KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

MAY 1920

EASTMAN KODAK COMPANY
ROCHESTER, NEW YORK
The Kodak City

THE CALL OF YOUTH

Made with a 2C Kodak Jr.

KODAKERY

A Journal for Amateur Photographers

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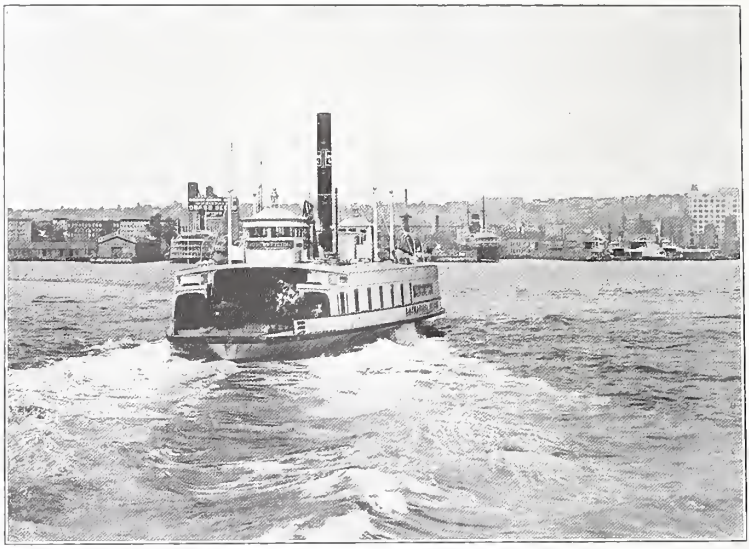
GROUP ONE

When all the objects of interest in a landscape are more than 500 feet from the camera the subject should be classed as an extremely distant landscape

THE EXPOSURES TO GIVE FOR OUTDOOR SUBJECTS

The rectilinear and anastigmat lenses that are fitted to Kodak, Premo, Graphic and Brownie cameras are always mounted in shutters. The various speeds at which these shutters work, and the various stops with which the lenses are equipped are marked on the front of each shutter.

The speed markings, and also the stop markings, on the various sizes and kinds of shutters to which rectilinear and anastigmat lenses are fitted



GROUP ONE

A white vessel under brilliant sunshine, well out from the shore, may safely be classed as a "Marine"

are necessarily different. All of these shutters have, however, speed markings of 25 and 50, which represent exposures of 1/25 and 1/50 of a second, and they all have stops marked 4, 8, 16 and 32 or, stops marked f.7.7 or 8, 11, 16 and 22.

Experience has convinced us that a simple exposure table, which solves the outdoor exposure problem by recommending the use of a single shutter speed and only a few stops, is much more valuable for a beginner in photography than a table that refers to all the shutter speeds and all the stops that the shutter may have. The other shutter speeds and stops are of value for kinds of work that will be referred to in future numbers of KODAKERY, *but they can be ignored by the beginner who wishes, first of all, to learn the simplest way to get good results, with ease and certainty, in ordinary outdoor work.*

The photographer who uses a rectilinear or an anastigmat lens, and prefers, at times, to use these other stops and other shutter speeds in his outdoor work can quickly determine, by referring to the article on page 22, entitled, "The Relation Between Shutter Speed and Lens Stop," which other shutter speeds must be used with other stops to secure the same relative exposure as is secured with those that the table recommends.

The first table in the following article applies to all cameras that are fitted with rectilinear or anastigmat lenses.

GROUP TWO

Unless the air is very clear, and the sunlight unusually bright, a dark-colored vessel, not more than 200 feet away, should be classed in Group Two

The second table applies to all fixed focus, single lens cameras (like the box type of Brownies and Premos) that have but one shutter speed.

It will be noted that in the following tables we have ignored all fine calculations, and have also ignored the fact that an exposure that would be absolutely correct at nine o'clock on a cloudless day would not be absolutely correct at noon of the same day, but (and here is the reason why the exposures recommended in these tables yield good results under widely varying conditions) the latitude of Eastman film is so great that a very considerable overexposure can be given without injuring the printing quality of the negative.

NEARLY all of the outdoor subjects that we ordinarily photograph during the daylight hours may be classed in four groups, and, as the exposure that each group requires is easily memorized, the outdoor exposure problem can be reduced to the single question of determining in which group the subject belongs.

