

Kodak Trademark, 1888.

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The

Kodak

Manual.

May, 1889.

THE KODAK MANUAL

- PART I. Directions for making the exposures.
- PART II. Directions for reloading the Kodak.
- PART III. Directions for making the negatives.
- PART IV. Directions for making the positives.
- PART V. Directions for making Flash light picture and lantern slides.

Part 1. MAKING THE EXPOSURES.

CONTENTS.

- *First.* Concerning the Kodak when received by the purchaser, and what should be done before using it.
- Second. How to make Exposures in the Open Air (Outside) when the Sun is Very Bright.
- Third. Table of Distances.
- Fourth. How to make Exposures in the house (Interiors).
- *Fifth.* General information.—Returning the Kodak to the factory for reloading.
 - *Sixth.* How to remove part of the film before it has been all exposed.

FIRST.

CAUTION.—The Key must not be removed from the Kodak until Part II has been carefully read. The Key holds the Kodak together; if it is taken out and the Kodak opened, the sensitive film may be ruined.

EVERY KODAK is tested before it leaves the factory and is known to be in working condition. That the purchaser may be assured of this fact it is tied and sealed.

Follow these Directions before breaking the Seal.



1. Pull the Cord gentry as far as it will go. This will close the Shutter or Blind in front of the lens—if it be not already closed. 2. Remove the seal and tape.—In doing this the Cap which has thus far concealed the Shutter and lens will be

released ; this Cap should be saved for I n d o o r views (Interiors.)



The Kodak is now ready for use.

Consult table of distances, page 16, before going any further.

6

A memorandum book accompanies the Kodak, so arranged that full particulars may be noted concerning each Exposure, such as date, hour, subject, and if interior, light and time of exposure, and other incidents of interest. Or, if desired, there may be simply a checking off. If kept in either manner the number of Exposures remaining may be known at any time and without trouble of trying to remember.

SECOND.

H^{OW} to make exposures with the Kodak in the Open Air when the Sun is Very Bright.

> I. Hold it F irmly with both hands; the key side uppermost.

2. Hold it Steady. In order to do this let the right

> arm rest against the side, the left being extended to support the front.

Though the time needed for an Exposure is only a fraction of a second, the pressing of the Button requires enough force, that, unless the Kodak is held steady the picture will be blurred.

The Principal Thing

To learn in using the Kodak is to

Hold it steady

while pressing the button. To do this requires a little practice, and the user will do well to try it a few times with *the plug in* the front, going through all the motions of taking a picture *except turning* the key. Thus (plug in place)

I. Press button.

2. Pull cord.

Repeat several times, then take out the plug and proceed.

- 3. *Hold it Level.*—The Kodak mustbe held level.
 - If the operator attempts to Photograph a tall building, while standing near it, by pointing the Camera upward (thinking thereby to center it) the result will be similar to this:



- This was pointed too high. This building should have been taken from the middle-story window of the building opposite.
- The operator should hold it *level*, after withdrawing to a proper distance ; see page 16 as to what the proper distance is.



- b. If the object is low down on the ground, like a small child, or dog, the Kodak should be held down level with the centre of the object.
- 4. *Point the Kodak* in the same direction in which the sun shines.
 - a. The sun should shine directly upon the object.
 - b. Photograph the sunny side.

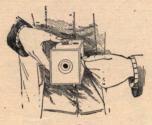
- c. Do not attempt to Photograph the shady side.
- d. The sun should be at back of the Operator, or over his shoulder—never in front of him.

- e. The object must be away from all shade, whether it be that of trees, veranda or anything else. The full, bright sun must shine (unobstructed) upon the side which it is desired to photograph. If the atmosphere is smoky the picture will be dull and flat.
 f. The sun must never shine on the front of the Kodak while the picture is
 - being taken.
- g. By sighting along the diverging lines marked on the top of the camera the angle of view to be embraced in the picture can be ascertained.



5. Press the Button.—To do this without swaying the camera to one side, grasp the Kodak as shown in the cut, with the left thumb on the button and the ends of the fingers around the corner of the box, giving a leverage whereby the button can be depressed by a muscular contraction of the hand, as in the preceding cut.

not by pushing the whole hand against the camera, as here shown —



Not like this.

This would sway the camera and blur the picture.

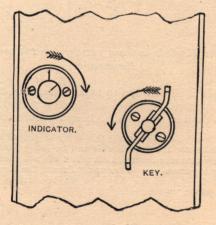
The first Exposure has now been made.

6. Pull the Cord this winds the Shutter-spring.



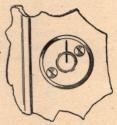
7. Turn the Key so as to make one complete revolution of the indicator; this will bring a new section of the film before the lens.





Turn the key to the left (the indicator revolves to the right)

until the indicator stands thus.



The Kodak is now ready for the next Exposure.

If it is intended to make a note of this Exposure, or other incidents concerning it, do it at once and so keep a record of it.

It will be wise to make this order of procedure a *Habit*, for then the Kodak will be ready for any view that may be presented. You will not need to try to remember whether you "Turned the Key"—let the "Turn the Key" be the last act of the exposure "gone before."

Notice this.

The Kodak cannot be used in the open air (out-of-doors) unless the Sun is Very Bright.

The Kodak cannot be used to photograph Race Horses, going at a fast gait, nor Express Trains in motion. It is designed for ordinary street scenes.

The speed of the shutter can be adjusted faster or slower by turning the milled head that regulates the tension of the shutter spring and fastening it with the jamb nut.

The shutter is adjusted at the factory, and it should not be altered except for special work in the hands of experienced persons who do their own developing. We cannot assume any responsibility for good results if altered.

When the shutter is set to work quick enough to catch *very* swift moving objects, much of the light is lost, and the picture becomes a mere silhouette.

THIRD.

TABLE OF DISTANCES.

The Kodak lens being of very short focus, the camera can be used at much closer quarters than any other. The range of focus being from $3\frac{1}{2}$ feet up to the extreme distance, there is no necessity for focusing as with other lenses.

The following table will give the user of the Kodak a good idea of the proper distance to stand from the object to be photographed, to get the proper size. The further the object the smaller it will appear in the picture.

