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INSTRUCTIONS
FOR OPERATING THE
FILMPLATE PREMO



EASTMAN KODAK Co.

SUCCESSOR TO

ROCHESTER OPTICAL CO.

ROCHESTER, N. Y.

KODAK

METAL TRIPOD

An ideal hand camera tripod, combining rigidity with light weight and compactness. Has revolving head with milled edges, making it easy to attach or tighten camera while the tripod is set up. Legs made of brass tubing, each section telescoping into the section above it. Lower sections nickered; upper section black enameled. Any section may be removed for the replacing of a spring should one become inoperative through wear or accident. Weight, 24½ ounces.

No. 0, 3 Sections, \$1.60

No. 1, 4 Sections, \$2.50

No. 2, 5 Sections, \$3.25

EASTMAN KODAK CO.

Successor to Rochester Optical Co.

ROCHESTER, N. Y.

INSTRUCTIONS
FOR OPERATING THE
FILMPLATE PREMO

PRICE TEN CENTS

PUBLISHED BY THE
EASTMAN KODAK CO.,
SUCCESSOR TO
ROCHESTER OPTICAL CO.,
ROCHESTER, N. Y.

Before Loading

BEFORE taking any pictures with the Filmplate Premo, 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 before loading the camera.

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 surface in a small fraction of a second when it comes through the lens, can destroy the film or plate as quickly as it makes the picture. After film or plate has been developed and all *developer thoroughly washed out*, they may be quickly transferred in subdued white light to the fixing bath without injury.

EASTMAN KODAK COMPANY,

Successor to

ROCHESTER OPTICAL Co.,

Rochester, N. Y.

Sept., 1912.

PART I

SECTION 1

The Filmplate Premos, $3\frac{1}{4} \times 4\frac{1}{4}$, 3-A ($3\frac{1}{4} \times 5\frac{1}{2}$) 4x5 and 5x7 take films or plates with equal facility. For films the Premo Film Pack Adapter is used. Dry plates are loaded by means of a Premo double plate holder.

To Load with Premo Film Pack

Procure a Premo Film Pack of the proper size, $3\frac{1}{4} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 5\frac{1}{2}$, 4 x 5, or 5 x 7, according to the size of your camera.

Press up on two metal catches at top of the adapter (which you will find with your outfit) and open the hinged back.

Break or cut the small white seal on face of the Film Pack (Fig. 1) being careful that no part of it is overhanging or it will show in the picture, and place Pack in the adapter so that the black paper



FIG. 1

tabs protrude from the top and the large direction label on the Film Pack is toward the metal back.

(Fig. 2.)

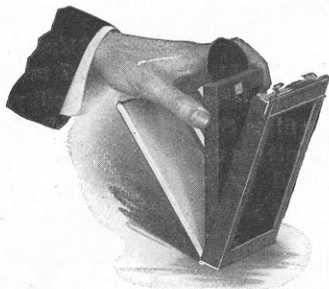


FIG. 2

and proceed as follows :

Close the back and the catches will engage automatically.

Pull back the receding ground glass frame and insert adapter with slide toward lens. (Fig. 3.) After inserting adapter remove slide

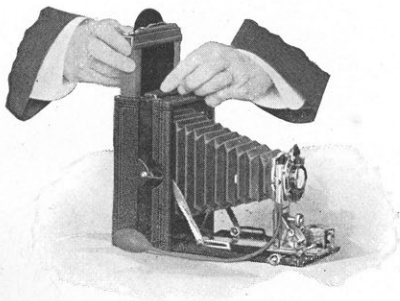


FIG. 3

Operation of the Premo Film Pack

For the first exposure gently pull out tab marked "Safety Cover," holding the remaining tabs under

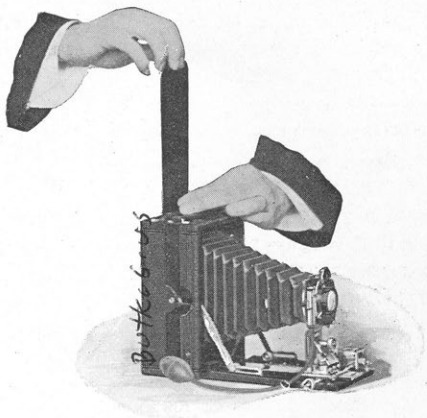


FIG. 4.

the finger and thumb of the other hand to prevent the possibility of pulling out more than one tab at a time. (Fig. 4.)

When the red cross line appears, tear off from left to right by bending tab backward over the metal straight edge.

The first film is now presented for exposure.

Having made the exposure, pull out in a similar manner the black paper tab marked "No. 1" and tear off. Film No. 2 is now presented for exposure. Repeat the operation of pulling out and tearing off the black paper tabs one at a time, as often as additional exposures are to be made.

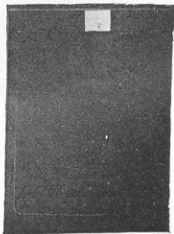


FIG. 5.

Upon pulling out and tearing off tab No. 12 the pack is rendered light-tight (Fig. 5) and may be removed from the adapter in day light and a fresh one substituted.

NOTE—It is well to make a rule of always pulling out the tab immediately after each exposure, so that there will be no uncertainty when making the next exposure as to whether you have or have not pulled out the tab.

