



# ABEL'S PHOTOGRAPHIC WEEKLY



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SATURDAY, JANUARY 11, 1919

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# ABEL'S PHOTOGRAPHIC WEEKLY

A JOURNAL FOR THE PROFESSIONAL PHOTOGRAPHER

Member of Audit Bureau of Circulations

JUAN C. ABEL, Editor — CHAS. L. ABEL, Associate Editor

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## *In Passing By*

**B**USINESS CONVENTIONS AS OF OLD. It already begins to look as if we were going to have a good old-fashioned photographic year again, with a good space of conventions, including a National meeting, a good fair amount of business, more especially for the man who hustles after it, with a fair demand for help and a larger supply of employees to select from, than has been available this past year and a half. Our boys are gradually coming back into civil life and already we have had the pleasure of helping a few, still in their khaki, into jobs in studios. It is too early, yet, to see what effect on the profession the large number of photographers trained by Uncle Sam will have. As the greater number were trained in accurate developing and printing, they should really be a boon to the studio that undertakes finishing for amateurs, and for the big finishing establishments who are always complaining that they cannot get competent help for that work. They'll be able to get it now if only they will pay a reasonable price for it.

There is every prospect that the conventions this year will have an added zest through the addition to the program of regular picture competitions. The Middle Atlantic States Association, which will meet in Pittsburg in March, has set the way, with quite a pretentious list of awards. We trust there will be no condition which will force the judges to give these awards whether earned or not. That would bring the medal business back again into disrepute. So much in this prize business depends on the judicious selection of the judges or jury of awards. They should be men of known ability, of absolute probity and have no hampering conditions as to rules; etc., to work under. If the Pittsburg exhibition is a success, the other associations will probably follow suit, as it seems the fashion to use the Middle Atlantic States meeting—being the first annually of its kind—as a pattern for the other meetings.

The officers of the P. A. of A. meet here in Cleveland this coming week and will probably decide where and what kind of a convention shall be held this year. Milwaukee was the place chosen last and arrangements

had already been made for the big Auditorium. The Board may consider other locations, but it will probably decide in favor of some kind of a national meeting this year.

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## The Photography of Metals With The X-Rays

BY T. THORNE BAKER

X-RAY photography has up to the present been essentially a medical science, with which pure photographic technique has often been far too little associated. A new branch of work has now been developed which links the X-rays with a branch of photography entirely non-medical, and it is likely to assume widespread importance in the near future.

In the early days of radiography negatives were made to diagnose fractures, to locate swallowed coins, or to show malformations of bone, and so on. Later, such subjects as stone in the kidneys were attempted, and as apparatus of greater penetrating power became available photographs were obtained of the heart, diseased lung tissue, and similar difficult subjects. The attention of manufacturers of apparatus became concentrated on the production of rays of greater and greater penetration, and two recent developments have proved so successful in this direction that we can now take a photograph through four inches of hard steel.

One of these is the modern high tension transformer, which takes the place of the induction coil in producing currents of very high voltage for exciting the X-ray tube. The other is the Coolidge tube, with which heavy currents of extreme penetration can be produced with a degree of uniformity hitherto impossible. The principles of the Coolidge tube are now familiar, and need not be enlarged upon here. The transformers used are of a type capable of giving a secondary voltage of between 100,000 and 250,000 volts, the penetrating power of the rays being proportional to the voltage applied to the tube terminals. Such transformers admit of exposures of the chest or heart being made with a single impulse—*i. e.*, in a small fraction of a second.

It may not at first sight be easy to form an opinion as to the value of this penetration. A few simple examples may serve to show it. A great deal of costly work may, for instance, be done on a casting for some machine part, only to find when finished that owing to an internal flaw or "pocket" the part snaps or breaks when subjected to working strain. Such a flaw could be de-

tected before the part was worked up by means of a radiograph which would show the internal structure of the metal. Another instance is in the making of alloys, more particularly in the experimental work. In a number of recent experiments in which various substances were added to the alloyed metals to prevent the formation of small air bubbles, X-ray photographs of the samples revealed flaws as small as one sixty-fourth of an inch diameter. Very numerous examples could be quoted, and no doubt now remains that radio-metallography is destined to prove of great value in various branches of industrial and engineering work.

Installations have been put up by many big engineering firms, such as by the Gnome aeroplane engine manufacturers, the Schneider and Creusot engineering works, and so on.

Needless to say, the apparatus must be specially selected and used with considerable skill and experience. Ordinary X-ray apparatus is unsuitable, though an induction coil giving a 16 or 20 inch spark with a Coolidge tube will give results up to a point. Special high tension transformers have been designed for the purpose by Watsons, and these, in conjunction with a specially selected tube, admit of exposures of two to three minutes penetrating two or three inches of hard steel.

An installation equipped for radio-metallography has been designed by M. H. Pilon, of Paris, with whom the writer has had the privilege of co-operating. The greatest possible precautions have to be taken against injuries from the rays, as it is fairly obvious that it is not an altogether easy matter to arrest them. We have found that five millimeters of lead, placed a meter distant from the tube, is tolerably safe, but most installations are so arranged that the operator controls the apparatus from a separate room or cabin, the dividing wall or partition being lined with heavy lead sheet, and observation of the tube made through a thick lead glass window, provided with a lead shutter that can be drawn immediately the tube is seen to be functioning properly.

The object to be photographed is provided with a lead diaphragm, and stood in

its diaphragm upon the plate, the latter enclosed in a plate-holder with a special type of intensifier screen. The object is separated with felt from the plate to avoid secondary radiation. With a voltage of about 120,000 to 150,000 and a current of 2 to 4 milliamperes the exposure is made and the plate developed, preferably without bromide, in a rather concentrated solution. Intensification often assists matters.