By examining our illustrations, each of which bears the number of the group in which it is classed in the accompanying exposure tables, it should be easy for the photographer to decide in which group the outdoor subject he wishes to photograph does belong, then, by giving the exposure recommended in the table that applies to the kind of camera he is using, a negative can be made from which good prints can be obtained.

The exposures recommended are neither the shortest nor the longest that will give good results with Eastman Film, the latitude of which is so great that it will take

GROUP TWO

This subject is classed in Group Two because the greater part of it received the direct light from the sky

GROUP THREE

In street scenes there are always more dark than light tones

GROUP THREE

A nearby landscape scene, showing little sky. Note that in this picture the greater part of the subject is shaded. Dark tones predominate, while in the picture on the opposite page the greater part of the subject receives the direct light from the sky

care of any reasonable errors in exposure. They are averages that have been obtained from a comparison of thousands of exposures and they are as good for use on sunny days in winter as on days of summer sunshine.

When the day is cloudy bright the exposures should be from two to three times as long, and when the day is dull the exposure should be from four to eight times as long, as those mentioned in the tables.

OUTDOOR EXPOSURE TABLE FOR CAMERAS THAT HAVE RECTILINEAR OR ANASTIGMAT LENSES

For 2½ hours after sunrise until 2½ hours before sunset on days when the sun is shining

	Shutter Speed	Rectilinear Lenses Stop	Anastigmat Lenses Stop
GROUP 1—Snow, Marine and Beach Scenes—Extremely Distant Landscapes	1/25	32	22
GROUP 2—Ordinary Landscapes Showing Sky, with a Principal Object in the Foreground	1/25	16	16
GROUP 3—Nearby Landscapes showing little or no sky—Groups, Street Scenes,	1/25	8	11
GROUP 4—Portraits in the Open Shade, not under Trees or the Roof of a Porch—Shaded Nearby Scenes	1/25	4	7.7 or 8

GROUP FOUR

In making snapshot portraits out of doors, be sure there is no roof or tree top above the subject

OUTDOOR EXPOSURE TABLE FOR FIXED FOCUS BOX CAMERAS THAT HAVE SINGLE LENSES

For 2½ hours after sunrise until 2½ hours before sunset on days when the sun is shining

GROUP 1—Snow, Marine and Beach Scenes—Extremely distant Landscapes,	Snapshot with Second Stop
GROUP 2—Ordinary Landscapes Showing Sky, with a Principal Object in the Foreground	Snapshot with Largest Stop
GROUP 3—Nearby Landscapes showing little or no sky—Groups, Street Scenes	Snapshot with Largest Stop
GROUP 4—Portraits in the Open Shade, not under Trees or the Roof of a Porch—Shaded Nearby Scenes .	1 second with Third Stop

To make a time exposure with a fixed focus Brownie Camera draw out the time slide to "F," and, with a fixed focus Premo, move the time lever over to "T." It takes two movements of the shutter lever for making a time exposure—one pressure for opening the shutter and another for closing it.

It takes about one second to mentally pronounce "One hundred and one."

GROUP FOUR

Cloudy-bright days, when no sharply-outlined sun shadows can be seen, are ideal for outdoor portraiture

THE DATE ON THE FILM

WASTE no opportunities. When you make pictures be sure that your film is fresh. If you make a bad print you can throw it away and make another. When you make a bad negative you may have wasted an opportunity that will never come again. Take no unnecessary chances. As a safeguard to photographers, an "expiration date" is put on all Eastman Films, and no film should be put to important use after such date. Because films which have been kept under proper conditions are often good long after the expiration date, some people get careless about this matter of fresh film and sooner or later disappointment follows.

Remember, too, that film will deteriorate between the time of exposure and the time of development even more rapidly than before exposure, owing to the fact that in the process of passing through the camera it is exposed to air and moisture as well as to the light that comes through the lens at the instant of exposure. In hot, damp climates, especially, it will take up moisture very rapidly and there's then only one safe thing to do—develop promptly. It does no good to wrap it up or put it away in a tin box, for the moisture is now in the film and the box acts like a fireless cooker in retaining the moisture.

Before development, whether exposed or unexposed, film should be kept in a cool, dry place.

Always be sure films are fresh when you purchase them, and develop them or have them developed as promptly as possible after exposure.