For Portraits :

- Heads, stand 31/2 feet from object, and the Kodak held level with the chin.
- Half length, stand 6 feet from object, the Kodak held against the chest.
- Full length, stand 9 feet from object, the Kodak held below the waist.
- Buildings, one and one-half times the height, if operator is on the ground.



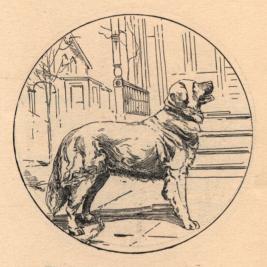
These ladies were 9 feet_from the Kodak.



These children were 6 feet from the Kodak.



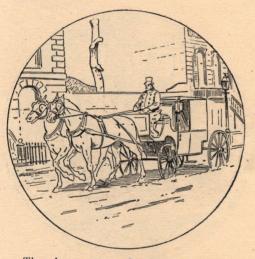
For Animals :



This dog was 6 feet from the Kodak.



This cow was 15 feet from the Kodak.



These horses were 25 feet from the Kodak.

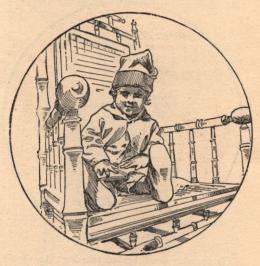


The Kodak was 8 feet from the first figure in the foreground.

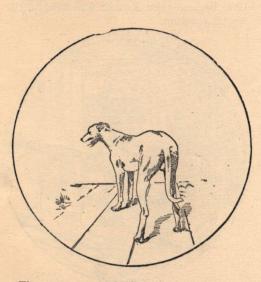
For Street Scenes :

FALSE PERSPECTIVE.

These two pictures show a false perspective, because the Kodak was held in the wrong position.



The feet were too near ; the operator should have stood further to the left.



The operator stood behind the dog; he should have been further to the left, so as to have taken a side view like that on page 19.

FOURTH.

HOW to make Exposures within the House.

r. To set the shutter open, put in the plug and pull the cord as far as it will go. This will bring the shutter into the position shown in figure 1.

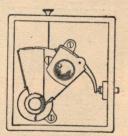


FIG. I-SHUTTER SET FOR INSTANTANEOUS EXPOSURES.

2. Then keeping the cord taut press the button and lower the shutter by the cord until it catches in the first notch, this will bring it into the position shown in figure 2.

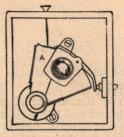


FIG. 2-SHUTTER SET FOR TIME EXPOSURES.



FIG. 3-POSITION OF SHUTTER AFTER INSTANTANEOUS EXPOSURE.

- The shutter is kept in the position shown in Fig. 2 all the time when used for time exposures. The opening and closing of the lens being effected by the plug.
- When the operator sets the shutter for the first time it may be well to remove the front of the camera, (it is

sprung in at the top) to see just how the shutter works. This opening of the front will spoil one section of tilm, but may prevent future mistakes.



FRONT OF KODAK REMOVED.

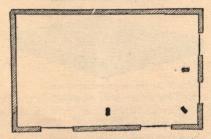
3. The shutter is now set in the position shown in Fig. 2, with the cap or plug in its place.

Be sure that the auxiliary shutter A (fig. 2) is at the left of the lens, not in front of it.

The Kodak is now ready for Interiors.

But as more time is necessary than when made out-of-doors (in the broad, open sun-light) the following directions must be adhered to in order to get satisfactory results.

- Bear in mind then, in these "Interior" Exposures, the Cord and Button are not used until all that are intended to be made are made. The Cord should then be pulled in order to close the Shutter, before taking out the plug for outside work.
- 4. Place the Kodak on some steady support-a mantel, table, buffet, etc.
- 5. Place the Kodak in the corner of the room, if a general view of the room is wanted.

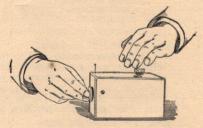


This is a diagram of a room having windows on two sides, showing positions where the Kodak may be placed with propriety.



This is the angle of view embraced by the Kodak.

- 6. Do not point it toward an uncurtained window. Where there are windows within range, draw the curtains or close the blinds so as to allow light to enter only at your back; don't let it come in in front of the Kodak.
- 7. There must be no sunshine within range of the Kodak.



8. Detach the cap, holding the Kodak steady with the other hand; hold

the cap an instant in front of the lens and remove the other hand; then when all is steady take away the cap.

Don't rest the hand on the Kodak during the exposure.

9. Time the Exposure by a watch.

10. Replace the cap.

At the same time that *one* hand replaces the cap the *other* hand should be placed on the Kodak that the cap may be inserted quickly and securely.

11. Turn the key.

12. Make a memorandum of everyconcerning the exposure ;

> surroundings, light, time, etc., etc.

If a strict observance be paid to these directions, and the operator makes note of the incidents concerning each exposure, he will learn with little trouble all that is requisite to make this important part of the finest photographs.

The Kodak is now ready for the next Interior Exposure.

13. Follow the directions given heretofore for each successive exposure.

14. When the last Interior Exposure is made, pull the Cord so that the Shutter may cover the lens and so be set for exposures out-of-doors.

TIME NEEDED FOR INTERIOR EXPOSURES. White walls and more than one window :

> bright sun outside, 2 seconds, hazy sun. 5 seconds, cloudy bright, 10 seconds, cloudy dull, 20 seconds.

White walls and only one window :

bright sun outside, 3 seconds, hazy sun. 8 seconds, cloudy bright, 15 seconds, cloudy dull, 30 seconds.

Medium colored walls and hangings, and more than one window :

> bright sun outside, 4 seconds, hazy sun, 10 seconds, cloudy bright 20 seconds, cloudy dull, 40 seconds.

Medium colored walls and hangings, and only one window :

bright sun outside, 6 seconds, hazy sun, 15 seconds, cloudy bright, 30 seconds, cloudy dull, 60 seconds.

Dark colored walls and hangings, and more than one window :

bright sun outside, 10 seconds, hazy sun, 20 seconds, cloudy bright, 40 seconds, cloudy dull, 1 minute 20 seconds.

Dark colored walls and hangings, and only one window :

bright sun outside. 20 seconds, hazy sun, 40 seconds, cloudy bright. I minute 20 seconds, cloudy dull, 2 minutes 40 seconds.