A hole 1-64th inch diameter and 1-64th inch deep only, drilled in the upper surface of a block of steel two inches in thickness, will show distinctly in a good radiograph. This gives some idea of the powers of the rays to disclose minute flaws or faults.

It is a matter for conjecture whether we have yet found the best type of photographic plate for this work. The absorption of the rays depends upon the molecular weight of the substance, and with these

rays of extreme penetration some salt heavier than silver bromide might seem advisable. Yet the ionizing properties of the rays may cause an unstable salt of comparatively low molecular weight to be more sensitive than a heavier, more stable salt. Certainly up to the present no compound has been found more sensitive to the rays than silver bromide, and the special attention that has been paid during the last three or four years to X-ray plate emulsions has led to five or six times the rapidity of the earlier X-ray plates. This, in conjunction with the great reduction in exposure effected by the use of the intensifier screen, reduces exposure to very practical dimensions, though it may be observed that with the hard rays used in this work the intensifier screen does not reduce exposure in anything like the proportion it does in ordinary radiography.—*B. J. of P.*

## What Of The Future?

**D**ESPITE all the war-time recruits into the ranks of photography the photographer who is about to return from the seat of war has nothing to fear if it happens that he is a skilled man. With the probable falling off of the boom in business and consequent necessity of raising production quality to pre-war standard skilled labor and better material for this object will be much sought.

Owing to numerous reasons the middle and lower-class labor market will become congested in the not far distant future—therefore the assistant who possesses special or superior abilities should avoid seeking engagement with studios who employ this class—otherwise his remuneration and his abilities will suffer; the employer who is satisfied with any assistant who can merely make a negative or a print is of no use to the skilled man who loves his work and expects adequate remuneration for its successful cultivation and advancement.

There is little doubt that a number of high-class firms have employed a proportion of mediocre labor, but this has been due to force of circumstances rather than to choice, and, so soon as skilled labor is avail-

able, these firms will be anxious to reorganize their staffs for the purpose of "tuning up" their businesses in order that their productions may equal pre-war standards.

### THE "SKILLED" MAN

Therefore, everything considered, it behooves the really advanced assistant, who, perhaps, is thinking of returning to civil life, to consider his plans for the future; he should make an analysis of his past experience and determine in which branch of work he is likely to make good. The writer, who is a very firm believer in specialization and individuality, would recommend the photographer to seek to perfect himself to the utmost of his special ability. It is really remarkable how many so-called "bromide-printers" one may come across who know really very little about their particular work; the same applies to most other departments such as negative and print retouching, aerography, the study of color, the techniques of panchromatics, and so on.

In any of these fields there is immense scope for specialization—or the assimilation of rare and expert knowledge and ability—combined with opportunities of much higher remuneration and more settled berths than

## Conventions 1919

ASSOCIATION	PLACE	DATE	SECRETARY
NEW YORK	ELMIRA, N. Y.	FEB. 25-26-27	Frank E. Hewitt, Corning, N. Y.
MIDDLE ATLANTIC	PITTSBURGH, PA.	MARCH, 18-19-20	Geo. J. Kossuth, Wheeling W. Va.

is ordinarily possible by those who are simply "good all round."

Admittedly, the demand for workers with the necessary abilities mentioned are not in the majority—but the supply is not equal to the demand.

#### NO ROYAL ROAD

There is no "Royal Road" to the acquirement of super-ability—fortunately, perhaps—but the use of sense and continued practice will always betray to the observant worker which kind of work he enjoys and is likely to excel in. Any trouble, labor, or expense entailed will be repaid again and again after the attainment of the desired end, and even then, a worker who takes pride

in his attainments should always feel that he is still out to do bigger things.

The acquirement of a special skill is a bigger undertaking than one can be expected to achieve during ordinary business conditions—especially if one desires to study on an intensive course. If the proposed line of study is technical the writer advises the fitting up of a small laboratory and dark-room at home; if artistic one must possess the necessary equipment for private use and every source of artistic intelligence must be consulted and copious notes made for future reference. Ultimately, concentration on practical business work should lead to perfection with the passing of time.—*B. J.*

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## ENLARGED NEGATIVES

**A**LTHOUGH the general adoption of bromide paper for enlarging has greatly reduced the necessity for enlarged negatives, there are still many occasions on which they are indispensable, all processes of contact printing, such as carbon, platinum, P.O.P., or oil printing, being only possible from a full-sized negative. Even for bromide or gaslight prints in quantities the enlarged negative may facilitate production when compared with the operation of enlarging direct from the original small plate, and there is the further advantage that a considerable improvement in quality both by means of judicious exposure and development of both the transparency and negative may be made, as well as the possibility of working up by hand if the original needs it.

As is generally known, the first step is to make a transparency from the original negative, and this may be done either by contact or in the enlarging camera to the necessary size. The former is the easier and cheaper, but the latter gives the best results. As the procedure is nearly the same in both cases, we will deal with the small transparency method first. Having carefully cleaned and, if necessary, spotted the negative, it is placed in a printing frame, and a slow fine grain plate placed in contact with it, film to film, the greatest care being taken to remove all particles of dust, which would cause small transparent spots in the positive and large opaque ones in the finished negative, the latter being difficult to remove. As most plates are slightly concave upon the coated side, it is advisable to expose to a small source of light at a distance of several feet and to keep the frame quite still to avoid diffusion by parallax.