WHEN SUMMER DAYS COME

Made with a No. 1A Kodak, by William Bushy

THE PICTURE STORY OF THE OWL AND THE CROWS

A successful instance of Mouse Trap Self Portraiture

WE GRAFLEX A MOB SCENE IN BIRDLAND

BY HOWARD TAYLOR MIDDLETON

Illustrated with a Graflex Picture by the Author

IT is common knowledge among authorities on birds that the crow delights, above all other recreations, in tormenting an owl. When he is fortunate enough to find Screecher abroad in the daytime, he immediately takes advantage of the night bird's being unable to see

well in daylight, to pick on him. The fact that Screecher is helpless and cannot fight back appeals to Black Jim's sense of humor.

Marie and I, in our numerous cross-country hikes after pictures, have caught James red-handed at his favorite sport, and often discussed the possibility of recording such a scene photographically. Ever since adopting the mouse trap method of self portraiture (already described in detail in the April KODAKERY), we have been most eager to try it out on Corvus and Screecher.

The chance came when we found an owl with his head out of a hole in a dead chestnut trunk. The aperture was just large enough to admit Marie's slender fist, and, although Screecher protested strenuously with much sputtering and beak-snapping, he was hauled forth and carried to our "studio" in a clearing a few yards distant. There he was deposited upon a limb and requested to remain until the arrival of his tormentor. This required no persuasion on the part of the photographers as he promptly assumed the role of a fluffy feather ball and fell fast asleep.

We did not anticipate much difficulty in attracting Corvus to the scene as we had been baiting the place with corn, and had already procured several crow portraits in the same locality.

Now, to set our Graflex mouse trap. First, the camera was placed upon a sturdy tripod (the ground was frozen too hard to drive a stake), and focused upon the sleeping owl. Then the trap, clamped to its substantial base, was placed beneath the Graflex, and threads attached, one leading from the pedal of trap to the limb upon which Screecher slumbered, by way of an overhead branch; the other from loop of trap to camera release. This arrangement left a thread suspended above Screecher in such a manner that a crow while flying to and fro in the enjoyment of his unsportsmanlike game, could not fail to hit it. This touch upon the thread meant an action picture: As the pull came upon the pedal, the trap would spring, which in turn would release the shutter of the Graflex.

Retreating to a distant hill top, we watched through our binoculars, and, as anticipated, it was a very little while before two sable aviators separated themselves from a squadron winging overhead, and headed straight for Screecher. One settled on a limb near his victim, while the other swooped on the owl from above, cawing loudly the while. The exhibition lasted just a moment, then both the bullies sprang upward, as though urged by a load of shot, and departed across the fields to be seen no more.

Screecher, who had been momentarily awakened and annoyed, snuggled once more into slumber, and it was thus we found him when we returned for our camera outfit. We also found the thread broken, and mouse trap and camera shutter sprung—we had Graflexed a mob scene in birdland.

We returned Screecher to his home hole with tender care, none the worse for his exciting experience.

As I write these lines, his shivering cry, a low wailing whistle, comes to me from across the ice-bound Rancocas. Here's to you,

WHEN KNIGHTHOOD WAS IN FLOWER

Made at Chartres, France, with a Premo Camera; stop 16; $\frac{1}{10}$ sec.

Screecher! We trust you will enjoy the banquet of mice we left at your front door, and, furthermore, it is our earnest wish that you live long to aid us again in the making of a great picture.

MIXING THE PYRO DEVELOPER

THE pyro developer that is used for developing films is composed of pyro, sulphite of soda, carbonate of soda and water. The pyro is the developing agent, the carbonate is the energizer or accelerator and the sulphite is the preservative.

The function of the developer is to convert into metallic silver the silver salts on which the light has acted; but neither pyro nor any other developing agent, when used alone, can do this. Nearly all developing agents must be in an alkaline solution, in order to be efficient, and the alkali that is most generally used is carbonate of soda.

Water contains air and air contains oxygen. Pyro, like all other developing agents, has an affinity for oxygen, and when pyro is dissolved in plain water it absorbs the oxygen from the air that is in the water. Since the energy of pyro is increased when it is in solution with carbonate of soda it would quickly spoil if there was nothing but pyro and carbonate in the developer.

THE BIG FELLOW AND THE SMALL FRY

Made with a 3A Folding Kodak, by H. L. Vail

When sulphite of soda is added to the developer it acts as a preservative of the pyro, because like pyro, it has a great affinity for oxygen, and as a well-balanced pyro developer always contains much more sulphite than pyro the sulphite absorbs the greater part of the oxygen, so that the pyro can perform its function before it becomes too much oxidized.