The foregoing is calculated for rooms whose windows get the direct light from the sky, and for hours from three hours after sunrise to three hours before sunset.

If earlier or later, the time required will be longer.

FIFTH.

WHEN the 100 exposures have been made the key will refuse to turn.

The Kodak is then ready to return to the Eastman Company to be reloaded and have the negatives developed and the photographs (positives) printed.

NOTE.—It is taken for granted here that the reader is a novice and does not desire to pursue the art except just so far as absolutely required to make

the exposures. If, however, he desires, he can finish his own pictures by following the directions given in Parts 3 and 4 of this Manual. The difficulties being no greater than those of the ordinary dry plate process, and the labor much less.

The Kodak may be sent either by mail or express. The latter is preferable if sent from any point within the United States east of the Mississippi and north of Mason and Dixon's line.

PACKING THE KODAK.

Put in the plug and *tie a string* around the Kodak to keep it together (see cut page 5); then (and not until then) unscrew the key by turning it to the right; then, having provided an old strawboard box, cut a piece or pieces large enough to cover the Kodak, folding the ends down over the corners to prevent damage; finally, wrap in one thickness of stout manilla paper and tie with a stout cord. Don't seal the package with paste, glue or sealing wax. (Keep the key and the carrying case.) Address as follows :

The Eastman Dry Plate and Film Co., Rochester, N. Y. From Put your own name and address here. Always put your name on the wrapper. Prepay the charges, and don't put any more or any less writing on the wrapper. Then write us a letter as follows : To The Eastman Dry Plate and Film Co., Rochester, N.Y. GENTLEMEN :- I send you to-day by (mail or) my Kodak Camera to be reloaded and the pictures Enclosed please find \$9.50 finished. in express order. postal postal note. bank draft. bills (if bills, letter must be registered). Yours truly, Name. Post Office. County. State.

On receipt, we will reload the camera and return it at once; the finished pictures will follow in ten days.

If the Kodak refuses to work or gets out of order, return it to the EASTMAN COMPANY; it will be repaired free of charge unless badly damaged by accident or carelessness.

NOTE-If either spring in the shutter should break any watchmaker will insert a new one for a few cents. Extra springs 25 cents per pair, postage paid.

It must be perfect.

If you have any difficulty with the Kodak, write us. Every Kodak is perfect when it leaves our factory, and it is to our interest to see that it reaches the user in the same condition, and that he is provided with every assistance to work it properly.

THE EASTMAN DRY PLATE & FILM CO.,

Rochester, N. Y.

Part 2. REFILLING THE KODAK.

June, 1889.

A GREAT FEATURE of the Kodak System is the division of labor whereby the user of the Kodak is relieved of all work connected with the taking of pictures, except merely making the exposure.

To carry out this plan to its fullest extent, the owner, especially if he be a novice, will naturally prefer to return the Kodak to the factory to have it refilled.

There are instances, however, where this will be impracticable, owing to distance, or a desire to expose more than one roll of film on a trip, without waiting to send to the factory and back. In such cases it will be desirable for the owner to know how to refill his own Kodak, then he can keep a supply of extra spools and send the rolls of exposures to the factory whenever convenient.

TO REFILL THE KODAK.

Provide

- a. An extra Spool of Kodak Film.
- b. An extra Reel.*
- c. An Eastman Orange Candle Lamp.
- d. A dark room having a shelf or table.

*NOTE: The extra reel does not accompany the spool, but must be ordered separately. While not an actual necessity, it is a convenience and saves unwinding the exposed film from the old reel, and the consequent liability of fogging the film by exposure to white light. The exposures should be sent to the factory on the first reel. The reel will be returned with the prints and can be used repeatedly. Hence it is necessary to have only as many extra reels as it is desired to send spools at one time to the factory for development

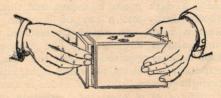
By a dark room is meant one that is wholly dark—not a ray of light in it. Such a room can easily be secured at night almost anywhere. The reason a dark room is required is that the film is extremely sensitive to white light, either daylight or lamplight, and would be spoiled if exposed to it even for a fraction of a second, while being removed from the Kodak.

Having provided such a room or closet where, when the door is closed, no ray of light can be seen, set up on the table or shelf the Orange Candle lamp, and light it as directed in the circular which comes in the box in which the lamp is enclosed.

The lamp gives a subdued yellow or orange light which will not injure the film unless it is held close to it.

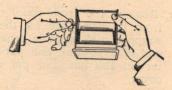
Set the lamp on the table at least eighteen inches from and with the *side* toward the operator.

> I. Unscrew the key of the Kodak by turning it to the right, and pull out the back of the case thus



The part removed is the roll holder.

2. Screw the key back into its place thus:



The film will be found all wound on the *reel*, (the roller the key turns.)

3. Take a sharp knife and sever the film on the side next the empty spool.



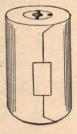
4. Turn the center, No. 1, until the figures meet, and lift it out. The reel, with the exposed film wound

upon it, can then be lifted out of the roll holder. Replace the center

5. Remove the fresh spool of film from its box, take off the black wrapper and wrap it around the reel of exposures, and put the latter in the box and put on the cover.

> This box is then ready to be tied up in paper and mailed to the Eastman Company. For shipping directions see page 34, part I.

6. Take center, No. 2, out of the roll holder and remove the empty spool, (which may be thrown away.) The roll holder is then ready for the insertion of the fresh spool. This is the spool as taken from its wrapper.



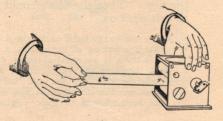
7. Insert the spool by fitting the slotted end upon the tension head, and put the center, No. 2, back in its place, giving it a half turn

to fasten it. The spool should be set squarely into place as shown in the cut.

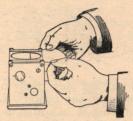


8. Insert the new reel in its place, removing the center No. 1, and replacing it in order to fasten the reel. This is the reel with the clamp raised.

9. Remove the paper band which prevents the film from unwinding, and pull out the end six inches, thus:



10. Thread the end of the film between the circular mat and the bed of the roll holder.



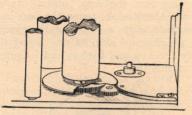
11. Raise the Clamp of C the reel and thread the end of the film in *from behind*, shut down the clamp and give the reel a partial turn backward with



the key. Then the film should be in this position.