The exposure should be on the full side and development carried on until the density is that of a rather thin negative. There should be no clear glass, or the enlargement will probably be too hard. Lantern slide equality is not the best for enlarging from. It is obvious that at this stage considerable modification of the character of the image is possible. By suitable exposure and development a soft thin transparency may be made from a hard, dense negative, or a vigorous one from a thin negative. Intensification or reduction may be used if needed, and after drying and careful spotting the transparency is ready for enlargement. It is, as a rule, unwise to attempt to do anything in the nature of retouching or working up upon either the negative or transparency, as every touch is magnified and the work looks very coarse; such work may all be done upon the large plate. Most text-books recommend the use of a camera with a bellows both before and behind the lens, the one being fitted with frames to hold various sized transparencies and the other carrying the ordinary focussing screen and dark slide. As such cameras now rarely form part of the studio equipment, it will usually be found more convenient to put the transparency in the ordinary enlarging lantern and to project the image upon an ordinary slow plate instead of upon bromide paper. As even slow ordinary plates are much more rapid than bromide paper, it is desirable to make a strip test exposure upon a small plate placed so as to receive the densest part of the image. Ordinary drawing pins will serve to fix this on the large plate in any desired position. When putting the transparency into the enlarger it should be remembered that it is as easy to make a re-



By  
C. P.  
Rice  
of  
Boise  
Idaho

versed negative for single transfer carbon printing as it is to make a non-reversed one, as we have only to put it in with the glass slide towards the large plate if the former be desired. Development and fixing are, of course, conducted as usual, and when finished the negative is ready for retouching or any other "making ready" for printing.

If we decide to adopt the large-transparency method we put the small negative into

the enlarger and make our positive upon a slow plate in the same way as just described, remembering to keep the same quality as would be needed for the small one. The large positive may now be retouched and "faked" to almost any extent; pencil and knife upon the film and matt varnish or tracing paper with soft pencil, blacklead and stump or water-color upon the black may all be done. When judged

satisfactory the finished positive is put in a printing frame, and the final negative made by contact upon a slow plate. This in its turn may be further worked upon before passing to the printer.

In view of the great cost of large plates it is well not to forget that for most subjects a smooth thin bromide paper may be used for the final negative, the grain not being noticeable if no attempt be made to render it transparent by oiling or varnishing. The printing will be somewhat slower if the paper be left as it is, but the prints will not only be less granular but brighter. Paper negatives are ideal for working upon, as either front or back will take pencil or chalk to any extent, and for carbon work they may be printed from either side.

Those who possess a knowledge of the carbon process will do well to produce their small transparencies by its aid as they will be absolutely grainless and full of detail in the shadows. Instead of using the ordinary temporary supports the image is developed upon plain glass which has been coated with a substratum of gelatine hardened with chrome alum and allowed to dry.

When working with enlarged transparencies the final negative may be made in carbon. Transparency tissue which contains a double quantity of pigment should always be used, or the images will be too thin.

With very granular originals it is often advantageous to use a soft focus lens for enlarging, only a small degree of diffusion being needed. If, say, a Dallmeyer B or D lens be used about one-half to one turn of the adjustment, it will destroy the grain without causing the image to appear unsharp. Some single lenses will also give the necessary diffusion if used at an aperture of  $f/8$  or larger.

It is obvious that even the cheap fixed focus enlargers or "printing boxes" may be used for the production of enlarged negatives as well as for ordinary paper prints. The transparency is placed in the negative carrier, and the plate in the position usually occupied by the bromide paper, or, if there is not enough depth for this, a flat "Portrait" film may be used. A variation may be made by making a large transparency on film, and from this a negative by contact on another film.—*B. J. of P.*

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## 'TIS HERE—MAYBE!

The Executive Board of The Photographers' Association of the Middle Atlantic States will meet Thursday, January 16th, at 10 a. m., at the Wm. Penn Hotel, Pittsburgh, Pa. Final plans will be made at this time for the big meeting on March 18, 19, 20.

### PITTSBURG CONVENTION

March 18, 19, 20, 1919

#### CLASSIFICATION OF AWARDS

- First Grand Prize**—Open to all photographers in U. S. and Canada. Gold Medal. Exhibit to include three portraits, which must be made from 8 x 10 plates, or larger. \$2.00 must accompany entry, which will pay for membership in organization for one year.
- Class A**—Open to all photographers in the Middle Atlantic States. Three portraits to constitute exhibit, the three having highest rating. First prize, Gold Medal; second prize, Silver Medal. All prints to be from 8 x 10 plates or larger.
- Class B**—Open to photographers in cities of 40,000 to 100,000 inhabitants in the M. A. S. jurisdiction. First prize, Silver Medal; second prize, Bronze. Portraits to be from 8 x 10 plates.
- Class C**—Open to photographers in cities of 15,000 to 40,000 inhabitants in M. A. S.

jurisdiction. First prize, Silver Medal; second prize, Bronze. 8 x 10 plates or under.

**Class D**—Open to photographers in cities under 15,000 inhabitants. First prize, Silver Medal; second prize, Bronze.

**Class E**—Home Portraiture, for three best portraits not made in a studio. First prize, Gold Medal; second prize, Silver.

**Commercial Photography**—Open to all photographers in M. A. S. jurisdiction for the three best pictures of commercial subjects. Contact prints. First prize, Silver Medal; second prize, Bronze.

**The Abel Cup**—A special prize offered by *Abel's Photographic Weekly*, for the two best portraits, not less than 5 x 8 inches, made entirely by an employe working in any studio in the Middle-Atlantic States jurisdiction. No entry fee.

**Bulletin of Photography Prize**—\$10 in gold for the best picture exhibited by a member of the P. A. of M. A. S. No strings tied to award. Picture can be entered in the classes or as an exhibit.

#### RULES GOVERNING AWARDS

Portraits may be framed or unframed.

