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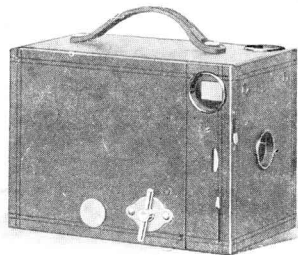
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PICTURE TAKING

— WITH THE —

No. 2 and 2-A

CARTRIDGE PREMO CAMERAS



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CARTRIDGE PREMO CAMERAS



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ROCHESTER, N. Y.

ORDER FILM BY NUMBER

All Kodak Films may be distinguished by the numbers on the ends of the cartons.

120

is the number for film for the No. 2 Cartridge Premo.

116

is the number for film for the No. 2-A Cartridge Premo. The number appears on both carton and cartridge.

BEFORE LOADING

Before taking any pictures with either the No. 2 or 2-A Cartridge Premo Cameras read the following instructions carefully, and make yourself perfectly familiar with the instrument, taking especial care to learn how to operate the shutter. Work it for both time and instantaneous exposures several times before threading up the film.

The first and most important thing for the amateur to bear in mind is that the light which serves to impress the photographic image upon the sensitive film in a small fraction of a second when it comes through the lens, can destroy the film as quickly as it makes the picture. After the film has been developed and all *developer thoroughly washed out*, it may be quickly transferred in subdued white light to the fixing bath without injury. Throughout all the operations of loading and unloading, be extremely careful to keep the duplex paper wound tightly around the film to prevent the admission of light.

EASTMAN KODAK COMPANY,
Successor to
ROCHESTER OPTICAL CO.,
Rochester, N. Y.

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PART I.

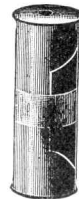
Loading the No. 2 or 2-A Cartridge Premo Camera

The film for either the No. 2 or 2-A Cartridge Premo Camera is put up in light tight cartridges, and the camera can, therefore, be loaded in daylight.

This operation should, however, be performed in a subdued light, not in the glare of bright sunlight.

To Load

Take a position at a table as far as possible from any window, place the camera on the table before you and push the round disc located on the top of Camera immediately behind the winding key, towards the front of



The Film

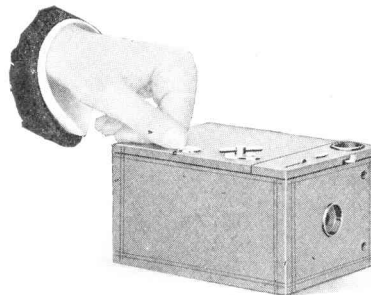


Fig. 1

Camera as in Fig. 1. This unlocks the roll holder and will permit of its withdrawal as shown in Fig. 2.



Fig. 2

2. Now grasp the top of Camera by the edges and remove the roll holder, as is indicated in Fig. 2.

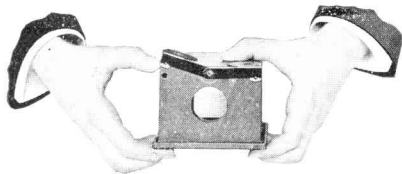


Fig. 3

3. Examine this roll holder carefully and it will be seen that at each forward corner, there is a recess that will just hold a spool of film.

In the recess on the right side will be seen an empty spool which is to be used as the reel.

4. On the bottom of roll holder and under the recesses to hold the spools

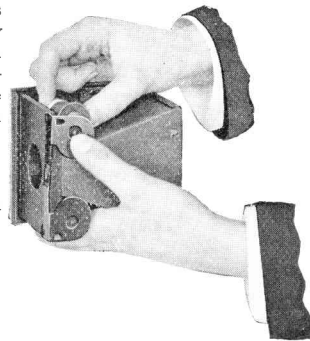


Fig. 4

will be found two metal spool retainers. Lift up the retainer at the left hand side, after releasing it by pushing outwards on catch in the front as shown in Fig. 3. Insert film spool and push the retainer back into place so that the pin in top of roll holder and pin on spool retainer will fit into the holes at each end of spool, Fig. 4.

Important

Be sure and get the top of spool at top of roll holder (each spool is marked on the end or the word "Top" will be found printed on the duplex paper near the top of the spool) when inserting, otherwise your film will come on the wrong side of the duplex paper, when reeled off and total failure will result.

You can readily tell the top side of roll holder, as it contains the winding key.

5. Now remove the gummed slip that holds down the end of duplex paper and pass duplex paper across

opening in the back of the roll holder (Fig. 5), and thread the duplex paper through the slot in the reel as shown in Fig. 6, *being extremely careful to have the*

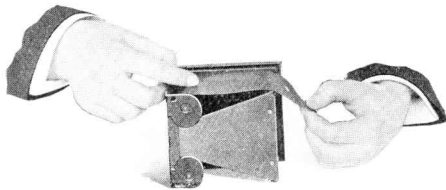


Fig. 5

paper drawn straight and true, and give the spool two or three forward turns (to the left from the key end).

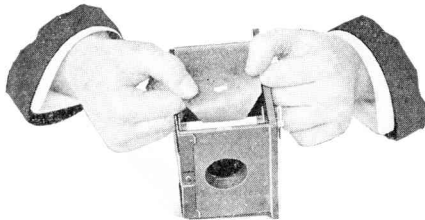


Fig 6

The spool may readily be turned by revolving the flanges of the spool with the two thumbs.

Caution

If you turn off too much of the duplex paper, before the camera is closed, the film will be uncovered and ruined.

6. The camera is now to be closed, reversing the operations shown in Figs. 1 and 2 on pages 5 and 6.

7. After the roll holder has been dropped down into place in the outside box make sure that it is securely locked by pushing back the round disc on the top of roll holder, reversing the operation as shown in Fig. 1.

8. Turn the key slowly to the left and watch in the little red window at the back of the camera. When 15 to 18 turns have been given, a hand pointing toward the No. 1 exposure will appear, then turn slowly until the figure 1 appears before the window. (Fig. 7)

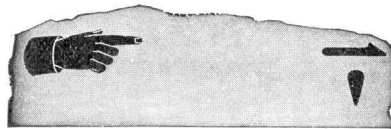


Fig. 7

The film is now in position for taking the first picture.

PART II.

Making the Exposures

SECTION I.—Instantaneous Exposures.

“Snap Shots”

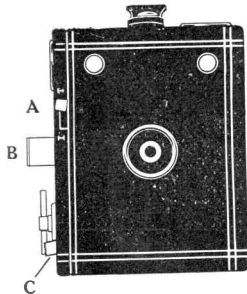


Fig. 1

Lever “B” is shown drawn half way out. This brings the middle stop into position before the lens.

When snapshots are to be made see that lever A is at the end of slot marked “I” and that lever B is pushed all the way in. When lever B is pushed in, the largest stop opening will be in front of the lens. See Fig. 1.