In mixing the pyro developer it is, therefore, important to protect the pyro against excessive oxidation by dissolving the sulphite and the carbonate before adding the pyro to the solution.

The pyro developer not only develops the silver image but also deposits a stain image in the negative, and as this stain image is an oxidation product the developer should not be used a second time.

All the Kodak and Premo tank powders contain two packages of chemicals. The sulphite and carbonate are in the thick package and the pyro is in the thin one. By thoroughly dissolving the contents of the thick package first, then adding and thoroughly dissolving the contents of the thin one, and using the developer promptly after it is prepared, you will have a developer that has not been weakened by oxidation.

GETTING READY FOR THE LAUNCHING OF AN AMERICAN BOAT

Made with a No. 8 Premo at 6 P. M., September; stop 16; 1 sec.

FROM A KODAK

FIG. 1

Twenty minutes after sunset; stop f.11; 1/25 sec.

OUTDOOR SILHOUETTES

As we look across the landscape on a moonlight night and observe the shadow side of dark-toned objects, they appear to be black or very dark. When these objects are outlined against the sky the only well-defined lines we can see in them are their outlines, and these are conspicuous solely because they are silhouetted against a well-lighted background.

Such silhouette effects as we see by moonlight can be recorded by the camera, but we can get better results, in less time, if we photograph them before night begins, than if we picture them by moonlight. They can be made, at any hour of the day, when the necessary conditions are present.

These conditions are, a strongly lighted background, with a dark-toned object that is not strongly lighted, clearly outlined against this background.

The light conditions are sometimes favorable just before a storm during any of the daylight hours, and they are always favorable just before sunrise and just after sunset, on days when there are no dense, unbroken masses of clouds between the sun and the earth.

When the sun is far enough below the skyline of the landscape so that only that part of the sky which is nearest to the sun is brightly illuminated, the light on the landscape will be comparatively weak, and at this time which, in the United States, is from 15 to 45 minutes before sunrise and after sunset, silhouettes of the type

FIG. 2

Just before Sunset; stop 16; 1/25 sec.

shown in Fig. 1 of our illustrations can be made.

Figs. 2 and 3 show effects that can be secured during the hours of sunshine, when the sun is hidden behind banks of clouds, the edges of which it brightly illuminates.

Fig 4 was made in hazy sunshine. The objects of interest were silhouetted against a bank of snow. Effects similar to this can easily be secured just after sunset, on a clear day in summer, if the objects of interest are outlined against the western sky.

A picture of the type of Fig. 5 can only be made shortly after sunrise or shortly before sunset, when the sun is partly hidden by clouds. The striking effect which the photographer obtained is due to the fact that he made the picture with the lens pointed across a body of water, from a viewpoint

FIG. 3

Made by Cora Pattee, at 3 P. M.; f.8; 1/25 sec.

FIG. 4

Made at 4 P. M.; f.11; 1/100 sec.

which placed the man's head between the sun and the lens.

The negatives from which all of our illustrations, excepting Fig. 1, were printed were developed in the regular way—20 minutes in the tank, with one tank powder, at a temperature of 65 degrees Fahrenheit. All of these negatives showed faint detail in the shadows, but, while all of the exposures were long enough for recording the lightest tones, they were not long enough for recording more than faint traces of the detail in the dark ones. As a consequence, everything below the sky was badly under-exposed and the negatives were, therefore, quite contrasty. The faint shadow detail that the negatives showed was not recorded in the prints because they were made on Contrast Velox, a paper that puts more contrast in the print than can be seen in the negative.

The negative from which Fig. 1 was printed was intentionally over-developed—in a film tank for 20 minutes, at a temperature of 65 degrees F. with *two* tank powders. This was done for the purpose of obtaining a very contrasty negative.

This latter method is recommended when the utmost contrast between the light and the dark tones is wanted.

The data under our illustrations suggest the exposures to give for silhouettes, with rectilinear and anastigmat lenses, at the hours stated.

With the single lenses that are fitted to fixed focus cameras, a snapshot is recommended, with the same stop that is ordinarily used for landscape work, in bright sunlight.

FIG. 5

Made by James O. Wilson, with a No. 3 Special Kodak, 5.30 P. M.; f.32; 1/25 sec.

THE RELATION BETWEEN SHUTTER SPEED AND LENS STOP

THE stops with which photographic lenses are fitted regulate the amount of light that passes through the lens. A large stop allows more light to pass through the lens than a small one does, just as a large window allows more light to enter a room than a small window does.