To Focus on Ground Glass

The adapter may be removed at any time by merely replacing slide in adapter, which makes it light tight. Place a focusing cloth over head and camera and it is an easy matter to focus any or every subject on the ground glass as described on page 7. Or, if you desire to develop one or more films before the rest are exposed, just insert slide, remove adapter and proceed as per directions on page 39.

Caution—After placing adapter in camera, be sure the slide is withdrawn before attempting to make an exposure.

SECTION 2

To Load With Plates



FIG. 1.
The Lamp

1. In using glass plates, the plate holder must be loaded in a dark-room—that is, a room from which all white light has been excluded, as described on page 46.

2. Provide 1 dozen Standard Dry Plates, same size as plate holder; 1 Kodak Candle Lamp and a shelf or table on which to work.

3. Set up the lamp as described in the directions contained on the box in which it is packed. Fig. 1.

4. Remove the dark slides from the plate holders.

5. Open the box of plates by running a thin knife blade around the edge of the box.

6. Take out one of the plates and place it in the holder, face up. (The face is the dull side.) Brush gently over the face of the plate with a camel's-hair brush to remove dust.

7. Replace the dark slide in the holder with white side of handle out.

8. Repeat the operation until all the plate holders have been filled, then close up the remaining plates in the box, wrap up securely and put them away in a dark drawer.

The remaining operations may be performed in daylight.

9. To focus on ground glass push to right on nick-eled catch at side of back, which releases the ground glass panel. See Fig. 2. Then open the shutter.

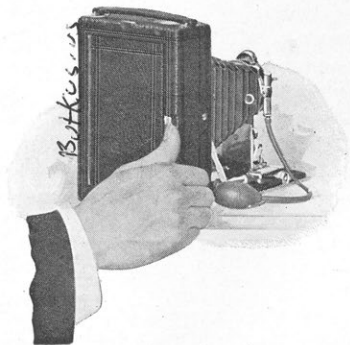


FIG. 2

10. After focusing, close the shutter and insert one of the plate holders in the same manner as described for the Film Pack Adapter.

11. Pull out the dark slide. The plate is now in position for making the first exposure. After making the exposure, re-insert the dark slide in plate holder. Remove the plate holder from the camera by pressing back slightly on same to start it.

PART II

Making the Exposures

The Kodak Automatic Shutter with which the Filmplate Premo is equipped is carefully adjusted for time, bulb and instantaneous exposures. It is also graduated for fractional parts of a second.

This shutter is also fitted with the Kodak Auto-time Scale and therefore greatly reduces the liability of error in exposure, as it automatically indicates the proper time and stop opening for subjects under any condition of outdoor photography. It is exceedingly simple to use. The speed indicator is merely set at the point on the scale indicating the kind of light prevailing and the diaphragm indicator at the point indicating the character of the subject. No calculations are necessary.

Before making an exposure, either time or instantaneous, be sure of four things :

FIRST — That the shutter is set properly.

SECOND—That the diaphragm stop is set at the proper opening.

THIRD—That the camera is focused.

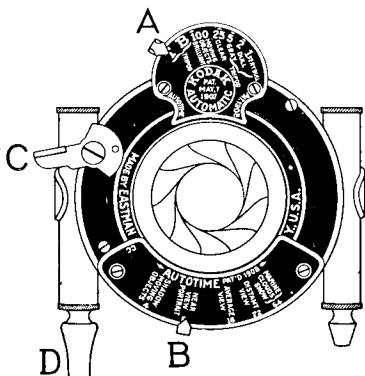
FOURTH—That an unexposed film is in position (or a fresh plate is ready for exposure.)

SECTION 1

Operating the Shutter

Perfect familiarity with the shutter is essential to successful picture taking with any camera. The following directions should, therefore, be carefully read and the shutter operated several times before attempting experiments.

NOTE—To attach the tube D, simply moisten the end a trifle and it will be found to slip into place readily.



Directions

For Using the Autotime Scale in Connection with the Kodak Automatic Shutter

This shutter requires no setting to operate. Exposures may be made by bulb or lever. Indicator A at "T" sets for time exposure. Press the bulb firmly. This opens the shutter. Time exposure by a watch. Again press the bulb.

This closes the shutter. Shutter may be opened by pressing release C, and closed by a second pressure, but great care should be taken not to jar the camera.

Indicator A at "B" makes exposure when bulb is compressed or release C depressed.

Indicator at 1 to 100 gives speeds ranging between approximately one second and 1-100 of a second.

Do not oil any part of this shutter.

Kind of Light

Top Scale

MOVING OBJECTS—Set the indicator at "100" for all rapidly moving objects.

BRILLIANT—or intense sunshine. Use *only* when sunshine is clear and intense and is shining directly on principal part of picture.

CLEAR—This is used for all ordinary sunshine and also for intense sunshine, when it is *not* shining directly on principal part of picture.

GRAY—Hazy or dull sunshine, best judged by the shadow cast by the sun which would be called "half shadow"—a distinct shadow but not as strong as with "brilliant" or "clear."

DULL—Where a very faint shadow is barely visible.

VERY DULL—Sky completely overcast—no shadow of any kind visible.

NOTE—With "moving objects" or "brilliant" the camera may be held in the hand. For "clear" "gray," "dull" or "very dull" the camera should be used with tripod or set on some steady support.

Kind of Picture

Bottom Scale

Set indicator B according to the kind of picture.

MARINE, CLOUDS, SNOW—Use this division for pictures where any one of these subjects is the *principal* subject in the picture.