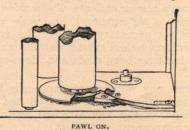
Now examine the band of film and see that it is true on all the rollers, *i. e.*, that there is an equal space at each side between the edge of the film and the side of the roll holder. Also, see that the coils of film have not been allowed to slide edgewise

44



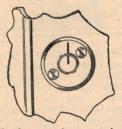
PAWL OFF.

on the spool. If it is not perfectly true, throw off with the point of a knife the pawl which keeps the reel from turning back, (twist the key while doing this to help loosen the pawl), and thus having loosened the film, slide it edgewise with the flat blade of the knife until it is perfectly true, then *throw on the pawl* and turn the key until the film is tight.



Do not forget to throw on the pawl.

12. Unscrew the key, insert the rollholder in the Kodak, (wipe the lens inside and outside with a soft handkerchief or piece of chamois skin before doing this,) replace the key and turn it until the indicator stands thus :



13. Pull the cord to make sure the shutter is in position.

The Kodak is then ready for work.

How to remove the exposed film when only a portion of the exposures have been made. —It is not necessary to make the entire roo pictures before taking out the exposures that have been made and developing them.

When any number of exposures have been made they can be removed and the remainder of the film attached again for further exposures, as follows:

1. Cut the film as shown on page 41 then throw back the pawl as shown on the top of page 44, pull the exposed film off from the reel and wind it up on the finger and wrap it up in black paper.

2. Take hold of the end of the unexposed film remaining on the spool and draw it out as shown on page 43, attaching it to the reel as if it were a fresh spool.

The Kodak will then be ready again.

Part 3. DEVELOPING KODAK NEGATIVES.

JUNE, 1889.

Norg: These directions are for developing negatives made on Eastman's new (non-stripping) transparent film. For directions for developing the older (paper) stripping films see the edition of this Manual of May, 1889, or before.

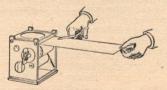
DEVELOPING.

THE strip of flexible material upon which Kodak pictures are taken, is called the sensitive film. The film as it passes over the measuring roll in the roll-holder is perforated by an automatic device to mark the division between the pictures ; each section is called an "exposure." When the exposed film is removed from the camera, as described in the preceding chapter, the image is invisible or latent, and has to be brought out by chemicals, which blacken that part of the film upon which the light has acted. This is called development When the exposure has been developed, it is called the negative, because the lights and shades of the original are reversed. Shadows in the negative appear transparent, and lights are opaque. The finished negative is used to print on sensitive paper, as will be described in Part 4, and thus the positive or final picture is made.

If, instead of sending the spool of exposed film to the Eastman Company to be developed and printed, the Kodaker wishes to develop and print his own negatives, he can easily learn to do so by following carefully the directions given.

COMMENCING from that point in the preceding chapter, where the exposed film is being removed from the camera, we will proceed.

Separating the Exposures.—Instead of removing the reel with the exposures wound on it, bodily from the roll holder, as described in Part 2, throw back the pawl so as to allow the film to unwind, and pulling out the film, as here shown,



cut off the film at every second perforation. Put the sections in a covered (light tight) box until taken out for development. The Developing Outfit.—The following is a list of the articles necessary to develop and finish one hundred Kodak negatives.

(Implements and materials for printing the positives are no: included in this list. A list of those articles will be found in the next chapter.)

DEVELOPING OUTFIT.

(See Price List.)

-	Eastman Orange Candle Lamp	;	25
Ι	Eastman Orange Candie Damprotecter	T	68
3	5x8 hard rubber trays	1	6
T	camel's hair brush		IO tasset
1	Camero maduata		50
I	four ounce graduate		-
T	minim graduate		25
-	package developer powders		50
1	package developer ponders		15
I	ounce bottle bromide potassium		
T	pound hyopsulphite soda		10
1	pound powdered alum		IO
I	pound powdered alum		35
·I	bottle soaking solution		
-	bottle intensifier		35
T	1 Cl menting		
Ι	sample film negative		TO
T	glass rod		10
-		-	

\$4 43

Also, provide a pail of clear, cold water, a dipper, and a pail for slops.

Soaking the Exposures.—Take say six or eight of the sections of exposed film and put them in one of the trays filled with water. Put them in one at a time, endwise, face down, as shown in this cut,



so as to avoid airbells. Take particular care in laying them into the water not to allow the sharp corners of one

strip to injure the surface of another. While they are soaking prepare

The Developer.—Take one of the packets of developer and empty the two powders into the graduate. Fill the graduate up to the mark, 4 oz., with water, and dissolve by stirring with the glass rod.

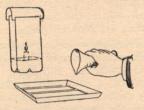
In case the operator desires to make his own solutions, we give the

Formula for the Developer :

Pyrogallic acid, 10 grains. Carbonate soda, 75 grains. Sulphite soda crystals, 110 grains. Water, 4 ounces.

NOTE—4 ounces of developer will develop about 24 exposures, (twelve strips of two each) if they are developed one after the other in quick succession. Then the developer should be thrown away and a fresh portion mixed. To Develop.—Take one of the soaked exposures and lay it in one of the empty trays, face up. (The face can be distinguished by the touch, the back being the polished side.) Always handle the exposures by the corners; if the finger touches the center where the image is, it will leave a mark.

Having one exposure in the tray, pour the developer from the graduate on to it.



Then take the camel's-hair brush, and having first moistened it in clean water, carefully brush over the face of the film to take off any adhering airbells. Rock the tray gently to equalize the action of the developer. The image will appear faintly in about thirty seconds, the sky will appear first and will continue to grow blacker as the development proceeds. In a few seconds more the outlines of the entire image

will show. The development chould be continued (in case of instantaneous exposures) until all action ceases, then the negatives should be rinsed in clean water, then put in the alum bath, see page 57.

The time of development of an instantaneous exposure will be about ten minutes. If, in making interior exposures, too much time has been given, the image will darken more quickly and evenly, the shadows almost as quickly as the lightest parts. If the development is allowed to continue, the detail will be lost. In such cases the remedy is in

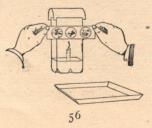
The Restrainer. -

Bromide Potassium, 1 oz. Water, 8 oz.