Three portraits shall constitute an exhibit, except special prizes; awards to be based on the highest rating of the three

portraits. No names or identification marks to be on face of portraits. Enclose card or name and address with exhibit, specifying the class in which they are entered, which will be placed with your exhibit after they are judged and hung.

A fee of two dollars must accompany all exhibits for the Grand Prize, which carries with it a membership in the organization for one year.

Exhibitors in all other classes must be in good standing in the Association, except Special Classes.

#### PITTSBURGH - WESTMORELAND-FAYETTE SECTIONS

Announce their Tenth Annual BOOSTER MEETING, BANQUET AND DANCE

At the Hotel Schenley, Thursday Evening, January 16th, 1919, at 7:00 O'Clock

THE REASON—To boost for the Pittsburgh Gold Medal Convention, to be held March 18, 19 and 20.

The officers of the Middle Atlantic States Association will hold their annual board meeting all day Thursday, the 16th. The officers of the P. A. of A., with representatives from the Manufacturers and Dealers, meet in Cleveland January 13th and 14th, and will come from that meeting to the Pittsburgh meeting. This means a little convention of our own. It also means we will have with us some of the most representative men in the profession.

We want a record breaking attendance, full of enthusiasm and good fellowship, so these men will go home boosting for our convention in March. Every photographer in Western Pennsylvania ought to plan to be present, with his wife and employes. You will have a great time. The Entertainment Committee is preparing a great program. Pop Henry is in charge. You remember last year. Nuf ced. The Convention Committees will hold meetings during the afternoon.

We must know how many to plan for. Write or telephone Henry or Alexander Bros. that you will be there. Do it today. I am counting on your support.

A. H. DIEHL,  
For the Committee.

Melvin Sykes has sold his studio in the Stevens Building, Chicago, Ill., to Messrs. McKernon and Harry Diamond, both young men with lots of ambition. The sale took place December 30th.

Ed. Cooper, now a captain in the Signal Corps, and Division Photographer with the American E. F., has twice been cited for

meritorious conduct under fire. These citations read:

#### HEADQUARTERS 26TH DIVISION American Expeditionary Forces

France, October 16, 1918.

#### GENERAL ORDERS No. 88

##### EXTRACT

12. The Division Commander takes pleasure in citing First Lieut. Edwin H. Cooper, S. C., Division Photographer, for his gallant and meritorious service when he led his photographic section over the top with the infantry in the capture of TORCY and afterwards in the advance on BOURESCHES WOODS, and in the advance with the troops in the ST. MIHIEL SALIENT toward VIGNEULLES. Lieut. Cooper has made several pictures during battle and in some of them ahead of the infantry.

C. R. EDWARDS,  
Major General, Commanding.

#### HEADQUARTERS FIFTH ARMY CORPS

American Expeditionary Forces

France, November 20, 1918.

#### GENERAL ORDERS No. 26

30. Captain EDWIN H. COOPER, Signal Corps,

For faithful and meritorious service as Corps Photographic Officer during the MEUSE-ARGONNE Operations, in which his work demonstrated commendable initiative.

C. P. SUMMERALL,  
Major General, Commanding.

These copies of the citations were sent us by the Gerhard Sisters of St. Louis, to whom Ed. Cooper sent a German helmet as a souvenir. Ed. writes that he does not know when he will get back to the States by he hopes it will be soon.

### Without A Funnel

If liquid has to be poured from a rather broad spout into a narrow bottle, and no funnel is at hand for the purpose, it will be found that it can be done without loss by the help of a glass rod, or even a stick or pencil. The under side of the spout must be perfectly dry. The rod is wetted with the liquid and held with one end in the bottle; the spout is then brought up to it, and the vessel tilted until its contents touch the wet rod. This will be found to act as a guide and carry them into the bottle. With a little care and a steady hand there is no reason why a drop should be spilled.

# Dyes In Color Photography

*A review of the employment of dyes in color photographic processes is contained in the following extract from a paper by Dr. A. Seyewetz in the current issue of the French chemico-technological journal, "Chémie et Industrie." It deals with the properties of dyes used in any way or another in process of obtaining photographs in natural colors.*

IT was the two French investigators, Cros and Ducos du Hauron, who first pointed out the possibility of obtaining indirectly a photographic reproduction of colors. As is well known, the principle of their method consists in regarding all multi-color effects as capable of reproduction by means of three simple colors, blue, yellow, and red, all color effects being obtained by the association of several primary colors. Thus it suffices to separate by photographic means the blue, yellow, and red by making negatives of these three colors. Positives from these negatives when provided each with its appropriate color, as by staining the positive images with suitable dyes, yield, when superposed, the effect of the multi-color original. This process of Cros and Ducos du Hauron presented great practical difficulties, the chief of which was the perfect separation of the colors so as to obtain negatives each representing a primary color. MM. Lumière were able to solve these difficulties by employing for the making of the negative orthochromatic plates and light-filters suitably chosen in regard to them. Inasmuch as the problem consists in obtaining negatives of the monochrome effects, the sensitiveness of each of the three plates requires to be raised not to the color to be reproduced, but to its complementary. The color of the light-filters is chosen spectroscopically, so that the filters transmit only the colored rays to which each of the plates has been sensitized. The system thus consists in the use of a violet screen for the yellow and orange screen for the blue, and a green screen for the red. In the preparation of these screens the most common practice is to employ films of gelatine coated on glass and stained by imbibition in suitable dye solutions, the absorptive properties of which are judged by the spectroscope. MM. Lumière used methylene blue for the violet screen, a mixture of erythrosine and metanile yellow for the orange screen, and a mixture of methylene blue and auramine for the green screen.