DISTANT VIEW—For landscapes, mountain views, etc., where the whole view is removed some distance. or in other words, a general view, *without* a principal object in the foreground.

AVERAGE VIEW—A general landscape *with a principal object in the foreground*, the general landscape being in the nature of a background to the principal object.

NEAR VIEW PORTRAIT—All views less than one hundred feet distance and for general portraiture.

SHADOW—Use for all near views where the principal object does not receive the direct light of the sun or sky. *Use also* for near objects of general red, green, brown or black color.

MOVING OBJECTS—Use for all moving objects.

NOTE—Expose always for the principal subject in the picture which you wish to bring out.

General

RAPIDLY MOVING OBJECTS—require the use of “brilliant” and “shadow.”

Ordinary Moving objects, such as people walking, street traffic, etc., can be taken with “brilliant” or “clear.”

In case it is desirable to cut down the aperture in order to gain the full depth of the focus of your lens it is only necessary to move the speed pointer the

same number of divisions toward "Very Dull" as you move the aperture pointer toward the smaller opening. You will then secure the same resultant exposure, with the increased definition desired. The reverse of this is also true, and by this means any aperture or any speed can be used within the limits of proper exposure.

In cities where the light is modified by high buildings use slightly larger aperture than indicated.

The markings are for summer at midday. During winter or for morning or afternoon, use next larger aperture than one indicated.

SECTION II

If preferred the following instructions may be used:

"Snap Shots"

For all ordinary instantaneous exposures:

FIRST—Set indicator A at 100 the proper time for instantaneous exposures.

SECOND—Set indicator B at No. 8.

THIRD—This shutter is automatic in action and is always set for an exposure which is made by compressing rubber bulb on tube D, or pressing down release C.

NOTE—For instantaneous exposures when the sunlight is unusually strong and there are no heavy shadows, such as in views on the seashore or on the water, or in tropical or semi-tropical climates, use diaphragm No. 16. With light clouds or slightly smoky atmosphere use No. 4. With heavy clouds do not attempt instantaneous exposures.

Time Exposures

FIRST—Set indicator A at the point T (time). This adjusts the shutter for time exposures.

Butkus.us

SECOND—Set the lever B at No. 16, 32, 64 or 128. (No. 128 is marked with a dot only.) See instructions for use of stops, page 27.

THIRD—Press the bulb. *This opens the shutter.* Time exposure by a watch. Again press the bulb. *This closes the shutter.* Shutter may be opened by pressing release C, and closed by a second pressure if desired.

Short Time Exposures

Time exposures of $\frac{1}{25}$ second, $\frac{1}{5}$, $\frac{1}{2}$ or 1 second may be made automatically.

FIRST—Set indicator A at the number on the scale, indicating the desired exposure.

SECOND—Set the indicator B controlling the stops at No. 16, 32, 64, or 128 as desired.

THIRD—Press the bulb. This opens the shutter and it will close automatically at the expiration of the time for which the shutter has been adjusted.

NOTE—When making short time exposures, place camera on tripod or some solid base.

Bulb Exposure

Short time exposures may also be made if desired by a "bulb exposure."

FIRST—Set indicator A at "B" (bulb). This adjusts the shutter for bulb exposures.

SECOND—Set the indicator B controlling the stops at No. 16, 32, 64 or 128 as desired.

THIRD—Compress the bulb to open the shutter, and release it to close the shutter. *This makes the exposure.* The shutter will remain open as long as the bulb is under pressure.

NOTE—This method will not answer for a long time exposure for the reason that when the compressed air has leaked out, the shutter will close of itself.

In case of accident return shutter to your dealer or to us for repairs.

As a general rule, make exposures with the bulb instead of with the release C, as the pneumatic release is less likely to jar the camera.

NOTE.—This shutter is automatic and is always set ready for an exposure so do not press bulb or finger release unless you wish to make an exposure.

SECTION 2

Instantaneous Exposures—"Snap Shots"

To take instantaneous pictures the object must 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.

Focus on the Subject

1. Press the concealed button as shown in Fig. 1, and push down the bed of camera to the limit of motion.



FIG. 1
Opening the Front.

2. At the front of camera bed and on the side opposite finder, you will see a scale marked 6, 10, 15, 25, 50 and 100 feet. This is for focusing the camera. Before extending bellows determine the distance of the principal object to be photographed.

NOTE—The index plate is scaled both by feet and by metres and care should be taken not to confound them.

Extending the Front

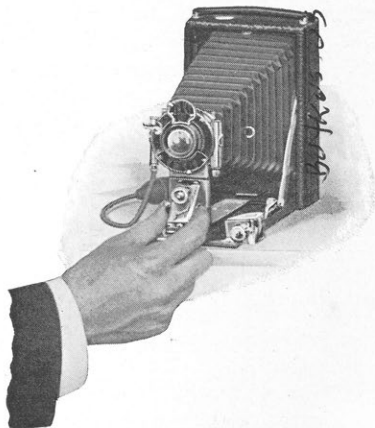


FIG. 2

Extending the Bellows

3. Grasp the springs at bottom of standard, and pull out front to the metal stop on the bed. (Fig. 2.) Then pull out knob of pinion at the base of the standard and rack out front until the pointer is over the figure on the index plate corresponding

to the distance in feet of the principal object to be photographed.

NOTE—The rack and pinion attachment provided with the Film Plate Premo will be found very convenient when focusing with the ground glass.