To take instantaneous pictures the object should be in the broad open sunlight, but the camera should not. The sun should be behind the back or over the shoulder of the operator.

The shutter of the No. 2 or 2 A Cartridge Premo Camera is always set and is operated by pushing the lever C alternately to right or left with the thumb.

If the lever stands at the right hand side of slot simply push it to left and vice versa.

If the lever should be pushed the wrong way, the shutter would simply remain unmoved, and no “click” would be heard, thus indicating that it should be pushed in the opposite direction.

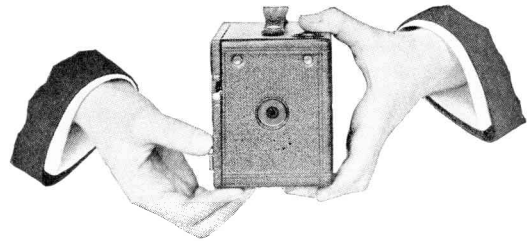


Fig. 2

Use the Largest Stop

Snap shots should only be made when the largest stop is before the lens. If a smaller stop be used the light will be so much reduced that it will not sufficiently impress the image on the film and failure will result.

Slide A controls the time and instantaneous exposures. For snap shots this slide must be at the end of slot marked “I”, for time exposures it must be at end marked “T”.

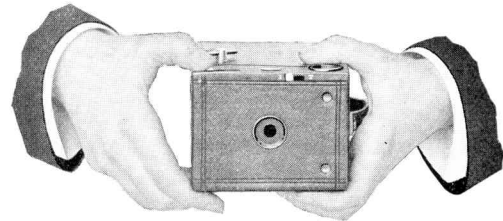


Fig. 3.

Slide B controls the stops, of which there are three. When it is clear down the largest stop is in place. This

is the one to use for all snap shots, except when the sunlight is unusually strong, and there are no heavy shadows, such as views on the water, when the middle stop may be used. The smallest stop must never be used for snap shots. (See Fig. 1, page 10.)

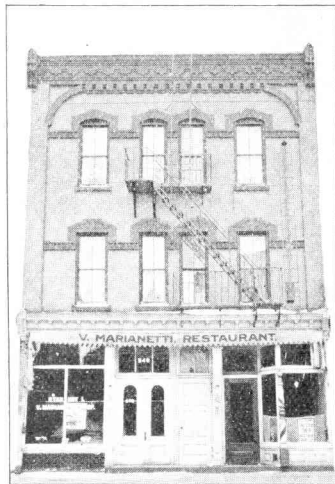


Fig 4.

Effect produced by tilting camera.

Aim the camera at the object to be photographed and locate the image on the finder. There are two finders, one for vertical and the other for horizontal exposures.

For a vertical exposure the camera should be held as shown in Fig. 2, page 11.

For a horizontal exposure the camera should be held as shown in Fig. 3, page 11.

Any object that does not show in the finder will not show in the picture.

All being in readiness.

Hold the Camera Steady and Level

as shown in Fig. 2 or 3 and press the shutter lever C (Fig. 1) to one side with the thumb of right hand.

Important

When making the exposure, press the shutter lever *slowly* to one side so as to avoid jarring the camera. If the camera is not held steadily a blurred picture will result.

Turn New Film into Position

Turn the key slowly to the left until the next number appears before the window as shown in Fig. 5.

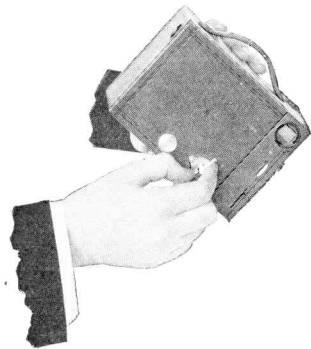


Fig 5

NOTE:—The warning index hand appears only before No. 1.

Repeat the foregoing operation for each picture.

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 Fig. 4, page 12.

SECTION 2

Time Exposures Indoors

PLACE THE CAMERA IN POSITION.

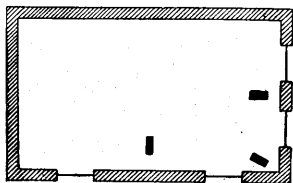


Fig. 1. Diagram, showing positions for camera.

Use some firm support, like a chair or table. Set in such a position that the finder will embrace the view desired.

The diagram (Fig. 1) shows the proper positions for the camera. It should not be pointed directly at a window, as the glare of light will blur the picture. If all the windows cannot be avoided, pull down the shades of such as come within range of the camera.

Push the time slide (A) to the end of slot marked "T," Fig. 1, page 10. When the lever is in this position the shutter strikes it as it passes the lens, stopping halfway across with the opening opposite the lens.

All being in readiness, steady the camera with one hand but do not attempt to hold it in the hands, and push the lever C *slowly* to open the shutter; give the proper time (using a watch if more than two seconds) and press the lever in the opposite direction to close the shutter.

Turn a new film into position as described before. (See page 13.)

For interiors the following table is a good guide:

Time Needed for Interior Exposures

This table is for the largest stop. When the second stop is used double the time; when the smallest stop is used give four times the time of table.

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, 1 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 until three hours before sunset.

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

To Make a Portrait

Place the sitter in a chair partly facing the Camera (which should be located slightly higher than an ordinary table) and turn the face slightly towards the instrument, having the eyes centered on an object at the same level with the lens. For a bust picture the camera should be five feet from the figure; but for a three-quarter figure from six to eight feet, and for a full figure from eight to ten feet. The background should form a contrast with the sitter.

In making portraits where the subject is less than eight feet from the camera, use the smallest stop and time accordingly. (See page 15.) As a general rule use the middle stop for portraits.

Kodak Portrait Attachment

By means of a Kodak Portrait Attachment used with the Cartridge Premo Cameras Nos. 2 and 2-A, head and shoulder pictures of increased size may be obtained.

Use the Kodak Portrait Attachment No. 0 with either the No. 2 or 2-A Cartridge Premo.

With the Kodak Portrait Attachment in position the subject should be placed $3\frac{1}{2}$ feet from the lens.

The attachment is simply an extra lens slipped in lens opening in front board, and in no way affects the operation of the camera except to change the focus. Price, 50 cents. Be sure and specify what camera the attachment is to be used with when ordering.

Time Exposures in the Open Air

When the smallest stop is before the lens the light admitted is so much reduced that time exposures out of doors may be made the same as interiors, but the exposure must be much shorter.

WITH SUNSHINE—The shutter can hardly be opened and closed quickly enough to avoid over exposure.

WITH LIGHT CLOUDS—From one-half to one second will be sufficient.

WITH HEAVY CLOUDS—From two to five seconds will be required.