The three negatives having been thus ob-

tained, three monochrome positives corresponding with them are made by printing processes such as those based on the insolubilizing action of light on bichromated gelatine, and yielding a gelatine relief, the depth of which is proportional to the action of light. In staining these gelatine reliefs with solutions of suitable dyes, the coloring matters which have been employed are chrysophene A for the yellow, erythrosine J for the red, and diamine blue for the blue. The superimposition of the three monochrome positives, presuming that the selection of colors has been perfectly carried out in the making of the negatives, thus yields a true reproduction of the colored original. Likewise, each of the negatives may be printed in black on plates or papers coated with gelatino-bromide emulsion, and the silver images thus produced converted into color monochrome positives. The property possessed by silver iodide of fixing a large number of basic dyes, and also some acid dyes, such as methyle violet, ethyl green, quinoline red, rhodamine, eosine, auramine, and methylene blue, first observed by the Abbe Tauleigne, and subsequently by Traube, provides the basis for a different method of carrying out the same principle. The dyes themselves in this case do not permanently stain the gelatine, and are thus removed by washing with water. The silver images, in the first instance, are converted into silver iodide by the action of a mixture of potassium iodide and ferricyanide.

## COLORS IN SCREEN PLATES

One of the most important applications of dyes in color photography is that which has been made in the preparation of the multi-color screen-plates employed in producing color transparencies by one exposure to light. The principle concerned in these processes is the same as that in which three separate negatives are taken and monochrome positives from them combined in registration. The colors of the subject are likewise selected by means of three screens, violet, green, and orange, but these latter, instead of being separate and independent of the sensitive plates, are arranged permanently in the form of microscopic elements on the surface of the glass which supports the sensitive emulsion, whilst they also themselves form the colors of the multi-colored image.

As is well known, these screens are formed by juxtaposed lines colored red,

*Oscar Pach  
of  
Cleveland, O.  
Now an  
Aviator  
By  
Gerhard  
Sisters*



orange, and violet, in a succession of these three colors, or by grains colored with dyes, as in the Lumière Autochrome plate. In this latter the colored grains are those of starch, measuring 10 to 15 thousandths of a millimeter. The method of production of color transparencies upon a composite plate, such as the Autochrome, is too well known to need repetition.

#### LEUCO DYE BASES

A process due to Dr. König is based on the property possessed by a large number of dyes of yielding under the action of reducing substances colorless bodies known as leuco bases. These leuco bases become colored again under the action of light. Dr. König found that by mixing these leuco bases with nitro-cellulose the recoloration under the action of light became much more rapid and considerably more intense. It was found that the oxygen of the nitric ether of the nitro-cellulose took part in the oxidation of the leuco base. By dissolving the leuco bases in collodion there is obtained

a solution which can be spread as a sensitive film upon the support, such as paper. The following leuco bases have been used by König for obtaining different colors:

- For blue, ortho-chloro-tetra-ethyl-diamino-tri-phenyl-methane.
- For green, the leuco base of malachite green.
- For red, para-leucaniline or leuco-rhodamine.
- For violet, hexa-methyl-para-leucaniline.
- For yellow, leuco-fluorescein and leuco-flavaniline.

The colors are fixed by means of monochlor-acetic acid, which forms the best solvent for a large number of the leuco bases. The maximum sensitiveness is obtained by exposing the sensitive surface through screens of glass of color complementary to that which one wishes to obtain, whilst the minimum results from using glasses of the same color.

#### FEERTYPE AZO-DYE PROCESSES

The diazo and tetrazo organic compounds are susceptible of yielding with sulphite of soda molecular compounds in which the property no longer exists of forming azo dyes with amines or phenols. These diazo-sulphite compounds, if mixed with alkaline amines or phenates, become colored in light, yielding a color identical with that which the non-sulphited diazo compounds yields with the same amines or phenols. These bodies thus afford a simple process of producing azo colors on fabric or paper, the process being known as Feertype, from its inventor. The diazo or tetrazo compound is dissolved in water, and the amine or phenol in alkaline solution added to it. Paper is then impregnated with the mixture, dried in the dark, and exposed to light under the negative or transparent screen bearing a design to be reproduced. The compound not affected by light is removed by treating the printed image for a few minutes with boiling water in which the undecomposed compound dissolves. A considerable variety of colors can be reproduced by this process.

#### DIAZO DECOMPOSITION PROCESSES

In these processes the action of light is used to decompose the diazo compounds. This decomposition takes place on exposing paper impregnated with the diazo compound under a screen or negative bearing the design. For the production of the color, either the parts which have been exposed to light or those which have been protected from the light may be developed. In the first case the paper is immersed in a solution of a diazo compound, which, with the phenol formed by the decomposition of the diazo compound on the paper, yields a new dye, whilst the parts remaining undecomposed simply dissolve without giving rise to any colored product. In the second case, development is done by immersing the paper in a solution of an alkaline phenolate or amine, which yields a new dye only with the portions of the image which have not been decomposed by light.

#### BLEACH-OUT PROCESSES

The principle of these methods was indicated by Cros in 1881. It consists in the exposure of a number of fugitive dyes to light, each dye undergoing change under the influence only of the colored rays which it absorbs—in other words, rays the colors of which are complementary to those of the dyes. Thus blue light passes through the blue particles in a mixture of dyes, and, not being absorbed by them, produces no change, but, being absorbed by red or yellow particles, produces a certain reaction corresponding with an alteration or even com-

plete destruction of the color. Dr. Neuhauß, who, following Vallot and Worel, made many experiments with this process, suggested solutions of methylene blue, auramine, and erythrosine added to a gelatine solution to form the sensitive coating. Immediately before use the latter was extra-sensitized by means of a solution of hydrogen peroxide in ether. It was Worel who suggested anethol as a sensitizer in place of hydrogen peroxide, using it with a mixture of primrose, blue victoria, cyanine, cercuma, and auramine. The process, however, in spite of the very large amount of experiment which has been expended upon it, still remains in a very imperfect state.