It is not necessary to estimate the distance with any more than approximate accuracy ; for instance, if the focus is set at 25 feet (the usual distance for ordinary street work) the sharpest part of the picture will be the objects at that distance from the camera, but everything from 15 to 35 feet will be in good focus. For general street work the focus may be kept at 25 feet, but where the *principal object* is nearer or farther away, the focus should be changed accordingly. The focusing scale is divided for 6, 10, 15, 25, 50 and 100 feet. Everything beyond 100 feet is in the 100 feet focus. Nothing nearer than 6 feet can be focused without using the ground glass or Premo portrait attachment.

Use Stop No. 8

For all ordinary out-door work when the sun is very bright use stop No. 8. 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.

In views on the water when the sunlight is *unusually strong* and there are no heavy shadows, or in tropical or semi-tropical climates, diaphragm No. 16 may be used.

If a smaller stop opening than No. 16 be used for ordinary work *absolute failure will result.*

Locate the Image

For a vertical picture with the Filmplate Premo aim the camera at the object to be photographed and locate the image in the finder. (Fig. 3.) For



FIG. 3.

a horizontal picture hold the camera as shown in Fig. 4, reversing the finder as indicated. Always look into the finder from directly over it, *not at an angle*. (Of course, when the focusing glass is employed the image will be located on that instead of in the finder.)

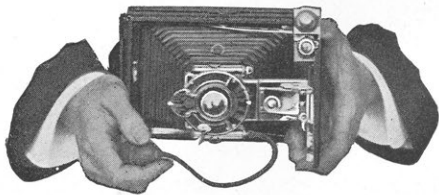


FIG. 4

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

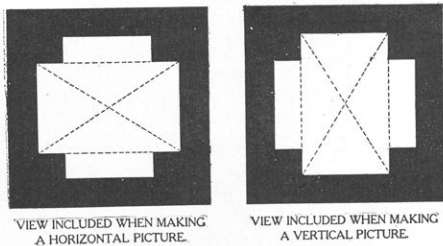


FIG. 5

It will be noticed that the top of the finder is notched as shown in Fig. 5. This is done so that the one finder will correctly show the view included when the camera is held in either horizontal or vertical position. As the pictures taken with the Filmplate Premo are oblong it will readily be seen that unless the finders were made in this

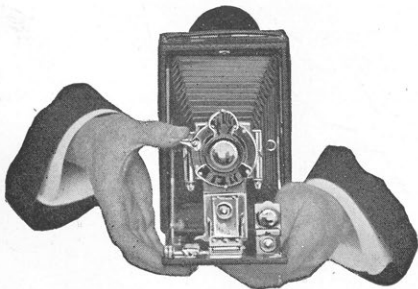


Fig. 6

manner they could not correctly show the exact view intended when held in either position.

Remember, that only the view indicated in the dotted lines will show in the picture.

Fig. 6 shows how to hold the camera when making exposures without the use of the bulb. Grasp the bed of camera firmly with the left hand, steady it with the right and with the thumb of the right hand lightly press the exposure lever.

Hold it Level

The camera must be held level.

If the operator attempts to photograph a tall

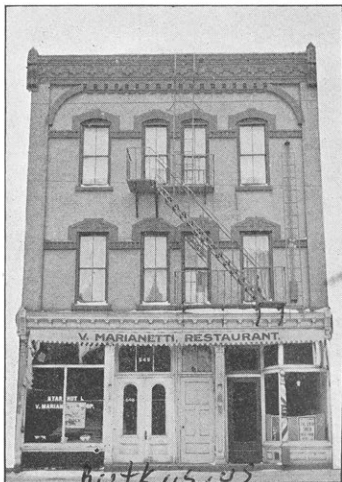


FIG. 7.

building while standing near it, by pointing the camera upward (thinking thereby to center it) the result will be similar to Fig. 7.

This was pointed too high. This building should have been taken from the middle story window of the building opposite.

The operator should hold the camera *level*, after withdrawing to a proper distance, as indicated by the image shown in the finder on the top of the camera.

NOTE—The rising front may be used in helping to center high objects. See page 34.

If the object be down low, like a small child or a dog, the camera should be held down level with the center of the object.

To Make Exposure

HOLD THE CAMERA STEADY,
HOLD IT LEVEL AND
COMPRESS THE BULB

This makes the Exposure.

SECTION 3

Time Exposures—Interiors

Set camera in such a position that the finder will embrace the view desired.

The diagram shows the proper positions for the instrument. It should not be pointed

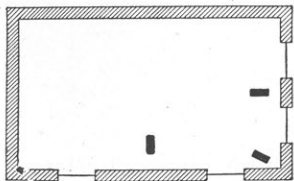


Diagram showing positions of Camera

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 lens.

To make a time exposure, place the camera on some firm support, like a table or tripod, and focus as before described.

Fig 1 shows the camera in position for a vertical exposure. The camera is also provided with tripod sockets and may be used on a tripod.

When it is desired to make a horizontal time exposure with the Filmplate Premo reverse the camera so that the tabs of the Film Pack or the plate holder slide will draw from the side instead of from the top.

Adjust the shutter for a time exposure as described on page 12.