The above is calculated for hours from three hours after sunrise until three hours before sunset and for objects in the open air. For other hours or for objects in the shadow, under porches or under trees, no accurate directions can be given; experience only can teach the proper exposure to give.

Time exposures cannot be made while the camera is held in the hand. Always place it upon some firm support, such as a tripod, chair or table.

Stops

1 THE LARGEST—For all ordinary instantaneous exposures.

2 THE MIDDLE—For instantaneous exposures when the sunlight is unusually strong and there are no heavy shadows; such as in views on the sea shore, or on the water; also for interior time exposures, the time for which is given in the table on pages 15 and 16.

3 THE SMALLEST—For time exposures out doors in cloudy weather. *Not for instantaneous exposures.* The time required for time exposures on cloudy days with smallest stop will range from one-half second to five seconds according to the light. The smaller the stop the sharper the picture.

When setting the stops always see that the one to be used is *brought to the center of the lens* where it catches.

If you use the smallest stop for instantaneous exposures absolute failure will result.

SECTION 3

Flash Light Pictures

By the introduction of Eastman Flash Sheets, picture taking at night has been wonderfully simplified. A package of flash sheets, a piece of cardboard, a pin and a match complete the list of essential extras, although a Kodak Flash Sheet Holder is a great convenience.

With flash sheets, no lamp is necessary, there is a minimum of smoke and they are far safer than any other self-burning flash medium, besides giving a softer light that is less trying to the eyes.

Many interiors can be taken with the flash sheets that are impracticable by daylight, either by reason of a lack of illumination or because there are windows in a direct line of view which cannot be darkened sufficiently to prevent the blurring of the picture.

Evening parties, groups around a dinner or card table or single portraits may be readily made by the use of our flash sheets, thus enabling the amateur to obtain souvenirs of many occasions which, but for the flash-light, would be quite beyond the range of the art.

PREPARATION FOR THE FLASH.—The camera should be prepared for time exposure, as directed on page 14 of this manual (except that the largest stop must be used) and placed on some level support where it will take in the view desired.

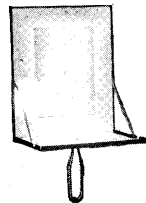
Pin a flash sheet by one corner to a piece of cardboard which has previously been fixed in a perpendicular position. If the cardboard is white it will act as a reflector and increase the strength of the flash.

The flash sheet should *always* be placed two feet behind and two or three feet to one side of the Camera.

If placed in front or on a line with front of 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 flash should be at the same height or a little higher than the camera. The support upon which the flash is to be made should not project far enough in front of it to cast a shadow in front of the camera. An extra piece of cardboard a foot square placed under the flash sheet will prevent any sparks from the flash doing damage. However, by using the Kodak Flash Sheet Holder, all these contingencies are taken care of, and we strongly advise its use.

The Kodak Flash Sheet Holder

This holder may be held in the hand, *always between you and the flash sheet*. Or, it may be used on any Kodak tripod, being provided with a socket for this purpose. The sheet is placed in position in the center of the larger pan over the round opening which has a raised saw-tooth edge extending half way around it. Press with the thumb on the sheet, so a slight break is made and a portion of the sheet projects partially through the opening. Then to insure the sheet being more securely fastened,



press around the notched edge, forcing this portion of flash sheet firmly into position on the pan.

Then to set off the flash, merely insert a lighted match, from behind through the round opening.

Taking the Picture

Having the Camera and the flash sheet both in position and all being in readiness, open the Camera shut-

ter, stand at arm's length and touch a match from behind through round opening in the center.

NOTE—If you are not using the Kodak Flash Sheet Holder, place the match in a split stick at least two feet long.

There will be a bright flash which will impress the picture on the sensitive film. Then push the lever to close the shutter and turn a fresh film into place with the key ready for another picture.

The Flash Sheet

The size of the sheet required to light a room varies with the distance of the object farthest from the camera and the color of the walls and hangings.

TABLE

- For ten feet distance and light walls and hangings, use one No. 1 sheet.
- For ten feet distance and dark walls and hangings, use one No. 2 sheet.
- For fifteen feet distance and light walls and hangings, use one No. 2 sheet.
- For fifteen feet distance and dark walls and hangings, use one No. 3 sheet.

NOTE—Never use more than one sheet at a time, in the Kodak Flash Sheet Holder.

TO MAKE A PORTRAIT—Place the sitter in a chair partly facing the Camera (which should be located slightly higher than an ordinary table) and then turn the face slightly towards the instrument, having the eyes centered on an object at the same level with the lens. The proper distance from the camera to the subject can be ascertained by looking at the image in the finder. For a three-quarter picture this will be from 6 to 8 feet, and for a full figure from 8 to 10 feet.

The flash should be on the side of the Camera away from the face, that is, the sitter should not face it.

The flash should not be higher than the head of the sitter.

For using the Portrait Attachment, see page 16.

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 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.

BACKGROUND—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.

The *finder* on the camera will aid the operator in composing the group so as to get the best effect. In order to make the image visible in the finder the room will have to be well lighted with ordinary lamplight, which may be left on while the picture is being made, provided none of the lights are placed so that they show in the finder.

Eastman Flash Sheets burn more slowly than flash powders, producing a much softer light and are, therefore, far preferable in portrait work; the subject, however, should be warned not to move, as the picture is not taken *instantaneously*, about one second being required to burn one sheet.

Eastman Flash Cartridges

Eastman Flash Cartridges may be substituted for the sheets if desired. We recommend the sheets, however,

as more convenient, cheaper and capable of producing the best results. The cartridges are only superior when absolutely instantaneous work is essential.

Keep Dust Out of the Camera

Defective negatives are often caused by particles of dust which have collected on the inside of the Camera and settle upon the film in particles that produce small dark spots upon the prints.

It is therefore well to wipe out the inside of Camera occasionally, with a slightly damp cloth. In summer weather or after the camera has remained idle for any length of time, this needs special attention.

Load Your Cartridge Premo with Kodak Film.

Look for this trade mark on the box



PART III

Removing the Film

No dark room is required in changing the spools in the Cartridge Premo Camera.

The operation can be performed in the open air, but to avoid all liability of fogging the edges of the film, it had best be performed in a subdued light.

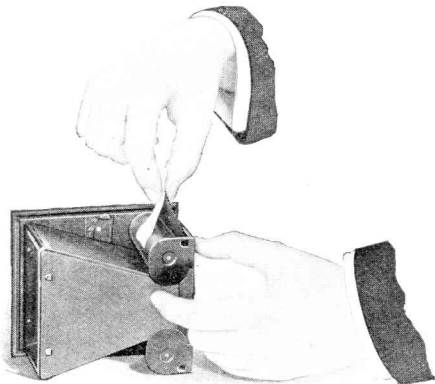


Fig. 1.