A. SEYEWETZ.

### Where Do We Go From Here?

**T**ECHNICALLY, the war is still on and peace has not yet come, but, actually, the terms of the armistice are such that a resumption of hostilities is impossible on any scale that would be a further menace, such as the former German Imperial army proved to be. There may be uprisings of mobs and revolts by bands of armed soldiers, but to all intents and purposes the greatest war in history is finished and over.

America tackled the big job of war activities in a big American way, and did it in such a thorough manner that we can have full and perfect confidence that she will handle the big problems of reconstruction in the same big way. The people displayed the nobler side of their nature in their self-denial and patriotism, and did it without a murmur. Any one who acted selfishly and used the occasion for personal profit, aroused the criticism of his neighbors to such an extent that he was compelled to distinguish the difference between the contemptible practice of profiting at the expense of the country in time of stress and giving to the country the very best efforts of his talents and ability, and returning to the Government whatever profits his work brought him.

But now that the crisis has passed, we must confess that we look at the situation with interest, wondering how many of our citizens will argue to themselves that the passing of war conditions relieves them of all patriotic responsibility and returns to them the right and privilege of using their wits as best they can to profit from the situation. To make money. To make it honestly, if possible, but to make it. We feel confident that the great majority of

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our citizens will not take this attitude, but we fear that a few will, and lest these few should discredit the many, there is need for watchfulness. A true feeling of patriotism will hold us all to the ideals that our political, military and moral leaders have nailed to the masthead of the ship of state, and, while there is no desire nor intention of curtailing the individual liberties of the people, there is a desire and intention of curbing any ignoble purposes until the boys who have given themselves for our cause will have finished their work and have come back home to again take up their civil positions and enjoy their proper portion of opportunities.

It would be a crime if the stay-at-homes should take advantage of the soldiers by grabbing all of the opportunities before they get back. Our sense of fairness and justice will not permit such a thing to occur, and we believe that by calling the attention of the public to this possibility we will do all that is necessary to hold us steady and straight.

Steady and straight. No need for excitement nor depression. No need for haste in the acquiring of wealth. No need to scheme how to take something away from our neighbors. The Government and the financial interests are taking steps to bring about an orderly readjustment of prices and wages and opportunities, and they expect of us a patriotic co-operation, just as they expect and receive the unanimous support of all in our war preparation.

It is not possible to foretell accurately what is before us, and we do not claim to be the seventh son of a seventh son, nor to possess any powers of clairvoyance. But, although peace is scarcely three weeks old, although peace is scarcely a week old, we have observed the significance of many incidents that strongly indicate the trend of events in the near future. We give just one to illustrate.

The Government purchased land and planned a large and fully equipped artillery camp and range at Stithton, Ky., to be known as Camp Knox. The features of the location were so ideal that it was desired to complete it in a very short time and build it in a more permanent and approved way than the other hurriedly-built camps. Some fourteen thousand laborers were attracted by the high wages and the opportunity for extras for overtime. It grew like Aladdin's palace, and promised to be ready for the coming winter. But within five days of the signing of the armistice, all extra overtime was abolished. The money that was being spent like water to induce quick action

began to be hard to get. Working time was limited to eight hours a day, at the regular scale of wages, but no over-time. The greedy laborers at once became peeved, and some three thousand left the job. Some incompetents, who were being used by reason of the dire need, were asked to leave, and the word went out that the work would be continued and every man who wanted work at good (not fancy) wages could find employment. The camp will be finished, but unnecessarily and expensive work will be stopped immediately.

We take our cue from that incident. We must keep on working and making our legitimate profit, but we must expect and willingly accept the more normal conditions that are sure to come with peace. There will be uncomfortable minutes when there is a reduction in income and a continuation of higher expenses, but these two will ultimately strike a balance. When the war started we profited by increased profits and normal expenses. For a time we will lose by normal profits and excessive expenses. But we can shrug our shoulders and say, as the French say, "C'est la guerre!"

There is nothing alarming in the prospect if we will but train the mind to expect almost anything and then accept uncomplainingly what comes. If we do not make fixed plans nor conceive fixed ideas, we will not suffer disappointment over having our plans and ideas upset. We are going to do a great business, and if we conform to the plans suggested by our leaders, we will get along fine, thank you. A steady and straight business policy will carry us through the period of unsettlement with flying colors.—*Trade News*.

## Definition

Many photographers have come to regard good definition as depending entirely on the quality of the lens, but this is only very partially the case. The definition of a first-class lens may easily be spoiled by very simple causes, for example, a layer of dust on the glasses, to cite one of the causes which is often overlooked. Recently faulty definition, for which one of the best R. R. lenses was blamed and almost discarded by an operator who had previously used and had a preference for anastigmats, was traced to the camera front being loosely supported on loosely-screwed struts. Observation showed that when the front was loosely screwed the action of a roller-blind shutter which was being used caused a slight vibration. We have seen many operators work

## An Announcement

**O**UR activities for the past year have been nearly 100 per cent, devoted to war production of vital importance to the government, compelling us to discontinue regular manufacture in practically all of our lines.

The cessation of hostilities has now enabled us to begin the readjustment to a peace production basis. While this adjustment must be gradual, we are pressing it with all possible speed in order to satisfy the requirements of our normal trade at an early date.

We appreciate the patience and understanding with which our patrons have reacted to the situation and trust they may continue to exercise such consideration until our manufacturing facilities are once more on a pre-war footing.