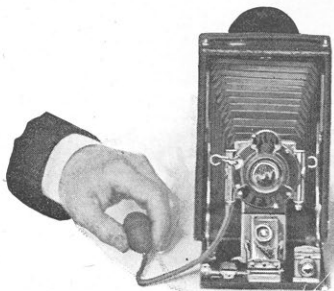


FIG. 1

All being in readiness, compress the bulb or lightly press the lever once to open and again to close the shutter. Time the exposure by a watch. (See Fig. 1.)

NOTE—In loading the plate holder place slide in position with white side of handle out. When returning slide to holder have black side of handle out. In this way you will readily be able to determine the exposed plates.

Time Needed for Interior Exposures

The following table gives the time of the exposure required under varying conditions of light with the stop No. 16 in the lens. If the stop No. 8 is used give only one-half the time, if the stop No. 128 is used give eight times the time of the table. The smaller the stop the sharper the picture. The No. 16 stop gives the best results for interiors:

White walls and more than one window:

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

White walls and only one window:

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

Medium colored walls and hangings and more than one window:

bright sun outside, 8 seconds ;
hazy sun, 20 seconds ;
cloudy bright, 40 seconds ;
cloudy dull, 80 seconds.

Medium colored walls and hangings and only one window:

bright sun outside, 12 seconds ;
hazy sun, 30 seconds ;
cloudy bright, 60 seconds ;
cloudy dull, 120 seconds.

Dark colored walls and hangings and more than one window:

bright sun outside, 20 seconds ;
hazy sun, 40 seconds ;
cloudy bright, 80 seconds ;
cloudy dull, 2 minutes, 40 seconds.

Dark colored walls and hangings and only one window:

bright sun outside, 40 seconds ;
hazy sun, 80 seconds ;
cloudy bright, 2 minutes, 40 seconds ;
cloudy dull, 5 minutes, 20 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 light, and turn the face slightly toward the camera (which should be at the height of an ordinary table). Center the image in the finder. For a three-quarter figure the Camera should be from 6 to 8 feet from the figure, and for a full figure, 8 to 10 feet, the background forming a contrast with the sitter.

Premo Portrait Attachment

The attachment is simply an extra lens slipped on over the regular lens and in no way affects operation except to change the focus.

By means of the Portrait Attachment large head and shoulders portraits of various sizes may

obtained. With the Attachment in position and the focus set at 6 feet the subject should be placed exactly 2 feet, 8 inches, from the lens.

At 15 feet focus, place the subject $3\frac{1}{2}$ feet from the lens.

At 25 feet focus, place subject 4 feet from lens.

At 100 feet focus, place subject $4\frac{1}{2}$ feet from lens.

NOTE—If preferred when using the Portrait Attachment the focusing may be done entirely with the ground glass. See page 6.

Time Exposures in the Open Air

When the stop No. 128 is in 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—1-5 second.

WITH LIGHT CLOUDS—From $\frac{1}{2}$ to 1 second will be sufficient.

WITH HEAVY CLOUDS—From 2 to 5 seconds will be required.

The above is calculated for the same hours as mentioned above 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.

For exceedingly short time exposures as above described use the "bulb exposure," see page 13.

Making Multiple Pictures

With the Premo Film Pack and Premo Film Pack Adapter

In order to make multiple pictures, either two, three or four exposures on one section of film, it is necessary to space the ground glass of your instrument in order that the subject to be photographed be properly located. For instance, if the exposure is to take in one-fourth of the film, mark the ground glass at a point one-fourth of its length from the bottom. If the exposure is to take in one third of the film, mark ground glass one third of its length from the bottom, and if the exposure is to take in one-half of the film, mark the ground glass at the center.

Marking the Slide

It is also necessary to mark the slide of your adapter in order to determine just how far it must be drawn out when making the exposure. If you are to make four exposures, equally dividing the film into four parts, draw out the slide a distance equal to one-fourth the length of the film plus one-eighth of an inch. Then with the point of a knife mark the face of the slide where it emerges from the adapter. If to make three exposures on one section of film, draw out slide one third the length of the film plus one-sixteenth of an inch; and mark slide as before. For two exposures pull out slide half way and mark in the same manner.

Marking the Tab

In order to determine how far the tab must be drawn out for multiple exposures, it will first be necessary

to mark it at a point where it emerges from the film pack, and after it has been drawn out one-eighth of an inch, as per following instructions, and also after each successive exposure.



Reproduction from print from one of film on which three exposures were made.

Making the Exposures

Having marked adapter slide and ground glass for two, three, or four exposures, proceed as follows:

If to make four exposures, focus with the ground glass on that quarter section nearest the bottom of the instrument, or if the camera is in a horizontal position, on that section at extreme left of instrument. Insert film pack, pull out tab one-eighth of an inch and mark as before stated. Then pull out slide to mark (for four exposures), make the exposure, and

push in slide to limit of motion. (Tab is *not* to be drawn out more than one-eighth of an inch for first exposure in any case). When making *second* exposure focus at same point on ground glass, return film pack to camera and pull out tab a distance equal to one-fourth the length of the film. Then draw slide out the same distance you did for the first exposure. For third and fourth exposures proceed as for exposure No. 2. After the fourth exposure draw tab out to red line and tear off.

For making two or three exposures on one section of film proceed as above, always bearing in mind that before making the *first* exposure it is necessary to pull out tab one-eighth of an inch, and the slide a sufficient distance to expose one third or one-half of the film, as the case may be.

Note—As the ground glass is always necessary when focusing for multiple pictures, the instrument should be used on a tripod or some other firm support.

Diaphragms.