1. When the film has been exposed, give the key twenty-four extra turns. This covers the film with duplex paper again.

2. Provide an extra spool of film to fit the camera, taking a position at a table as far as possible from any window.

3. Remove the roll holder as shown on page 6, Fig. 2.

4. Hold ends of duplex paper and sticker together to prevent paper from loosening on reel. Release the spool retainer, as shown in Fig. 3, page 6 and lift out roll of film. Fig. 1.

NOTE—If sticker has been wound under reel, revolve spool to bring it up.

5. Fold over half inch at end of duplex paper (so as to make subsequent breaking of the seal easy) and then seal with sticker.

6. Wrap up exposed film immediately to prevent the possibility of light being admitted.

7. Now take the empty spool from the recess on the left side of the camera and transfer to the winding side bringing the slotted end of spool at top, into which the key is to fit.

Load as described in Part I, Page 5.

The roll of exposures can now be mailed to us for finishing or you can do the developing and printing yourself.

“Cinch Marks”

If the film and paper loosen up a trifle when taken from the camera, many amateurs are likely to take the cartridge in the hand and wind it as closely as possible, cinching it tightly with a twisting motion. There's nothing more likely to injure the negative than this tight drawing of the film as it abrades the surface, making fine parallel scratches running lengthwise of the film, which in some cases will ruin the negative. Do not “cinch” the cartridge. It simply needs to be wound tightly enough so that the duplex paper keeps inside the flanges.

PART IV

Developing

There is no necessity of working in the dark room or waiting until night to develop film. It can be done in daylight at any time and place. And the daylight methods of developing film give better results than the dark room way.

Film may be developed in daylight by the Kodak Film Tank method. Detailed directions of developing will be found in the manual which accompanies the goods.

We recommend the Kodak Film Tank method particularly for its simpleness, and the uniformly good negatives which it gives.

Developing with the Kodak Film Tank

Provide a 2½-inch Film Tank for use with No. 2 or 2-A Cartridge Premo Film.

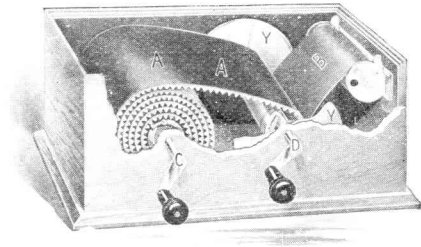


Fig. I

The Kodak Film Tank consists of a wooden box, a light proof apron, a "transferring reel," a metal "solution cup" in which the film is developed, and a

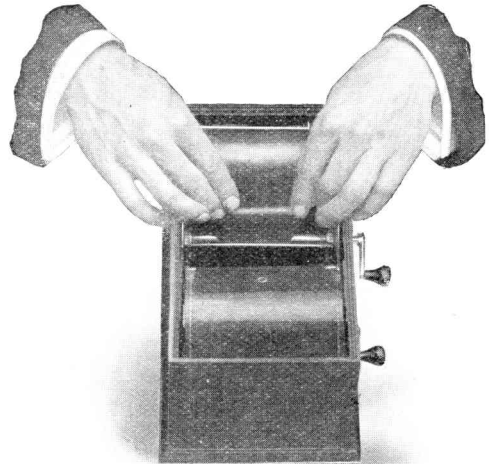


Fig. II.

hooked rod for removing film from solution. There is also a dummy film cartridge with which one should experiment before using an exposed cartridge.

1. Take everything out of the box. Take apron and Transferring Reel out of the solution cup.

2. Insert the axles marked C and D in the cut, in the holes in the front of box. The front will be toward you when the spool carrier in end of box is at your right.

3. The axle "C" must be pushed through the hollow spindle which will be found loose in the box. The two lugs on this spindle are to engage the hooks at end of apron. The axle "D" must be pushed through the hollow rod of the Transferring Reel to hold reel in position as indicated in the illustration. The flanges at each end of the Transferring Reel are marked "Y" in the illustration.

4. Attach one end of the apron to spindle through which axle "C" passes by means of the metal hooks which are to be engaged with the lugs on the spindle. The corrugated side of the rubber bands is to be beneath the apron when it is attached. Turn to left on axle "C" and wind entire apron on to spindle, maintaining a slight tension on apron in so doing by resting one hand on it.

Important.

PREPARING THE CARTRIDGE

Film to be used in the Kodak Film Tank must be fastened to the duplex paper at both ends. All films are fastened at one end in our factory. The operation can be accomplished in the following manner:

Just before you are ready to develop (holding spool with the unprinted side of the duplex paper up) unroll the duplex paper carefully until you uncover the piece of gummed paper which is fastened to end of film and is to be used as a means of fastening film to duplex

paper. Moisten the gummed side of sticker evenly for about an inch across the end and stick it down to duplex paper, rubbing thoroughly to secure perfect adhesion. Wind end of duplex paper on spool again and the cartridge is ready to insert in the machine.

5. Insert film cartridge in spool carrier and close up the movable arm against end of spool. Have the duplex paper ("B" in Fig. 1) lead from the top.

6. Thread the paper underneath wire guard on transferring reel through which axle "D" passes (Fig. II.) and turn axle slowly to right until the word "stop" appears on the duplex paper.

7. Now hook apron to lugs on axle "D" in precisely the same manner that you hooked the opposite end to axle "C" except that axle "D" turns to the right.

8. Turn handle half a revolution so that apron becomes firmly attached and put on cover of box. Turn axle "D" slowly and steadily until duplex paper, film and apron are rolled up together on transferring reel. As soon as this is completed the handle will turn very freely.

While turning axle "D" to the right, keep pressure on axle "C" in the opposite direction. This will act as a brake and will keep the apron, film and duplex paper taut and in the correct position.

9. Prepare developing solution in solution cup according to directions in Kodak Film Tank Manual.

10. Remove cover from box and take hold of the duplex paper where the paper extends beyond the end of apron. Then wind axle "D" until the duplex paper becomes taut.

NOTE—Where the film is so short that the duplex paper does not extend, the above instructions are not necessary.

11. Draw out axle "D", holding apron and duplex paper with the other hand to keep end of apron and paper from loosening. Remove entire Transferring Reel, containing apron, duplex paper and film (which is freed by pulling out axle "D") and slip a small rubber band around the apron tightly so there will be no possibility of its unwinding.

NOTE—In removing reel do not squeeze the apron, as by doing so there will be a tendency for it to buckle.

12. Insert the Transferring Reel (containing apron, duplex paper and film) in the previously prepared developer immediately.

Using the Solution Cup.

13. Having filled Solution Cup, lower Transferring Reel into Cup, with end containing cross-bar up (Fig. III). Let reel slide down slowly.