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with struts, etc., far too loosely screwed, in some cases so much so that the pressure of a finger was sufficient to move the front or swing-back. In copying work, when a long bellows extension is employed, rigidity is essential, as, if this is not the case, there is a tendency for the front to be drawn by the bellows, which produce a loss of rigidity that would not be evident at a shorter bellows extension. Another point that needs attention when work of this kind is being done is vibration from heavy traffic in the vicinity. Having the original and camera on the same solid support is a partial, but by no means complete solution of the problem, which is to be regarded as having everything as firmly screwed as possible. If there is a separate space between the camera and the original any vibration, such as a person walking about the room, if the floor is not particularly firm, has been known to cause poor definition, for which the lens has received the blame. The tripod, again, receives very little attention from many operators. More often than not its rigidity is cut down in order to permit lightness, or a flimsy tripod is employed for a heavy camera—another fruitful cause of poor definition. Often, too, the operator devotes too little attention to setting up the tripod or fixing the legs firmly, and when outdoor work is being done, especially if there is any wind, impaired definition is bound to result.

### Tarcole—A Notable Example of American Ingenuity.

With the war apparently at an end, we may expect in the near future a great influx of all manner of foreign-made developers.

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It is even entirely possible, when the peace terms have been agreed upon and signed, that the German manufacturers may endeavor to bring their preparations on the American market. In view of the wonderful success of American manufacturers and chemists in the production of developers it does not seem likely that German efforts will have much avail. Tarcole, which has now stood the test for over a year, is a notable example of what our American chemists can do when called upon. Tarcole is *not a substitute* for any other developer. On the contrary, it is the equivalent of the most known of all developers, but with a greater degree of refinement and with many qualities which the imported product lacked. For instance, it is far less injurious, in use, to the skin. It will go further, that is, does not weaken so rapidly in use. It does not call for the addition of iodides or caustic sodas like some of the well advertised substitutes. It can be used for every phase of picture making, developing of plates or films, developing papers, cinema film, X-Ray work, etc. In addition its low selling price commends it for general use although this low price is not to be taken as any reflection on its high quality. Tarcole is guaranteed. The Chilcote-Sargent Co., of Cleveland, by whom it is packed in original bottles, suggest that you try a bottle that you may convince yourself of its superior qualities as a developing agent. Prices are:

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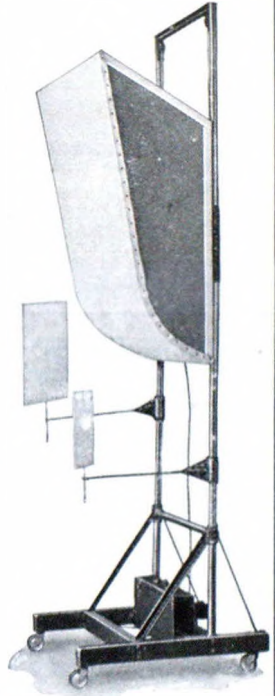
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**SITUATION WANTED:** Under 30 words, two insertions, free; further insertions, 30c each; over 30 words, first two insertions, 30c each; further insertions, 50c.

**HELP WANTED:** 50c per insertion.

**FOR RENT and MISCELLANEOUS:** Under 30 words, 50c per insertion; over 30 words, \$1.00 per insertion.

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**STUDIO WANTED**—First-class studio in town not less than 20,000 population. West or southwest preferred. Give full information in first letter. Will pay cash. Address E. W. Farley, Lock Box 336, Lehigh, Okla. 1-4-2

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**HELP WANTED**—A good all-round man that is a good retoucher. A steady position and good salary to a good man. Address W. R. Loar & Co., Grafton, W. Va. 1-11-2

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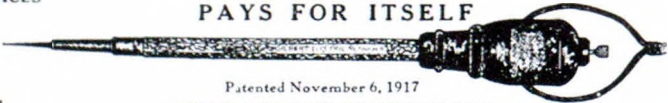
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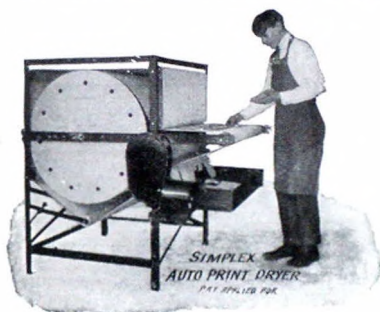
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**CLEVELAND, OHIO.**—Fowler & Slater, 806 Huron Road, S. E.

**CHICAGO, ILL.**—Sweet, Wallach & Co., Eastman Kodak Co., 133 North Wabash Avenue.

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**DES MOINES, IA.**—W. P. Henry, 819 Walnut Street.

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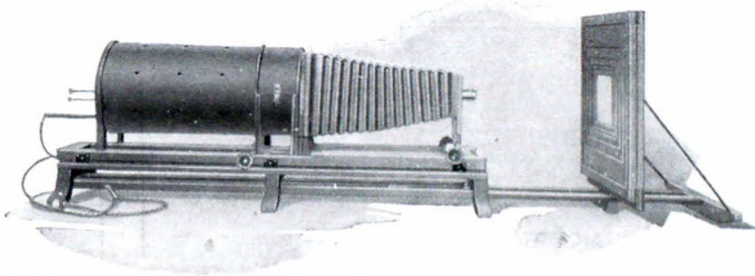
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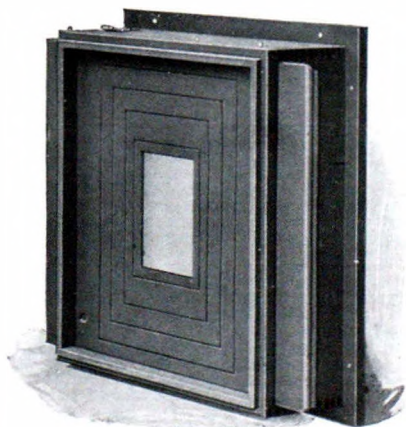
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**HELP WANTED**—First-class printer and retoucher at once. Steady position year around. Write stating experience, salary desired, etc. Address E. E. Mangold, 226 N. Main St., South Bend, Ind. 12-28-4