The stops should be used as follows:

No. 4—For instantaneous exposures on *slightly* cloudy days.

No. 8.—For *all ordinary instantaneous exposures* when the sun shines.

No. 16—For instantaneous exposures when the sunlight is unusually strong and there are no heavy shadows; such as in views on the seashore or on the water, or in tropical or semi-tropical climates; also for interior time exposures, the time for which is given in the table on page 22.

Nos. 32 and 64—For interiors, *Never for instantaneous exposures.*

No. 128—For time exposures outdoors in cloudy weather. *Never for instantaneous exposures.* The time required for time

exposures on cloudy days with smallest stop will range from 1-5 second to 5 seconds, according to the light. The smaller the stop the sharper the picture.

Absolute failure will be the result if you use the smallest stop for instantaneous exposures.

“F.” and “U. S.” Systems

A lens is said to work at a certain “speed,” this means that the lens will cut the plate sharp to the corners, with an opening a certain proportion of its focal length. It should be borne clearly in mind that this speed depends *not* upon the size of the opening but upon the size of the opening *in proportion to the focal length of the lens* (distance from lens to plate when focused on infinity). The lens that will cut sharp with the largest opening is said to possess the greatest speed.

Such openings are termed stop or diaphragm openings, and for convenience in estimating and timing exposures are arranged according to two systems, the f. system and the Uniform System, or U. S. system, as commonly abbreviated.

In the f. system, the proportional size or “value” of the stop opening is designated by “f.”, and is the quotient obtained by dividing the focal length of the lens by the diameter of the stop.

Taking, for instance, a lens of 8 inch focus with a stop 1 inch in diameter and we find that $8 \div 1 = 8$; hence, 8 is the f. value of the stop and would be designated f.8. Suppose the stop is $\frac{1}{4}$ inch in diameter we would then have $8 \div \frac{1}{4} = f.32$.

For convenience, the uniform system of marking stop openings has been adopted by nearly all manu-

facturers of iris diaphragms. Such convenience is at once apparent when we understand that each higher number stands for an opening having *half* the *area* of the preceding opening, each smaller stop (or higher number) requiring double the time of the one next larger.

With the f. system, each stop is a certain proportion of the focal length and not arranged with reference to the other openings, so that estimating exposure is much more complicated by this system.

As a number of exposure meters and similar devices for determining the proper exposure are based upon the f. system, we append the following table showing the "f." value for each of the uniform system openings:

U. S. 4=f. 8	U. S. 32=f. 22.6
U. S. 8=f. 11.3	U. S. 64=f. 32
U. S. 16=f. 16	U. S. 128=f. 45.2

SECTION 4

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 an Eastman 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 flashlight, would be quite beyond the range of the art.

PREPARATION FOR THE FLASH.—The camera should be prepared for time exposures, as directed on page 12, of this manual (except that stop 8 must be used), and placed on some level support where it will take in the view desired.

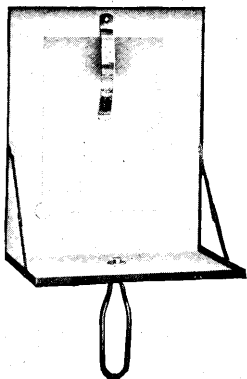
Pin a flash sheet by one corner to a piece of cardboard which has previously been fixed in a perpendicular position. If the cardboard is white it will act as a reflector and increase the strength of the flash.

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 Eastman Flash Sheet Holder, all these contingencies are taken care of, and we strongly advise its use.

The Eastman Flash Sheet Holder

This holder may be safely held in the hand, *always between you and the flash sheet.* Or, it may be used



on any Premo tripod, being provided with a socket for this purpose. The sheet is held by a spring finger, in such position that its lower corner projects part way across the circular opening in the holder, as shown in illustration.

Then to set off the flash, merely touch a match from behind to the corner of the sheet through this opening.

Taking the Picture

Having the camera and the flash sheets both in position and all being in readiness, open the camera shutter, stand at arm's length and touch a match from behind to the lower corner of the flash sheet.

NOTE—If you are not using the Eastman 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 close the shutter and pull up tab ready for another picture.

The Flash Sheet

The number of sheets 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 two or more sheets are to be used they should be pinned to the cardboard, one above the other, the corners only very slightly overlapping.

Table

For 10 feet distance	light	walls and hangings	use	1 No. 1 sheet
" 10 "	"	dark	" "	" 1 No. 2 sheet
" 15 "	"	light	" "	" 1 No. 2 sheet
" 15 "	"	dark	" "	" 1 No. 3 sheet

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

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 towards the instrument. The proper distance from the instrument 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 Portrait Attachment, see page 23.

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 instrument. 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.

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.

The *finder* on the camera will aid the operator in composing the groups 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, safer, 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 white spots upon the prints.

It is therefore well to wipe out the inside of camera and bellows 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.

SECTION 5

The Rising Front

At the center of the standard support, and directly below the lens there is a small milled head screw, which when released allows the front, to which the shutter is attached, to be moved up or down, or to right and left (up and down when Camera is held in horizontal position.)

NOTE—On the 5x7 Filmplate Premo an extra screw will be found for holding front when moved either to right or left.