The operation of removing reel from box can be done in the light of an ordinary room, but for safety it is well that the light should not be too bright. The total length of time for development is twenty minutes.

Note—Immediately after lowering reel into solution cup catch it with the wire hook and move gently up and down two or three times but not allowing reel to come above surface of developing solution. This is to expel air bubbles.



Fig. III.

Allow development to proceed for about two minutes with the cover of the solution cup off then place the cover on the cup (Fig. IV), putting lugs on cover into grooves and tighten cover down by turning it to right.

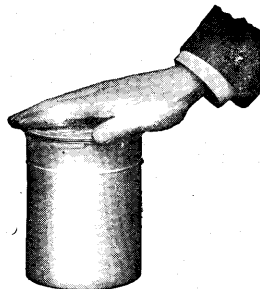


Fig. IV.

Now turn entire cup end for end and place in tray or saucer to catch any slight leak from the cup. At the end of three minutes again reverse the cup, and thereafter reverse every three minutes until the time of development, (20 minutes) has elapsed.

Turning the solution cup allows the developer to act evenly and adds brilliancy and snap to the negatives.

The developer reaches all parts of the film immediately.

14. The wire hook is to be used for lifting the reel out of the cup (Fig. V). Hook on to the cross bar in one end of reel. When the end of reel containing cross bar is at the bottom of cup, the hook is just long enough to catch the cross bar.

15. When development is completed pour out developer and fill cup with clear, cold water and pour off three times to wash the film.

Note—When removing cover of solution cup, place cup in palm of hand so as to obtain a firm grip on bottom of can. Then grip cover with other hand and turn slowly to left when cover will loosen readily.

Then remove Transferring Reel, separate film from duplex paper and place immediately in Fixing Bath which should be in readiness, prepared in accordance with directions on page 38.

The film may be separated from duplex paper in the subdued light of an ordinary room if the developer is thoroughly washed out.

The operation of separating film and duplex paper should be done over a bowl, bath tub or sink.

If another roll of film is to be developed wipe the apron thoroughly.

If the Film Tank is not to be used again immediately the apron and tank should be washed out and wiped dry. The apron will dry very rapidly if immersed for a moment in hot water.

Keep apron wound on Transferring Reel when not in use. Never leave apron soaking in water.

Developing Several Rolls of Film at Once

Several rolls of film may be developed at the same time if the operator wishes. To do this it is necessary to have a "Duplicating Outfit" consisting of one Solution Cup, one Transferring Reel and one apron for each additional roll of film to be developed. The extra rolls of film may then be wound onto Transferring Reels as previously described and immersed in the Solution Cup.

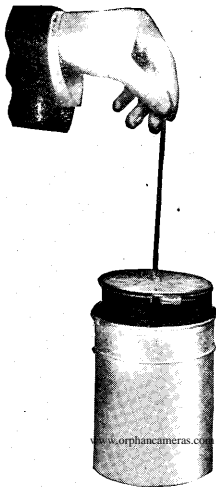


Fig. V.

Time and Temperature

It sometimes happens that the amateur is not able to obtain or maintain the standard or normal temperature of 65 degrees Fahr. when using the Kodak Tank Developer Powders. In such cases the following table will be found of value:

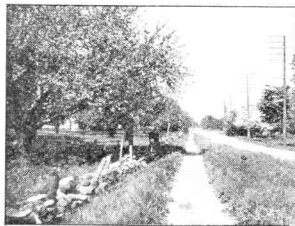
Temperature 70 Degrees		Time—One Powder 15 Minutes		Time—Two Powders 8 Minutes
69	"	16	"	
68	"	17	"	9 "
67	"	18	"	
66	"	19	"	
65	NORMAL	20	NORMAL	10 " NORMAL
64	"	21	"	
63	"	22	"	
62	"	23	"	11 "
61	"	24	"	
60	"	25	"	
59	"	26	"	13 "
58	"	27	"	
57	"	28	"	
56	"	29	"	13 "
55	"	30	"	
54	"	31	"	
53	"	32	"	14 "
52	"	33	"	
51	"	34	"	
50	"	35	"	15 "
49	"	36	"	
48	"	37	"	
47	"	38	"	16 "
46	"	39	"	
45	"	40	"	17 "

Temperature of Developer must not exceed 70 degrees Fahr., as above that point there is danger of the film frilling. 45 degrees Fahr. is the lowest temperature at which the developing powders can be dissolved and even at this temperature the powder must be finely crushed and added slowly to the water.

It is best to use the normal temperature (65 degrees) when possible as the use of a developer that is colder than normal has a slight tendency to increase the contrast in a negative while the use of a developer warmer than normal slightly flattens the negatives.

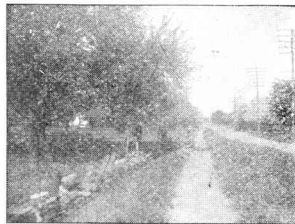
Clean Lenses

Dirty or dusty lenses are frequently the cause for photographic failures. These pictures illustrate this point clearly. The sharp, full timed picture at top



CLEAN LENS

was taken with the lens clean and in good order. To produce the effect shown in the picture at bottom, the operator lightly touched the face of the lens with his thumb, which was slightly damp with perspiration. Lenses should be frequently examined by looking *through* them, and if found to be dirty, should be wiped both front and back, with a soft, clean linen handkerchief. In Summer weather this needs special attention. Large spots of dust or dirt on the lens will cause defects in the picture, while if the lens is evenly covered with a film of dust, dirt or moisture the effect will be to cut off a great deal of light and make the picture undertimed.



DIRTY LENS

PART V

Developing in the Dark Room

Provide an Eastman A B C Developing and Printing Outfit which is suitable for any negative 4x5 or smaller.



A B C Developing Outfit

The Outfit Contains:

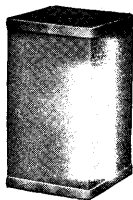
1 Kodak Candle Lamp.....	\$.25
4 Developing Trays.....	.40
1 4-oz. Graduate.....	.15
1 4 x 5 Printing Frame25
1 4 x 5 Glass for same.....	.05
1 Stirring Rod.....	.05
1 Box (5 tubes) Eastman Special Developing Powders25
½ Pound Kodak Acid Fixing Powder15
2 Dozen Sheets 4 x 5 Velox Paper.....	.40
1 2-oz. Bottle Nepera Solution10
1 Package Potassium Bromide10
	<hr/>
	\$2.15

Price, complete, (including instruction book)
neatly packed, \$1.50.

Also provide a pair of shears, a pitcher of cold water (preferably ice water), a pail for slops, and a dark-room having a shelf or table.

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 the fraction of a second.

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 Kodak Candle Lamp.