**HELP WANTED**—I am in need of a good all round man, especially an operator who can retouch, and who can take charge of the place when I am out. Position open first of year. Address H. Holladay, 2602 Washington Ave., Newport News, Va. 12-28-3

**HELP WANTED**—Wanted first class all around man. Must be first class retoucher and printer. Position steady. Will pay according to ability. Send samples of your work and photo of self. Address The Engel Studio, 202 W. Federal St., Youngstown, Ohio. 12-28-4

**HELP WANTED**—Wanted at once, good, all-around man to assist in retouching, printing and dark-room work. Must be sober and steady. Address Mueller Studio, Newark, O. 1-11-1

**HELP WANTED**—Wanted operator for busy high-class studio; must have ability, tact and be a fairly fast worker. State experience, age and send samples of work, and references. This will be a permanent and desirable position. Salary \$200 per month. Address O. L. Angvire, Spokane, Wash. 1-11-4

**SPECIAL**

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**SPECIAL—RETOUCHING FOR THE TRADE.** In mailing first batch, state whether close time work, good average, or lesser grades. Down to post-card if desired. Address Reid's Retouching Bureau, 1900 East 6th St., Cleveland, Ohio. 1-11-TF

**SPECIAL—RETOUCHING BY AN ARTIST.** Send work by Parcels Post or American Express to Clarence C. French, Box 736, Kalamazoo, Mich. 1-11-1

**SPECIAL WANTED**—A. No. 7 Goerz Dagor Lens Series 111. Might accept a Turner-Reich 14 in. Series 111. A. lens for large groups. What have you? Lenses must be in perfect condition. A reasonable cash price. Address H. W. Donner, 720 College Ave., Appleton, Wis. 1-11-2—e.o.w.

**SPECIAL**—Blocking Commercial Negatives. Negatives returned 24 hours after we receive them. 30c per negative photographed on white grounds. Satisfaction guaranteed. 1-11-4

**RETOUCHERS**

Photographers, the vital part of a perfect retouching machine is in the holder which is explained in the advertisement of GREEN'S LIGHTNING RETOUCHER, which appears in this journal. READ IT.

**THE LIGHTNING RETOUCHER CO.**

Hastings, Mich.

11-23-TF

**SITUATION WANTED**

**SITUATION WANTED**—Experienced, capable all-round photographer just out of army wants position in Indiana or Illinois. Can handle any branch of work or take full charge. Married man and strictly sober. Address W-1, care of this journal. 12-28-4

**SITUATION WANTED**—First class printer capable of artistic work, quantity and quality, wants position. Address P-2, care of this journal. 12-28-2

**SITUATION WANTED**—Position wanted by photographer who understands thoroughly studio, home portraiture, dark-room, printing and enlarging. Must be permanent position. Address F-1, care of this journal. 1-4-3

**SITUATION WANTED**—Position wanted by married man. Experienced in managing studio. If large studio, finishing end of business preferred. Must be permanent. Please state salary in first letter. Address D-2, care of this journal. 1-4-3

**SITUATION WANTED**—Position by experienced receptionist in Eastern city, Washington or Providence, R. I., preferred. Exceptional selling ability, capable executive. Only high-class studio and good salary considered. Address B-2, care of this journal. 1-4-3

**SITUATION WANTED**—Position wanted by young man, in first-class studio. Can operate, work backgrounds, print, retouch and do dark-room work and oil-coloring. Have recently been released from the army. Will send samples and references if desired. Address S-6, care of this journal. 1-4-3

**STUDIOS FOR SALE**

**FOR SALE**—The only two studios in Washburn County, Wis. Six miles apart. Railroad center and county seat. Population 2,000 and 1,200. Good train service, lights, water, etc. Business averages \$3,000 a year. Wish to retire, reason for selling. The Sweet Studio, Shell Lake, Wis. 12-28-4

**FOR SALE**—The Breckenridge Studio. The best location in this city. This is a hustling good town. The largest for many miles about. Population 30,000. Small town and coal fields close. Always good business, no dull season. Have store and farm we wish to look after. Will sell for less than one-half of the cost. Will be about \$500.00. Address W. J. Breckenridge, Bluefield, W. Va. 12-28-4

**FOR SALE**—Fine studio in Michigan. Town of 6,000. Good factories. Large scope of country with numerous small towns to draw from. Studio fitted to 8x10. Getting good prices. With light opposition. This is an opportunity. Good reasons for selling. For particulars address T-3, care of this journal. 1-7-2

**FOR SALE**—Only studio in county; central Michigan city of 2,000; several towns to draw from. Twelve years in same location. Newly finished and equipped to 8x10; framing in connection. Steam heat, light, city water. Splendid business; good prices; no post-cards. Proposition right; price reasonable. Possession at once. Address H-1, care of this journal. 1-4-3

**FOR SALE**—In the beautiful city of San Diego. A California Ground Floor Studio, centrally located, most attractively furnished, all modern equipment and rent very reasonable. For the last three months receipts averaged \$1,000 per month. Price \$2,500. Near two permanent Army Camps and Marine and Naval Base. Address L. H. Sansiper, 1226 Fifth St., San Diego, Calif. 1-4-1

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