This adjustment will be found of special assistance when pictures are to be made of tall buildings or

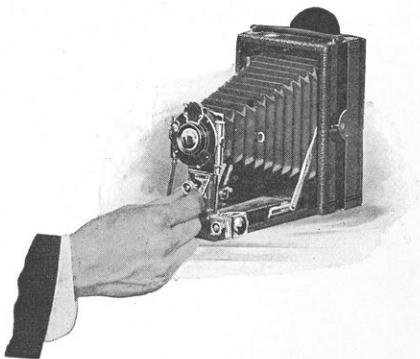


FIG. I

where the foreground must be added to or decreased, as it overcomes the necessity of changing the position of the camera proper. The Filmplate Premo is also equipped with a swing bed for increasing or decreasing the foreground without distortion, and can be used to advantage in combination with the rising front.

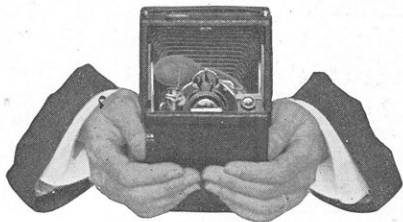
To operate, simply loosen set screws at lower part of arm locks. If the instrument itself were tipped or tilted, the lines of the picture would all have the appearance of leaning backward or forward, (see Fig. 7, page 19) but in using this device there is no such distortion. Fig. 1 shows how to raise or lower the front when making the exposures.

NOTE—Do not fail to center front before closing camera, as otherwise there is danger of ruining bellows when folding.

Closing the Camera

When through using the camera fold the bellows

by reversing the operation shown in Fig. 2, page 15, and press down on arm locks on each side of bed, as shown below. The bed will now close readily.



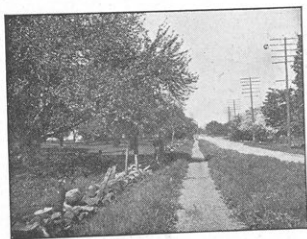
Before closing the bed of the camera, be careful to see that the front board has been pushed in to the limit of motion. If it is in proper position it will not interfere with the bed in closing.

Dimmed Finders and How to Make Them Bright Again

For some cause which is not thoroughly understood, glass will sometimes "sweat" to such an extent as to cover it with a sort of film, which, of course, makes it very dull whether it be used as a lens or mirror.

Whatever the cause, the result is the occasional dimming of finders and lenses. With finders the trouble is sometimes in the mirror, which necessitates opening finder and wiping the mirror by means of a soft cotton cloth. To clean the mirrors in the finder on the Filmplate Premo simply lift up front of the nickel top to open, and after cleaning close by snapping same back into position.

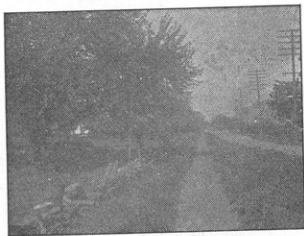
Clean Lenses



CLEAN LENS

and in good order. To produce the effect shown in the picture at the 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 clean, soft 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.



LENS SLIGHTLY DIRTY

PART III

SECTION 1

Developing Premo Film Pack Films in Premo Film Pack Tank

When using the $3\frac{1}{4} \times 4\frac{1}{4}$, 3A ($3\frac{1}{4} \times 5\frac{1}{2}$) or 4×5 Filmplate Premo, provide a No. 2 Premo Film Pack Tank, and for the 5×7 a No. 3 Tank, a box of Premo Tank Powders, No. 2 or No. 3 as the case may be, also, a pound package of Kodak Acid Fixing Powder.

To Prepare the Developer

Remove the cover of the tank by turning it to the left. The cage or holder for the separate films can then be removed from the tank.

Empty a pair of powders into eight ounces of lukewarm water, stir well, and when thoroughly dissolved, pour into tank; then fill tank with a sufficient amount of water to bring it even with the embossed ring at the top which shows the proper level for the developing fluid. *If the tanks are not filled to this point, any portion of the film which projects above the surface of the solution will remain undeveloped.*

The temperature of the developer when ready for use should be about 65 degrees Fahrenheit.

To Prepare the Fixing Solution

Dissolve the package of Kodak Acid Fixing Powder as per directions on package, page 49. (This solution may be bottled and used over and over until it loses strength).

At this point all white light should be excluded from the dark-room. See page 46. If no dark-room is available, this work can be done at night in any room in which there is a tap of running water, care being taken that there is no white light in the room during the few minutes when the films are being transferred from the pack to the cage.

How to Remove Films from Pack for Development

When all exposures in the film pack have been made it is light tight, and may be taken from the adapter in daylight. If any exposures have been removed, as described on page 40, the Film Pack should be resealed immediately after removing it in daylight from the adapter after the twelfth exposure has been made, by moistening the inside of the



FIG. 1

corner flaps, when they may be stuck firmly to the sides.

When ready to develop break the red seal at the sides and pull down bottom flap. (See Fig. 1.)

This gives access to exposed film which may be removed as shown in Fig. 2.

To remove one or more films for development before the entire package is exposed:

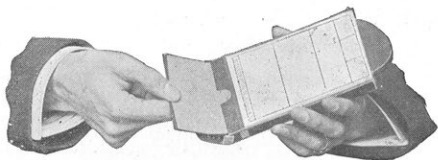


FIG. 2

Take the camera or adapter to the dark-room, remove the pack and break the red seal as above. After removing the exposed film, the pack can be replaced without sealing in the adapter before leaving the dark room and everything is ready for additional exposures.

Important—When removing any films for development before all are exposed, do not remove papers of safety cover but leave same to protect top film after all have been exposed and the pack removed in daylight.