The exposure that is needed for obtaining a correctly timed negative depends on the intensity or brilliancy of the light that reaches the film. Since the size of the stop affects the volume of the light that passes through the lens it is evident that the smaller the stop the longer must be the exposure.

There are two systems of marking lens stops: The U. S. (Uniform System) is ordinarily used on rectilinear lenses, and its markings are based on the relation between the *area* of the stop and the focal length of the lens, while the *f.* system is in practically universal use on anastigmat lenses, and its markings are based on the relation between the *diameter* of the stop opening and the focal length of the lens.

Different numerals are used for expressing the relative values of the stops in these two systems, but in both systems all stops that bear a higher number than U. S. 4 or *f.*8 admit just half as much light as the next lower numbered stop. This means that for all higher numbered stops the exposure must be doubled when the stop indicator is moved from any one stop number to the next higher number, and must be halved when the indicator is moved from any stop number to the next lower number. To illustrate; should the correct exposure be $\frac{1}{25}$ of a second with stop 16 it would be $\frac{1}{50}$ of a second with stop U. S. 8 or *f.*11, and $\frac{1}{12}$ of a second with stop U. S. 32 or *f.*22.

The numerals used for marking the stops in the U. S. and *f.* systems are listed in the first two columns of the accompanying table.

In the third column the values of these stops are compared with the exposure value of *f.*8 (U. S. 4), which is the largest stop on rectilinear lenses.

The last column translates these values into actual exposure fractions, taking $\frac{1}{25}$ of a second with stop 16 (the usual exposure for ordinary landscape subjects in sunlight) as a standard.

Lens stops that are marked 4.5, 5.6, 6.3 and 7.7 are only used on anastigmats.

No photographic shutter has all the speed markings listed in the last column; but the correct exposure can always be given by using the stop that the available shutter speed calls for.

COMPARATIVE STOP VALUES

f.	U. S.	Relative Exposure	Comparative Exposures
4.5	1.25	.3	1/330
5.6	2	.5	1/200
6.3	2.5	.6	1/160
7.7	3.7	.9	1/110
8	4	1	1/100
11	8	2	1/50
16	16	4	1/25
22	32	8	1/12
32	64	16	1/6
45	128	32	1/3

A SOUVENIR OF SNOW TIME

Made with a 3A Folding Kodak

FIG. 1
Under-Exposed, Correctly Developed

THE DIFFERENCE BETWEEN UNDER-EXPOSURE AND UNDER-DEVELOPMENT

A NEGATIVE that lacks density is one which has a comparatively thin deposit of metallic silver. The thinness of this deposit is always due either to under-exposure, to under-development, or, to both under-exposure and under-development.

Can you tell, by examining such a negative, which of these causes is responsible for its lack of density?

Though a correct diagnosis can easily be made it is one which few but experienced photographers know how to make with certainty.

The effects which under-exposure and under-development produce are very different. An under-exposed negative always has too little *detail* in the shadows and frequently too little in the halftones, while an under-developed negative always has too little *contrast* between the highlights, halftones and shadows, though it may have plenty of detail in all of these tones.

When a negative that lacks density is held before a strong light, and is examined by looking through it, we can rarely see all that the negative contains. This makes it difficult to determine whether it was under-exposed or under-developed; but when a sheet of opal glass or ground glass is placed between the negative and the light we can see everything that is in the negative and can tell with certainty whether it was under-exposed or under-developed.

The difference between under-exposure and under-development is graphically shown by Figs. 1 and 2 of our illustrations. These are

FIG. 1A
Amply Exposed, Correctly Developed

halftone reproductions which, of course, cannot show us all the tones that we could see by looking through the negatives.

It will be noted that in Fig. 1, which represents an under-exposed but correctly developed negative, the sky part of the negative