Dissolve the bromide in the water, and keep it in a dropping bottle, consisting of an ordinary bottle having in the cork two notches cut lengthwise on opposite sides.



A few drops of the above dropped into the tray of developer, and mixed by rocking it will restrain the development, cause the image to blacken more slowly in the shadows, and act generally as a neutralizer of the light which has been allowed to act too long on the film. Ten to twenty drops of the restrainer, in four ounces of developer will usually be sufficient. The development must be continued until the image has attained proper density. This can only be determined by the experience of the operator, who will have to be guided somewhat by the appearance of the sample negative supplied with the outfit. A few trials of different density will give a criterion to go by. For this reason we recommend the novice to develop not more than six or eight exposures to start with, and to carry them through the entire course of operations to the final printing of the positives before undertaking the balance of the exposures. The progress of the development can be examined by looking through the film as shown in this sketch.



When fully developed rinse slightly in clear water, transfer to a tray containing a saturated solution of common alum This solution is made by in water. putting I pound of alum in a vessel, such as a quart fruit jar, and filling the jar with water ; shake thoroughly and allow to settle. Then pour enough of the clear liquid into the tray to half fill it. The jar can be filled up with water as long as any alum remains undissolved. The solution in the tray is to be thrown away when through developing. Leave the negative in the alum bath one or two minutes, then rinse with clear water and immerse in the

The Fixing Bath.

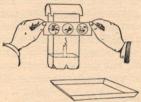
Hyposulphite soda, 4 ounces. Water, 1 pint.

Fill a tray half full of this solution and then transfer the negatives one by one from the water to it, sliding them in edgewise, as in sketch, face down.



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The function of the fixing bath is to dissolve away all that part of the silver where the light of the image has not penetrated, leaving the negative film clear in those portions, and opaque where the developer has blackened the silver. The negatives should lie in the fixing bath about ten minutes or until when examined, as here shown,



no uneven, milky blotches, remain on the film.

All the sensitive silver having been dissolved out of the film, it is no longer sensitive to white light, hence the orange shade may be removed from the candle at this stage, and subsequent operations carried on by a bright light.

As soon as the films are fixed, the fixing solution should be thrown out and the tray filled with pure water, after ten minutes the negatives should be transferred one by one

to a second tray of fresh water and then changed back and forth (into fresh water each time) every ten minutes at least six times.

If a mistake has been made in developing and the negative does not appear strong enough (this can be judged only by experience), the negative can be improved by

Intensification — Lay the film in one of the empty rubber trays and pour over it the intensifier; allow it to act until the film is all of one even color and then pour the intensifier back into the bottle and wash the film in four or five changes of water for fifteen minutes.

NOTE: This operation will not usually be required as the novice will soon learn to get the proper intensity in the development.

The films will then be ready for the soaking solution, the object of which is to prevent the films from curling while drying.

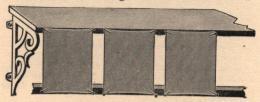
In case the operator desires to make his own solution he can use the following

Formula for Soaking Solution :

Glycerine, 2 drams. Wood or grain Alcohol, 8 ounces. Water, 8 ounces.



Soak the films in this solution two minutes. The negative is then ready to dry. To dry them pin by the corners to the edge of a shelf, with a light bit of lath-to hold



the bottom edges straight, as shown in the cut. Use no heat in drying.

When finished as above, the negative is ready for printing the positive. Each negative will serve for printing an indefinite number of duplicate positives. The methods for making which are fully described in Part 4 of this manual.

Trays used for developing, fixing or intensifying must always be washed clean before being used again.

Part 4. MAKING THE POSITIVE.

CONTENTS.

Making prints on Ferro-prussiate Paper (blue prints);

Making prints on Sensitized Albumen Paper (silver prints).

PRINTING ON

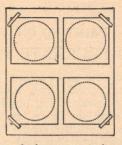
FERRO-PRUSSIATE PAPER.

Ferro-prussiate paper affords the easiest way of making proofs from Kodak negatives, no chemicals being required. The operation being simply to lay a piece of the prepared paper behind the negative, in the sun, until it is darkened sufficiently, and then wash the print for a few minutes in clean water. The resulting picture is of a very agreeable, bright blue color on a white ground, and is as permanent as the paper itself.

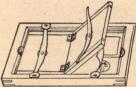
REQUISITES.

I Printing frame, 61/2 x81/2,	\$0.60
I Sheet of clear-glass, 61/2x81/2.	.10
I dozen Masks, $6\frac{1}{2}x8\frac{1}{2}$,	.25
I package of Ferro-prussiate Paper,	.20
(For twenty-four pictures).	
Total.	\$1.15

Method of Printing.—To obtain a white margin, a mask must be used to protect the sensitive paper from the light all around the picture. For the sake of convenience,



masks are made large enough to hold four negatives at once. The four openings in the mask are just the size of the picture to be printed, and a negative is fastened by gummed strips at the corners over each opening.



The Sensitive Paper is cut with a die large enough to cover two negatives at once, and the corners rounded and indented so that when the two pictures are printed, they can be separated with a pair of shears.

In attaching the negatives to the mas care should be taken to place them so that the horizontal line of the picture corresponds to that of the mask, so that they will print "straight" on the strips of Sensitive Paper.

The "dead" side of the negative goes next to the mask, and they should be attached to the blank side of it, the mask should then be laid paper side up on the sheet of glass, which must be perfectly clean, and placed in the printing frame. The negatives will then be between the mask and the glass. Two strips of the Sensitive Paper should then be laid face down (the face is olive green) on the mask, and registered by the guide marks on the mask. The hinged back of the printing frame is then to be carefully laid in position and clamped by the springs. The operation of putting on the Sensitive Paper must be performed in a subdued light. that is to say, in an ordinary room, as far as possible from any window. The paper not used must be kept covered in its envelope.

The printing frame, when filled as directed is to be laid glass side up in the strongest light possible (sunlight preferred) until the light, passing through the negative into the Sensitive Paper, has impressed the image sufficiently upon it. The progress of the printing can be examined from time to time by removing the frame from the strong light, and opening one-half of the hinged back, keeping the other half fastened to hold the paper from shifting. The Sensitive Paper being in a strip long enough for two pictures, permits the whole of one print to be examined, while the other end is held in place by the back of the printing frame.