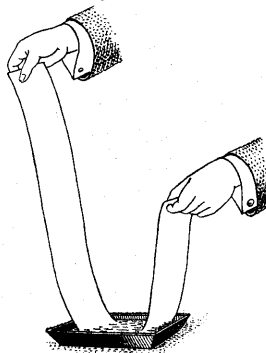
The Lamp.

The lamp gives a subdued red 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 the operator.

1. Fill one of the trays nearly full of water (first tray.)
2. Open one of the developer powders, then put the contents (two chemicals) into graduate and fill it up to the four-ounce mark with cold water. Stir until dissolved, with the wooden stirring rod and pour into the second tray.
3. To develop, unroll the film and detach the entire strip from the duplex paper.
4. Pass the film through the tray of clean cold water as shown in the cut, holding one end in each hand. Pass through the water several times, that there be no bubbles remaining on the film. When it is thoroughly wet with no air bubbles, it is ready for development.

5. Now pass the film through the developer in the same manner as described for wetting it and shown in cut. Keep it constantly in motion, and in about one minute the high lights will begin to darken and you will readily be able to distinguish the unexposed sections between the negatives, and in about two minutes will be able to distinguish objects in the picture. Complete development in the strip, giving sufficient length of development to bring out what detail you can in the thinnest negatives. There is no harm



in having your negatives of different density. This can be set right in the printing. The difference in density does not affect the difference in contrast.

Keep the strip which is being developed constantly in motion, allowing the developer to act 5 to 10 minutes. the process of development may be watched by holding the negatives up to the lamp from time to time.

When developing Eastman N. C. Film, use a red lamp and take care not to hold the film close to the lamp for any length of time. This film is very rapid and is orthochromatic, therefore liable to fog unless handled very carefully.

6. After completing development transfer to the third tray and rinse two or three times with clear, cold water.

NOTE—If preferred, the negatives may be cut apart and fixed separately.

Fixing

Provide a box of Kodak Acid Fixing Powder and prepare a fixing bath as per directions on the package. Put this into a tray (fourth tray of an A. B. C. developing outfit) or wash bowl. When the powder has thoroughly dissolved add to the solution as much of the Acidifier, which you will find in a small box inside the large one, as directions call for. As soon as this has dissolved the Fixing Bath is ready for use. Any quantity of the bath may be prepared in the above proportions.

Pass the film face down (the face is the dull side) through the fixing solution as shown in cut on page 37, holding one end in each hand. Do this three or four times and then place one end of the film in the tray still face down and lower the strip into the solution in folds. (If the negatives have been cut apart immerse them singly.) Gently press the film where the folds occur, not tightly enough to crack it, down into the solution a few times during the course of fixing. This insures the fixing solution reaching every part of the film. Allow the film to remain in the solution two or three minutes after it has cleared or the milky appearance has disappeared. Then remove for washing.

N. C. Film must always be fixed in an acid bath. There is nothing superior to the Kodak Acid Fixing Bath, but the following formula may be used if desired:

NOTE—If you are using an A B C developing outfit the fixing solution must only be used in tray No. 4, and the negatives, after fixing, must not be put in either No. 1 or No. 2 trays. Neither must any of the fixing solution be allowed to touch the films, through the agency of the fingers or otherwise, until they are ready to go into the fixing bath, otherwise they will be spotted so as to be useless.

Washing

There are several ways of washing film. It may be placed in tray or wash bowl of cold water and left to soak for five minutes each in five changes of cold water, moving about occasionally to insure the water acting evenly upon it, or it may be given, say two changes as above and then left for an hour in a bowl with a very gentle stream of water running in and out.



Drying with Clips,

Drying N. C. Film Negatives

After tank development, when thoroughly washed, snap an Eastman Film Developing Clip on each end of the strip and hang it up to dry or pin it up. Be sure, however, that it swings clear of the wall so that there will be no possibility of either side of the film coming in contact with the latter.

In drying, N.C. Film should be cut up into strips of *not more* than six exposures in length.

In tray development when the film has been cut up, pin by one corner to the edge of a shelf or hang the negative on a stretched string by means of a bent pin, running the pin through the corner of film to the head, then hooking it over the string.

NOTE—When negatives have been cut apart they should be kept separated when washing in order that they wash thoroughly.

PART VI

Printing on Velox Paper

Eastman N. C. film negatives yield beautiful, soft black and white effects when printed on the Regular Velvet Velox developing out paper furnished with the A B C Outfit.

Manipulation

Velox prints may be successfully made, using daylight for exposure. Select a north window, if possible, as the light from this direction will be more uniform. *Owing to its sensitiveness the paper should be handled in subdued light, otherwise it will be liable to fog.* Proper precautions should be taken to pull down the window shades and darken the room sufficiently during manipulation. If the light is too strong for printing it should be subdued or diffused by the use of several thicknesses of white tissue paper. Owing to the varying intensity of daylight uniform results are not as certain as when using artificial light. In the following instructions for manipulating Velox, it must be understood that artificial light will be the light used. A kerosene lamp fitted with a round burner (known as Rochester burner), may be used, but owing to the decidedly yellow light this affords, a considerably longer exposure will be necessary than when using a Mazda lamp.

The comparative exposures with Special Velox from an average negative using various sources of light are as follows:

NOTE—When using Regular or Contrast Velox increase the exposure.

Size of Negative	Distance from Light	60 Watt Mazda	40 Watt Mazda	25 Watt Mazda	Welsbach Burner (Gas)	Average Oil Lamp
31-4x51-2 4 x 5 and Smaller	10 in.	4 Sec.	6 Sec.	12 Sec.	16 Sec.	50 Sec.

Having provided a suitable light and a convenient place to work, arrange three trays before you on your work table in this order:

1 oz. Nepera Solution, 4 ozs. Water 1	Clean Water 2	X	Kodak Acid Fixing Bath as directed on page 38 3
Towel			

NOTE—Do not allow the direct rays of light used for printing to strike tray No. 1, which is used for the developer. Place a piece of red or orange colored paper between the light and tray No. 1, so as to obtain a subdued and safe light. By doing so you will avoid fogging the paper during development.

Proper temperature is important and for best results the developer should be 70 degrees Fahr. and the fixing bath and wash water 50 degrees Fahr. If the developer exceeds 70 degrees the prints are liable to fog and the emulsion soften. If too cold, chemical action is retarded, resulting in flat, weak prints.

Printing

Velox may be safely manipulated ten feet from the ordinary gas flame.

Having everything in readiness, open the printing frame of the A. B. C. Outfit, and lay the negative back down upon the glass—(the back is the shiny side.)* Place upon the negative a sheet of the Velox paper face down.

The paper curls slightly, the face or sensitive side being concave; an absolute test is to bite the corner of the sheet, the sensitive side will adhere to the teeth.

The paper not used must be kept covered in its envelope.