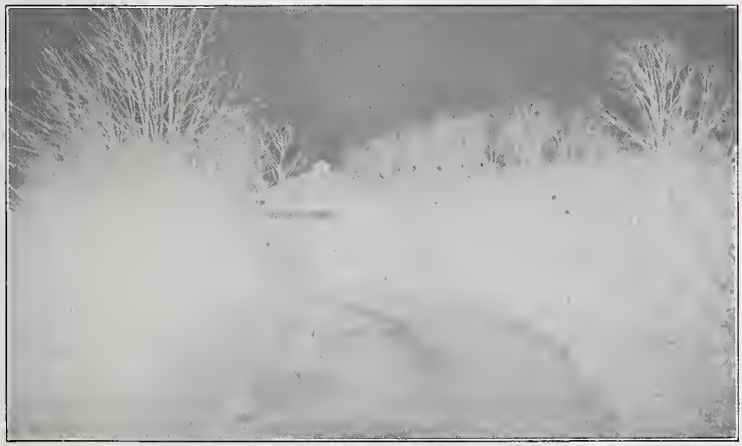


FIG. 2
Fully Exposed, Under-Developed

FIG. 2A
Fully Exposed, Correctly Developed

appears to be nearly as dense as in Fig. 1A, which represents a correctly exposed and correctly developed negative of the same subject. The density of the sky in Fig. 1 demonstrates that the lack of detail in the shadows is due to *under-exposure*, for, had it been due to such extreme under-development as would have been capable of causing this lack of detail, the sky could not have acquired such density as the negative shows. Prolonging the development of an under-exposed negative beyond the point of correct development is useless, for it is impossible to develop any image from silver salts on which the light has not acted long enough to record an image.

The *under-developed* negative, Fig. 2, contains practically the same amount of detail as Fig. 2A, the correctly developed one of the same subject. The difference between these two negatives is that the correctly developed one contains ample detail and also ample contrast, while the under-developed one contains ample detail, but does not contain ample contrast.

No print that shows detail in the shadows can be made from such a negative as is shown by Fig. 1, on any grade of paper, simply because there is no shadow detail in the negative. Perhaps the best that can be done with a landscape negative of this type is to make a print that will emphasize what can be seen above the skyline of the landscape silhouetted against the sky.

No print that contains ample contrast can be made on a soft grade of paper from such a negative as is shown by Fig. 2, because there is not enough contrast in the negative, though an under-developed negative will make a print on Contrast Velox that will show a pleasing range of contrast,

providing the negative is not too badly under-developed.

But, while Contrast Velox will make good prints from negatives that were considerably under-developed we should guard against making under-developed negatives.

A correctly developed negative is preferable to an under-developed one because from a correctly developed one we can make far better enlargements and lantern slides than from one that was under-developed. The density and the contrast of an under-developed negative, that is free from fog, can be increased by intensification, but there is no known way of materially improving an under-exposed one.

By developing your negatives in a tank (Kodak Film Tank for roll films and Premo Film Pack Tank for film pack films) in accordance with the instructions that are furnished with the tank, you will be sure of getting correctly developed negatives.

Should you sometimes be in doubt about the exposure to give for outdoor subjects it will be well to carry a copy, made on a card, of the exposure table that is intended for the kind of camera you are using. The table on page 7 applies to all cameras that have rectilinear or anastigmat lenses, and the one on page 8 applies to all single lens, fixed focus cameras.

By working in accordance with these instructions you will avoid making under-exposed negatives.

ON LAKE LEMAN

Made with a No. 3 Folding Pocket Kodak

SERVICE DEPARTMENT TALKS

GETTING CLEAR NEGATIVES

THE photographer who develops films in a tray and obtains negatives that have gray instead of transparent margins should test his darkroom and the light by which the negatives were developed.

Gray margins mean negatives that are fogged all over, and from such negatives it is impossible to make really good prints.

Fogged margins can be produced by three causes—an unsafe darkroom, an unsafe darkroom light or a wholly unsuitable developer.

To test the darkness of the room, remain in it for about three minutes while it is closed and all lights are turned off. If at the end of this time you can see light entering the room, close the openings through which it comes.

To test the darkroom lamp, first make sure that the room is light-tight, and then, in total darkness, place an unexposed film in a printing frame and cover one-half of the film with black paper. Turn on the darkroom lamp and place the frame at the same distance from the lamp that the developing tray is placed during development, leaving it there for five minutes. Develop this film for 5 minutes, in total darkness, then place it in the fixing bath.

If, after the film is fixed, no difference can be detected between the part that was covered and the part that was left uncovered, your light is safe. If one part is darker than the other your light is not safe.

If the entire film is gray you are getting chemical fog, which is caused by an unsuitable developer. In this case, write to us at once, sending the fogged test film, together with the formula for the developer you are using. If you use a developer preparation tell us its name and how you mix it for use.

The surest way to avoid both chemical and light fog is to develop negatives in a tank, according to the instructions that are furnished with the tank.

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Competition Closes July 1, 1920

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