The printing should be continued until the shadows commence to bronze—a condition which will be readily observed after a few trials.

If one negative prints quicker than another, the printing of that one can be arrested by slipping a piece of black or yellow paper between the Sensitive Paper and that particular negative.

When all the prints are done, unfasten the back of the frame and take them out, cut the two prints apart and immerse them in a bowl of clean water. Change the water every five minutes for half an hour, and then let them soak for half an hour more in fresh water, and dry them between

blotters. If the prints curl when dry they can be straightened by the scraping action of a paper-knife applied to the back.

If the prints are too light when washed, it will be evident that the printing was stopped too soon; and if too dark, *vice versa*.

The image, before the picture is washed, is quite indistinct, and two or three trials will be required to enable the novice to judge how far to carry the prints; but when learned with one negative it will be simple with all.

It is recommended to the novice who desires to learn photography by easy stages, that at first he have his Kodak negatives developed and printed at the factory. Then when his first negatives are returned to him, he can try to make blue prints from After succeeding with them he can them. try silver printing, and after mastering that process he can try developing his own negatives. If the novice commences by trying to develop his own negatives, he is undertaking a good deal to begin with, and is liable to become discouraged by failures which may occur in any one of the successive stages of developing, printing, toning and mounting.

PRINTING ON

SENSITIZED ALBUMEN PAPER.

Silver printing is the method of making prints such as are commonly known as "photographs." They have a warm, brown tone, and are usually mounted on cardboard and highly burnished.

The method of making silver prints differs from that of making blue prints principally in the final operation of fixing and toning, which operations will be hereafter described.

The requisites for making one hundred Kodak silver prints are as follows :

KODAK PRINTING OUTFIT.

(See Price List, page 85).

I	$6\frac{1}{2}x8\frac{1}{2}$ printing frame, \$0.60	
I	clean glass, for frame, 10	
*3	5x8 hard rubber trays, 1.68	
*I	4-oz. graduate, 50	
*I	minim graduate,	
I	doz. paper masks and gummed strips, .25	
100	mounts, enameled, round corners, - 1.00	
100	sheets sensitized paper, 1.00	
I	15 gr. bottle of chloride of gold and sodium, 35	
*I	lb. hyposulphite of soda,10	
	flat paste brush,10	
	ozs. phosphate of soda,20	
	oz. acetate of soda20	
	\$6.33	

*Duplicates which are not required if operator has developing outfit, page 52.

The Sensitized Albumen Paper, having been printed under the negative until the lightest parts begin to turn dark in precisely the same way as directed for Ferroprussiate Paper, the first operation is

Washing.—Fill one of the trays with clean water and immerse the prints one by one until all are in.

NOTE—If the tray has been used for developing or fixing or intensifing it must be carefully washed a trace of one chemical left in a tray will spoil the action of another.

Rock the tray for one or two minutes and then change the water, repeat this five or six times. Put in the last water a pinch of common salt. This will turn the prints slightly redder in tone so that the progress of the gold toning can be more plainly seen.

Toning.—For the toning bath prepare the following solution :

Gold Solution.-

Chloride of gold and sodium. 15 grains. Water, 4 ounces. Keep in a glass-stoppered bottle.

Alkaline Solution .---

Phosphate, 2 ounces. Acetate, 1 ounce. Dissolve in 1 pint of water.

TO MAKE THE TONING BATH.

Take of the Gold Solution, I ounce.

" " Alkaline Solution, 4 ounces.

Water, 3 ounces.

Pour the toning solution into one of the trays and immerse the prints one after the other in the toning bath. Three or four prints can be toned together if they are kept in motion and not allowed to lie on top of one another. Turn the prints all face down and then all face up; and repeat this all the while they are toning. The prints will begin to change color almost immediately from the reddish brown to purple. The change will be gradual from one shade to another, and the toning should be stopped just before the print gets to the shade desired for the final tone. The washing and toning both lighten the print somewhat, but it will still be too dark and appear over printed until after it is "fixed."

Eight ounces of toning solution will tone twenty-five prints, after that a new solution should be made, same as before. In large establishments the old toning and fixing baths and the first washing water are always saved, and the silver and gold recovered, but the amateur deals with too small quantities to render this advisable. *Fixing.*—When the proper shade has been attained in the toning bath, the print should be transferred to a tray of clean water and thence the fixing bath, which should be ready in another tray.

The Fixing Bath.

Hyposulphite of soda, I ounce, or one heaping tablespoonful.

Water, 8 ounces.

The function of the fixing bath is to remove all the sensitive silver remaining in the print, so as to prevent the print turning black when exposed to light again.

All the operations up to this point, except the printing, should be performed in very subdued light, where there is just light enough to watch the change of color in toning. As an additional precaution, the trays in which the prints are put should be kept covered as much as possible with pieces of cardboard, to prevent the light acting on the unfixed prints. The prints will fix in five minutes, and they must be kept moving during that time to prevent spots and streaks.

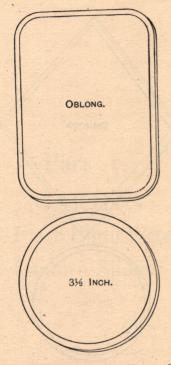
When fixed, transfer the prints to the washing tray, which should be filled with fresh water from time to time for one hour. Six changes of water will be sufficient.

The prints are then ready for

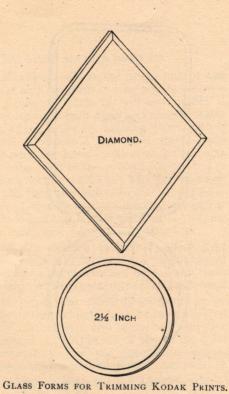
Mounting.—Take the prints out of the water and lay them one by one, face down, on a piece of glass (it will not matter if they lap over each other). Press the water out of the prints by dabbing them with a towel. Prepare a little thin starch-paste and with the paste-brush spread the paste over the back of the prints; lift up one of the top prints with a pin and lay it down on the face of a mount in the proper position. Lay a blotter or a piece of newspaper over it and rub it down smooth. Repeat for each print, until all are mounted.

If it is desired to burnish them, take them while still damp to any photographer who has a burnisher, and he will run them through with his own prints for a small sum.