Place the printing frame the correct distance from the artificial light used, holding the frame away from the burner a distance equal to the diagonal of the negative. See exposure table, page 40.

*The strips of gummed paper which are included with the Outfit, are to be used for fastening the negative in place on the glass of the printing frame, or to attach the negative to a mask, so as to prevent it from slipping, which would cause a dark streak to appear between the edge of the picture and the white margin.

We suggest before making the first exposure the cutting of a piece of Velox paper into strips about an inch wide and placing one of them over an important part of the negative, make the exposure, using your best judgment as to the distance from the light and the time of printing. Develop it, and if not satisfactory try another strip, varying the time as indicated by the first result. When the desired effect is secured, you can make any number of prints from the same negative, and if the time of exposure, distance from light as well as the time of developing are identical, all the prints should be equally good. By comparing your other negatives with the one you have tested you will be able to make a fairly accurate estimate of the exposure required by any negative.

After taking the exposed piece of paper from the printing frame, in a safe place previously selected, it is ready for development. The dry print should be immersed face up in the developer (Tray No. 1) and quickly and evenly covered with the solution. Contrast and Regular Velox should be developed not to exceed twenty seconds; Special Velox about twice as long. No exact time can be given, as the strength of developer used would make a difference in the time.

As soon as the image has reached the desired depth remove from the developer to the second tray and rinse for a moment, turning the print several times, then place it in the acid fixing bath (Tray No. 3) keeping the print moving for a few seconds, the same as was done when rinsing, so as to give even and thorough fixing, preventing stains and other troubles. Leave the print in this solution until thoroughly fixed; this will take about fifteen minutes. When fixed remove from the fixing bath and wash thoroughly for about an hour in running water, then dry. After drying, prints may be trimmed and mounted.

Do not use a fixing bath that has been used for fixing film.

You should be systematic in working, remembering that cleanliness is essential in photography. Care must be taken to prevent the Hypo fixing bath in any way getting into the tray containing the developer. Have a clean towel when beginning the work and wipe your hands each time after you have handled prints in fixing bath.

Details

CLEAN DISHES; CLEAN HANDS: The faintest trace of Hypo will spoil the prints if it gets into contact with them before the proper time. Great care should therefore be used to have both hands and trays clean.

DEVELOPER once used should not be carried over and used the next day or subsequently.

Don't

Don't use a tray for developing which has previously been used for hypo solution, pyro developer or final washing.

Don't use an old fixing solution, it is liable to cause trouble.

Difficulties, their Cause and Remedy

VEILED WHITES: Caused by forcing development, fogged paper.

REMEDY: Give more time, screen light. Also, caused when image flashes up in developer by too much exposure, in which case give less time.

MUDDY SHADOWS: Caused by developer being used for too many prints. Remedy, use fresh developer.

CONTRASTY PRINTS: Caused by insufficient time or negative too harsh. Remedy, give more time; make softer negatives.

FLAT PRINTS: Caused by overtiming or negatives flat. Remedy, give less time in first instance, and if trouble is with negatives, give negatives less time; develop further.

STAINS: Caused by forcing development, or chemically dirty dishes or hands, insufficient fixing, foreign chemicals. Remedy, do not allow chemicals other than those given in formulae to come in contact with paper; use fresh fixing bath; keep prints in constant motion the entire fifteen minutes they remain in fixing, and if due to forcing development give more time in printing.

ROUND, WHITE SPOTS: Caused by air bells which form on face of prints when developer is first flowed on. Remedy, use more developer, break air bells with finger.

Coloring Velox Prints

The various surfaces of Velox are particularly well adapted for coloring, and prints may be made extremely interesting through the many beautiful effects obtained by the use of Velox Transparent Water Color Stamps. No experience is necessary when using these colors, and any amateur can secure excellent results as full directions accompany each set of stamps.

Put up in book form, they will be found most convenient. Each book contains twelve colors, arranged in perforated leaflets, making twenty-four stamps of each color

The stamps will also be found most desirable for the coloring of Bromide enlargements, lantern slides, etc., and in fact for all work where perfect blending and transparency of color is required. See price list.

EASTMAN KODAK CO.,

Successor to

ROCHESTER OPTICAL CO.

Rochester, N. Y.

PART VII

Mounting

The most satisfactory method for mounting prints is by the use of Kodak Dry Mounting Tissue, as by the use of this tissue the print lies perfectly flat in absolute contact even on the thinnest mount and absolutely without curl.

The tissue comes in flat sheets, dry, not sticky, and easy to handle and being water proof protects the print from any impurities in the mount stock. The process of mounting is as follows: Lay the print on its face and tack to the back a piece of tissue of the same size by applying the point of a hot flatiron to small spots at opposite ends. Turn the print face up and trim to size desired, and place in proper position on mount, then cover the print with a piece of smooth paper and press the whole surface with a hot flatiron — *Press, don't rub*. The iron should be just hot enough to siss when touched with the wet finger. If the iron is too hot the tissue will stick to the mount and not to the print. If too cold the tissue will stick to the print and not to the mount.

When mounting with paste, lay the wet print face down on a sheet of glass and squeegee off all surplus water, then brush over the back with a thin starch paste, lay the print on the mount, then cover the print with a clean sheet of blotting paper and press into contact with the squeegee or rubber print roller.

PART VIII

Developer Formulæ

Those who wish to prepare their own developer may do so but care must be exercised in securing absolutely pure chemicals and correct weights.

For 20 Minute Development

2½ INCH TANK.

22 grains Pyro.
44 grains E. K. Co. Sulphite of Soda, Desiccated.
44 grains F. K. Co. Carbonate of Soda, Desiccated.

For 10 Minute Development

2½ INCH TANK

44 grains Pyro.
88 grains E. K. Co. Sulphite of Soda, Desiccated.
88 grains E. K. Co. Carbonate of Soda, Desiccated.

Dissolve the Sulphite and Carbonate of Soda in five or six ounces of lukewarm water, then add cold water to fill tank to embossed ring then add the Pyro.

Correct temperature of developer 65° Fahr.

Acid Fixing Bath

Eastman N. C. Film must always be fixed in an Acid Fixing Bath.

There is nothing superior to the Kodak Acid Fixing Powders, but the following formula may be used:

Acid Hypo Fixing Bath

Water..... 64 Ozs.
Hypo..... 16 "

When thoroughly dissolved, add 4 ozs. Velox Liquid Hardener, or the following hardening solution, dissolving the chemicals separately in the order named:

Water..... 5 Ozs.
E. K. Co. Sulphite of Soda..... 1 Oz.
Acetic Acid (28%)..... 3 Ozs.
Powdered Alum..... 1 Oz.

If preferred, 1 oz. Citric Acid can be substituted for Acetic.

