. Write them at Thornton Heath, near London.

A. P. Stritt.—Your letter was sent to Mr. Houldershaw.

Generator.—You will find valuable information as to the behaviour of various acetylene generators in the report of the committee of the exhibition of acetylene generators at the Imperial Institute. This may be obtained for one shilling from William Trounce, 10, Gough Square, Fleet Street, London, E.C.

Dr. W. C. Barnes (Italy).—(1) We have notified the Warwick Trading Company, who have promised to forward one of their new booklets as soon as the second edition is received from the printers; you will find valuable and interesting information therein respecting the Biokam. (2) The size about which you enquire can be set down as 6 or 7 feet according to the intensity of your limelight.

Re "Magnet."—We have communicated a portion of your letter to the writer of the article and hope to receive further details.
Cooke Lenses FOR HAND CAMERAS
Series III, aperture f/6.5.
Series V, aperture f/8.

COOKE EXTENSION LENSES, for varying the lens focus.
NEW FOCUSING MOUNT, containing the means of focusing.

Write for particulars,
TAYLOR, TAYLOR & HOBSON.
Slate Street Works, Leicester.
and 18, Berewics Street, LONDON, W.

SANDS, HUNTER & Co.,
Photographic Apparatus and Lanterns,
NEW AND SECOND HAND, BY ALL THE BEST MAKERS.
Lanterns and Operator let out for evening entertainments for children, &c. Terms Moderate.
20, Cranbourne St., Leicester Square, London, W.C.

Dissolving View Magic Lanterns and Slides
Photographic Apparatus, Scientific Instruments and every description of miscellaneous property.
M. R. J. C. STEVENS begs to announce that he holds Sales of the above, every Friday, at half-past twelve precisely, at his great Rooms, 38, King Street, Covent Garden, London.

THE "INJECTOR" MIXED JET.
Patents 10,554 and 24,761/93.

PRICE 30s. ã
This is the only Mixed Gas Jet which will work at full power with coal gas taken direct from the town supply, and oxygen from a cylinder. In order to effect this the oxygen, on its way to the mixing chamber, is made to pass through the small Injector I in the sketch at a pressure of about 12 lbs. per square inch. In passing through the Injector it sucks a supply of coal gas from the pipe H, which is connected with the house pipe, and forces it forward through the short pipe T into the mixing chamber M. Here the mixed gases meet the baffle plate B, which has the two-fold effect of silencing the passage of the gases, and ensuring their complete admixture. The mixed gases then pass through holes in the edge of the plate, and so to the burner. The requisite pressure of oxygen is obtained in the ordinary way by a fine tap on the cylinder, or an automatic regulator fitted with a high-pressure spring to deliver at about 15 lbs. pressure.

Four seasons' experience has fully established the superiority of this Jet over all others. It will yield THE FULL 1,800 TO 2,000 CANDLE-POWER (so-called) of the ordinary mixed jet when taking its supply of coal gas direct from the town's pipe, or even from a bag without any pressure at all. If a town's supply is not available, it will work just as well with coal gas from a cylinder. We cannot see why ordinary mixed jets should be purchased which cannot offer these alternatives. As for blow-through jets, we do not know why they should be used at all, when with the same economy and convenience of working, the Injector Jet will give two or three times the light. By removing the Injector nipple the jet becomes an ordinary mixed jet. This can be done whenever it is desired to work with oxygen at low pressure, and coal gas from a cylinder.

The working of the Jet is simpler than that of an ordinary Jet. When the H tap is once adjusted, it does not need to be touched again when using town's gas. The turning off or on of the oxygen supply regulates automatically the supply of coal gas. This is a great convenience in actual use.

Most existing jets can be fitted with an Injector to enable them to take their coal gas supply from the house pipe.

The Jet will in certain cases be sent on approval on deposit of purchase price. Further particulars free on application to MANCHESTER OXYGEN (Brin's Patent) CO., LTD., Great Marlborough Street, Manchester.

CRETON LIMES
Are unsurpassed for Brilliance of Light and Hardness of Lime. The Best and Cheapest on the Market.
ONE TRIAL WILL PROVE THIS FACT.

Send for Prices and Particulars to the Manufacturer of the CRETON LIMES,
H. NOYCE, 85, Nunhead Lane,
Pechham Rye, S.E.

Lantern Slides of Historical Portraits and Events.
16th, 17th, 18th and 19th Centuries.
SEND FOR LIST TO
H. de BLOIS-LEACH & Co.,
Lantern Slide Makers to the Oxford University Extension Lecturers.
3, THE TURL, HIGH STREET, OXFORD.

Slides made from Book Illustrations, Engravings, etc., on the shortest notice by the Collodion Process at 1s. 6d. each, cash with order.

MANCHESTER OXYGEN
(Brin's Patent) CO., LTD.
Great Marlborough Street, Manchester.
Immense Increase in Sales.

EASTMAN'S

SOLIO

P.O.P.

RICH IN SILVER.

White, Pink, Mauve, and Matte.

IN PACKETS AT 1/- each. IN GROSS BOXES, Cabinet and C.D.V. sizes. ALSO IN QUIRES AND ROLLS.

SOLE MAKERS:

KODAK, Limited,

Successors to

EASTMAN Photographic Materials Company, Limited,

43 CLERKENWELL ROAD, LONDON, E.C.

Retail Branches:

115 Oxford St., W.; 171-173 Regent St., W.

PARIS: EASTMAN KODAK Société Anonyme Française;

Avenue de l'Opéra 5, Place Vendôme 2

BERLIN: EASTMAN KODAK Gesellschaft, m.b. H., Friedrich Strasse 91

Markgrafen Strasse 91

Printed and Published by the Proprietors, THE MAGIC LANTERN JOURNAL COMPANY, LTD., 9, Carthusian Street, London, E.C.