If prints are desired to paste in an album, they should first be mounted on thin bristol board and burnished, and then trimmed out by the aid of one of the glass forms shown on the succeeding pages. These thin mounted prints can then be "tacked" with paste in an album without curling the leaves.



GLASS FORMS FOR TRIMMING KODAK PRINTS. (ONE-HALF SIZE.)



(ONE-HALF SIZE.)

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Part 5. MAKING I—Flash Light Pictures. II—Lantern Slides.

TAKING KODAK PICTURES AT NIGHT WITH THE FLASH LIGHT APPARATUS.

The recent invention of the flash light apparatus renders easy the taking, with such a camera as the Kodak, photographs at night.

The requisites are

The Kodak Camera, The Flash Light Apparatus.

The flash light apparatus consists of a specially constructed alcohol lamp, having in front of it a little tray upon which is poured about a teaspoonful of flash light powder. A rubber tube attached to a blowpipe in the flame of the lamp, conveys a blast of air from a bulb held in the hand and serves to project the flame of the lamp upon the powder, when it is desired to take a picture. As soon as the flame touches the powder it flashes up an intense white light, sufficiently strong to make a picture instantaneously. Many interiors can be taken with the flash light that are impracticable by day light, either by reason of a lack of illumination or because there are windows in the direct line of the view which cannot be darkened sufficiently to prevent the bluring of the picture.

Pictures are taken so quickly that groups of people around a dinner table or card table can be taken as clear and sharp as if they were in the open sunlight. This enables the photographer to obtain souvenirs of many occasions which have hitherto been quite beyond the range of the art.

Photographing a Room.—The camera should be prepared for cap exposure by setting the shutter open and putting in the plug, as directed on page 25 and 26 of this Manual, and placing it on some level support where it will take in the view of the room desired.

Preparations of the Flash Light.—The light should always be placed two feet behind and two to three feet to one side of the Kodak. If placed in front or on a line with front of the camera, the flash would strike the lens and blur the picture. It should be placed at one side as well as behind, so as to throw a shadow and give a little relief in the lighting. The lamp should be at the same height, or a little higher than the camera. The support upon which the lamp is placed should not project far enough in front of it to cast a shadow in front of the camera. A piece of card board a foot square placed under the lamp will prevent any sparks from the flash doing any damage. A sheet of white card-board set up behind the flash lamp will act as a reflector and increase the strength of the picture.

TAKING THE PICTURE.

Having the Kodak and lamp both in position, light the lamp and press the bulb to make sure that the flame can be driven to the center of the tray. Then lay the bulb down (to prevent accident) and pour upon the tray in front of the flame the contents of one of the capsules of powder that accompany the lamp; then uncap the camera, stand at arm's length and press the bulb. There will be a bright flash which will instantly impress the picture on the sensitive film. Then cap the camera and turn a fresh film into place with the key ready for another picture.

Note.—The amount of powder required to light a room varies with the distance of the object farthest from the camera, and the color of the walls and hangings. When more than one capsule is to be used, all the powder should be poured in one pile on the tray.

TABLE.

For 10 feet distance and

light walls and hangings, use I capsule.

For 10 feet distance and

dark walls and hangings, use 2 capsules.

For 15 feet distance and

light walls and hangings, use 2 capsules.

For 15 feet distance and

dark walls and hangings, use 3 capsules.

For 25 feet distance and

light walls and hangings, use 3 capsules.

For 25 feet distance and

dark walls and hangings, use 4 capsules.

To make a Portrait. Place the sitter in a chair partly facing the camera (which should be at the height of an ordinary table), and turn the face slightly toward the camera. The distance from the camera to the subject should be as follows :

For head and bust, 4 ft. Camera level with chin. For full length, 6 ft. Camera level with waist. The lamp should be on the side of the camera away from the face, that is the sitter should not face the lamp. The lamp should be placed higher than the head of the sitter.

To make a Group.—Arrange the chairs in the form of an arc, facing the camera, so that each chair will be exactly the same distance from the camera. Half of the persons composing the group should be seated and the rest should stand behind the chairs. If the group is large, any number of chairs may be used, but none of the subjects should be seated on the floor, as sometimes seen in large pictures, because the perspective would be too violent.

Backgrounds.—In making single portraits or groups, care should be taken to have a suitable background against which the figures will show in relief; a light background is better than a dark one, and often a single figure or two will show up well against a lace curtain. For larger groups a medium light wall will be suitable.

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TABLE OF DISTANCES FOR GROUPS.

Width of Group.	to nearest person.	
2 chairs.	4 feet.	
3 "	6 "	
4 "	8 "	
	9 "	
5 "	10 "	
7 "	12 ''	
8 "	13 "	

The above table will also be found of use as a guide for making outdoor groups.

Price of Eastman's Flash Light Apparatus, \$1.50, without powder.

Packages of Powder, containing 20 capsules, 60 cents.

THE EASTMAN DRY PLATE & FILM CO.,

Rochester, N. Y.

MAKING LANTERN SLIDES

FROM KODAK NEGATIVES.

No pleasanter occupation can be devised for winter evenings than making lantern slides from Kodak negatives and showing them by means of the magic lantern to one's friends.

Two or three dozen slides made from the negatives taken on a summer's outing will afford an evening's entertainment for a group of friends, and serve to recall the incidents of a pleasant trip.

The method of making lantern slides is now so simple that a little practice will enable the novice to make them successfully.

The requisites are

- * I Eastman's Candle Lamp.
- * 1 31/4 x4 1/4 Printing Frame.
- * I Sheet Clear Glass, 3 1/4 x4 1/4.
- * 2 4x5 rubber trays.
- * I 4-oz graduate.
 - I lb. oxalate potash.

- I lb. protosulphate iron.
- I lb. hyposulphite soda.
- 2 oz. citric acid.
- 1 oz. bromide potassium.
- I package paper lantern slide masks.
- I doz. Eastman's Permanent Bromide transparency plates.
- I doz. cover glasses.
- a dark room, a pitcher of cold water and a dish for slops.

The articles marked * may be dispensed with if the operator has the developing and printing outfits described in Parts 3 and 4.

To Prepare the Negatives.—Take a Kodak negative and fasten it in position over the paper mask by means of a bit of gummed paper, put the "dead" side of the negative against the mask and lay the mask with the negative on the clean glass plate in the printing frame with the negative between the mask and the glass.