This bath may be made up at any time in advance and be used so long as it retains its strength or is not sufficiently discolored by developer carried into it to stain the negatives.

If the time of development and temperature of developer have been correct and the exposure within the latitude of the film, good negatives must result, but if error has been made in development the cause and remedy will be found in the following:

Over-Development

Over-development may be caused by a mistake in leaving film in the developer too long, by using solution too warm or by those who mix their own developer in getting the developing agent too strong.

In this case the negative is very strong and intense by transmitted light and requires a very long time to print. The remedy is to reduce by use of Eastman Reducer or by the following method:

Reducer

First soak negative 20 minutes in water, then immerse in:

Water 6 ounces
Hypo ½ ounce
Potassium Ferricyanide (saturated solution) Poison 20 Drops

Rock tray gently back and forth until negative has been reduced to the desired density, then wash 10 minutes in running water, or in four changes of water.

Negatives may be reduced locally by applying the above solution to the dense parts with a camel's hair brush, rinsing off the reducer with clear water occasionally to prevent its running onto the parts of the negative that do not require reducing.

NOTE—Avoirdupois weight is the standard used in compounding photographic formulæ.

Under-Development

This defect would be caused by a mistake in removing film from developer too soon, by using solution too cold or by an error in compounding chemicals. It is obvious that neither of these defects will occur in Tank Development if instructions are properly followed.

Intensification by Re-Development

There are a number of different processes for intensifying under-developed negatives, the most common being by means of Bichloride of Mercury, and Sodium Sulphite or Ammonia.

This method, though simple to use, has its disadvantages, as it builds up the highlights out of proportion to the weaker portions of the negative, and also, unless carefully handled, is apt to produce iridescent stains or granular markings that are impossible to remove.

While the method of intensification by re-development is only comparatively new, the now common use of Velox and Royal Re-developer for Sepia tones on Velox and Bromide prints will make this the most effective means of intensification.

Velox or Royal Re-developer may be used in exactly the same manner as for producing Sepia tones on developing paper.

Negatives intensified by re-development are built up evenly, without undue contrast and without the chance of staining.

The advantage of being able to use the chemicals for two different purposes (Sepia toning prints or intensifying negatives) is obvious, the result in either case being all that could be desired.

PRICE LIST

No. 2 Cartridge Premo, capacity 6 exposures, 2¼ x 3¼ not loaded.....	\$ 2 00
Carrying Case for same with shoulder strap.....	85
No. 2-A Cartridge Premo, capacity 12 exposures, 2½ x 4¼, not loaded.....	3 00
Carrying Case for same with shoulder strap.....	85
Kodak Portrait Attachment No. 0 for use with No. 2 or No. 2-A Cartridge Premo.....	50
Kodak Sky Filter and Kodak Color Filter No. 0 for use with No. 2 or No. 2-A Cartridge Premo	50
N. C. Film Cartridge, No. 120, 6 exposures 2¼ x 3¼.....	20
N. C. Film Cartridge, No. 116, 12 exposures 2½ x 4¼.....	50
Do., six exposures.....	25
Kodak Film Tank, 2½ inch.....	4 00
Duplicating Outfit for same.....	2 00
Kodak Tank Developer Powders, for 2½ and 3½ inch tank, per pkg. ½ doz.....	20
Kodak Acid Fixing Powder, 1 pound pkg.....	25
Do., " " " ½ " " ".....	15
Do., " " " ¼ " " ".....	10
Velox Paper, 2¼ x 3¼, per doz. sheets.....	10
Velox Paper, 2½ x 4¼, " " ".....	12
Velox Transparent Water Color Stamps, com- plete booklet of 12 colors.....	25
Velox Transparent Water Color Stamp Outfit, consisting of Artist's Mixing Palette, three special Camel's Hair Brushes, and one book of Velox Transparent Water Color Stamps, (12 colors).....	75
Nepera Solution, 4-oz. bottle.....	20
Solio Paper, 2¼ x 3¼, per pkg. 2 doz. sheets.....	20
Solio Paper, 2½ x 4¼, per pkg. 2 doz. sheets.....	20

Combined Toning and Fixing Solution for Solio, per 8-oz. bottle.....	\$ 50
Do 4-oz. bottle (in mailing case, including post- age, \$.50).....	30
Eastman Ferro-Prussiate Paper (blue-print), 2¼ x 3¼ per 2 doz. sheets.....	16
Eastman Ferro-Prussiate Paper (blue-print), 2½ x 4¼ per 2 doz. sheets.....	16
Flexo Tripod.....	90
Eastman Hydrochinon, Eikonogen, Pyro and Special Developer Powders in hermetical- ly sealed tubes, per box of 5 tubes.....	25
Eastman Hydrochinon Developer Powder (do not stain the fingers), per doz. pairs.....	50
Do., ½ doz. pairs.....	25
Eastman Pyro Developer Powders (for dark room development), per doz. pairs.....	50
Do., per ½ doz. pairs.....	25
Glass Stirring Rod Thermometer.....	75
Eastman Reducer, per pkg., 5 tubes.....	25
Velox Re-Developer, per 4-oz. pkg.....	50
Eastman Printing Masks, No. 3, for use with No. 2 Cartridge Premo Negatives, each.....	06
Eastman Printing Masks, No. 4, for use with 2-A Cartridge Premo Negatives, each.....	06
Eastman Flash Sheets, No. 1, per pkg. ½ doz.....	35
Do., No. 2, per pkg. ½ doz.....	56
Do., No. 3, per pkg. ½ doz.....	84
Kodak Flash Sheet Holder.....	1 00
Kodak Dry Mounting Tissue, 2¼ x 3¼, 3 doz.....	08
Do., 2½ x 4¼, 3 doz.....	08
Eastman Photo Paste per 3-oz. tube.....	15
Do. " " " 5-oz. ".....	25
Eastman Photo Blotter Book, for blotting and drying prints.....	25
Eastman Film Developing Clips, (nickel- ed, 3½ inch, per pair.....	25

Kodak Film Clips (wooden) 5-inch, per pair.....	\$ 15
Kodak Junior Film Clips, each.....	10
Kodak Candle Lamp.....	25
Kodak Dark Room Lamp, No. 2, ¾-inch wick.....	1 00
Bevplane Mounts, for prints 2¼ x 3¼, per 100.....	70
Do., per 50.....	35
Bevplane Mounts, for prints 2½ x 4¼, per 100.....	90
Do., per 50.....	45
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Do., unmounted.....	64
Developing, only.....	25
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Do., unmounted.....	1 38
Developing only, per roll of 12 exposures.....	70
Developing, printing and mounting on Velox, per roll of 6 exposures.....	75
Do., unmounted.....	69
Developing only, per roll of 6 exposures.....	35
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Do., mounted.....	08
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