TO PREPARE THE CHEMICALS.

No. 1.

	Oxalate potash,		lb.
	Hot water,	12	oz.
	Citric acid,	I	dram.
No.	2.		
	Protosulphate iron,	2	oz.
	Hot water,	4	oz.
No.	3.		
	Bromide potassium,	1/4	oz.
	Water,	2	OZ. OZ.
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These solutions keep separately, but must be mixed only for immediate use Use cold.

Printing the Lantern Slide.—Set up the candle lamp in the dark room as directed on pages 39 and 40 of this Manual, and by the yellow light open the package of sensitive plates and lay one of them, coated side down, on the negative in the frame, fasten the back of the frame and stand it one foot from and facing the candle lamp. Cover up the remaining plates and remove the hood from the lamp for thirty seconds, (see note hereafter) and let the white light shine on the negative in the frame. Then turn the frame face down on the table and put the hood back on the lamp.

Developing the Slide.—Take the plate out of the frame and lay it in one of the trays, and cover it with the developer mixed as follows:

THE DEVELOPER.

No.		2 OZ.
•6	2,	1/4 OZ.
"	3,	2 drops.

The image will appear in a few seconds. The development should be continued until the black parts begin to get opaque by transmitted light, or about 3 minutes, then the developer should be poured off and the plate flooded with clean, cold water. After rinsing it three or four times it should be put into another tray and covered with the

FIXING BATH.

Hyposulphite soda, 4 oz. Water, 16 oz.

This should be allowed to act for five minutes, or until the plate is clear and free from milkiness. Then the plate should be soaked in 4 changes clean water for 20 minutes and stood upon edge to dry, when it will be ready for mounting.

Notes.—The only experience needed to make good lantern slides by this process is to learn just how long to expose in the printing frame. Negatives vary somewhat in density, and the time given in the directions is for the average density. Thicker Enough time must be given for the light to strike through all but the densest parts of the negatives. A few trials with a good slide for a guide will enable the learner to judge correctly what time to give the different negatives. The developer should be used fresh mixed for each slide. Enough of the fixing bath should be used to fill the tray half full ; it should be thrown away at the end of the evening's operations. Mounting the Slide, —When dry lay one of the black masks on the coated side of the slide and put over it one of the cover glasses. Then bind the edges together with one of the gummed strips accompanying the masks. The masks are white on one side and printed with blank space for the maker's name and the subject.

Transferotypes. - Instead of printing from the negatives directly onto a glass plate, Eastman's Transferotype Paper may be used and the print transferred to a clean piece of glass, or to a great variety of other surfaces such as porcelain, plaques, ivory tile, celluloid, wood, leather, etc., for decorative purposes. The method is as follows : A piece of Transferotype Paper is laid upon the negative printed, developed, fixed and washed precisely as described for the glass plate. While still wet the print is laid upon the surface to which it is desired to transfer it, and allowed to dry. When dry, the paper is removed by soaking in warm water (110° to 140° Fahr.) leaving the print upon the new support. Or, the print on the transferotype may be dried and mounted and used as our ordinary photograph, the tone being a grey black.

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KODAK PRICE LIST.

Kodak Camera, covered with black mo- rocco, loaded with film for 100 nega- tives with sole leather carrying case	
and shoulder strap complete, -	\$25.00
Reloading Camera, developing and finish- ing negatives, and furnishing one silver	
print from each negative, mounted and	
burnished (100 finished photographs)	10.00
NOTE.—Where there are any failures we finish enough duplicates from the good negatives to make up the full number.	
Certificate, good for reloading and printing	10.00
Developing and Reloading only,	6.00
Developing and printing without reloading,	7.50
Developing only,	5.00
Developing and printing parts of spools,	
10 Exposures or less,	1.50
50 Exposures or less, each,	.12 1/2
50 to 75 Exposures, each,	.10
Above prices do not include reloading.	
NOTE.—Any number of exposures made can be a from the camera and the remaining film threa for further use.	removed aded up
Duplicate Prints, mounted like Print in	
Kodak Primer (10 cts. each) per doz,	1.00
Duplicate Prints, 4 doz. or more at one	
time, per doz	.75
Duplicate Prints, 8 dozen or more, per doz.	.60
Spools of Kodak transparent film for 100	
negatives	2.50
Price of spools includes postage to any part of the United States.	
Extra Reels, each,	.50
Developing Outfit for 100 negatives, -	4.43
Printing Outfit for 100 prints,	6.33
Combined Printing and Developing Outfits,	8 00
NT MI 1 · · · · · · · · ·	a state of the state of the

Note—The above prices for developing negatives and for developing outfits relate to *Transparent Films* only. For prices for developing *Stripping Films* see earlier editions of this Manual.

SUNDRIËS.

Soaking solution, per 8.oz. bottle,	\$.35
Intensifier, ""	.35
Bromide Potassium per oz.,	.15
Hyposulphite Soda, per lb.,	01,
Powdered Alum, per lb,	IO
Developer powders, per package of 12, -	.50
Proto Sulphate of Iron, per lb.,	.10
Oxalate of Porash, per lb.,	.40
Citric Acid 4 oz bottle,	.30
Ferro-prussiate Paper, per 2 doz. sheets, -	.20
Sensitized Albumen Paper, 2 doz sheets, -	.35
Mounts, per doz. (\$1.00 per 100),	.15
Albums to hold Kodak Pictures, 4 on each page	
No. I, Cloth Bound,	I.60
" 2, Roan Corners and Back,	2.00
" 3. Morocco " " " Gilt Edges,	2.75
Masks for printing (4 openings), per doz.,	
including Gummed Strips for attaching	
Negatives, per package,	.25
Glass Forms, circular, oblong (like sample	
print), and diamond shape, each	.40
Printing Frames, 61/2 x 81/2,	.70
10-inch Enlargements from Kodak Negatives	
mounted on 18 x 22 card,	1.50
Lantern Slides, from Kodak Negatives, (\$5	
per doz.), each	.50
Glass, for Lantern Slides, per doz., -	.35
Transferotype Paper for Lantern Slides. per de	oz20
Masks and Gummed Paper Strips, for same,	
per doz.,	.25
Extra Plugs, for time exposure, mail, prepaid	1, .25
Extra Shutter Springs, per pair, "	.15