To Load the Films into Cage

When all is ready load each film into its respective compartment of the cage *without detaching the black paper*. This is readily done by holding the film between the thumb and fingers with the black paper

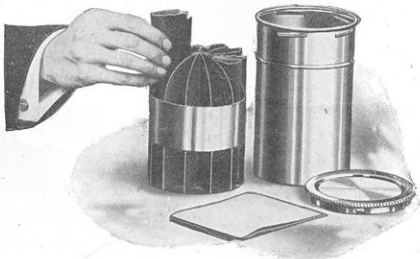


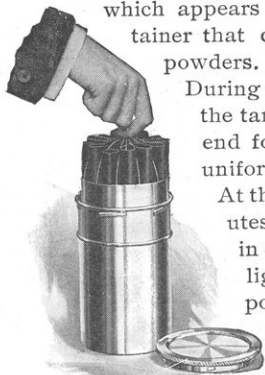
FIG. 5

toward the hand, and doubling the edges together as shown in Fig. 3. Slide them carefully down to the bottom of each compartment, with torn edge up, and see that the center piece protrudes between the edges of the film, preventing them from coming together during the process of development.

NOTE—With the No. 3 Tank only six films can be developed at one time.

When all the films are loaded, place cage into developing tank (Fig. 4) and raise and lower it slightly below the surface of the developer, two or three times, to expel air bubbles. Replace the cover of the tank by dropping it on and turning it to the right as far as possible.

The white light may now be turned on and the time noted. The time may be marked on the dial which appears on the face of the container that comes with the developing powders.



During the process of development the tank should be turned end for end four or five times to procure uniform and even development.

At the expiration of twenty minutes the top may be removed in dark room or very subdued light and the developer poured off. The tank should now be held under a tap of running water or immersed for a few seconds in a vessel of clear water.

FIG. 4

The films are then ready for fixing.

The fixing bath may be prepared in a tray or other vessel, the receiver taken from tank—the metal hook being intended for this purpose—and the films removed from the cage, the black papers pulled off and films placed in the bath, leaving the tank and cage available for the next pack. Films should be changed about two or three times, to insure evenness of fixing.

After the films have been fixed a sufficient length of time so that all the shadows are perfectly transparent and no yellowish spots appear, they should be placed in a tray under running water and washed for half an hour. Before washing be sure black papers are all detached. If running water is not available they should be left in the water about three-quarters of an hour and the water changed six or eight times to remove all trace of hypo.

After this process is completed, the films are taken from the tray and pinned up by the corner, preferably to the edge of a shelf or some projecting surface which will not permit either side of the film to come in contact with any object, as otherwise the film will stick and ruin the negative. Or you may hang the negatives 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.

The above instructions, if carefully followed, will produce the most satisfactory results, provided anything like proper exposures have been given. We recommend the use of the regular Premo Developing Powders in these tanks, as they have been com-

pounded from the purest chemicals for this purpose. For those who wish to mix their own solutions, we give the following formulæ:

NOTE—Avoirdupois weight is the standard used in compounding Photographic Formulæ.

Stock Developing Solution

Pyro Formula

Pyrogallic Acid Solution

Pyrogallic Acid.....	1 Oz.
*Sulphuric Acid.....	20 Minims.
Water.....	28 Ozs.

*If Eastman Permanent Crystal Pyro is used the acid should be omitted.

Soda Solution

*Sulphite Soda (desiccated)	3 Ozs.
*Carbonate Soda (desiccated)	3 Ozs.
Water.....	30 Ozs.

*This solution is based on the strength of Eastman Sulphite and Carbonate, and if possible, these chemicals should be used.

For No. 2 Film Pack Tank—52 Ozs., take:

Pyro Solution.....	3 Ozs.
Soda Solution.....	3 Ozs.
Water.....	46 Ozs.

Develop 20 Minutes 65°F

For No. 3 Film Pack Tank—68 Ozs., take:

Pyro Solution	3½ Ozs.
Soda Solution.....	3½ Ozs.
Water	61 Ozs.

Develop 20 minutes 65°F

Fixing Solution,

Water.....	16 Ozs.
Hyposulphite of Soda.....	4 Ozs.
Sulphite of Soda (Desiccated).....	¼ Oz.

When fully dissolved add the following hardener:

Powdered Alum..... 1/8 Oz.
 Citric Acid..... 1/8 Oz.

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 as to stain the negatives.

NOTE.—Premo Film Pack Speed Film should be developed 25% longer than the regular Premo N. C. Film.

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 Premo Tank and Premo Tank 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	"	12 "
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°) 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.

SECTION 2

Developing Premo Film Pack Film by the Dark-Room Method

If you are to develop the contents of a 3¼ x 4¼ or 4 x 5 Film Pack an Eastman A B C Developing and Printing Outfit will be found most economical.



A B C Developing Outfit

The Outfit Contains :

1 Kodak Candle Lamp.....	\$.25
4 Developing Trays.....	.40
1 4-oz. Graduate15
1 4 x 5 Printing Frame.....	.25
1 4 x 5 Glass for same.....	.05
1 Stirring Rod.....	.05
1 Box (5 tubes) Eastman Special De- veloping Powders25
½ Pound Kodak Acid Fixing Powder..	.15
2 Dozen Sheets 4 x 5 Velox Paper50
1 2-oz. Bottle Nepera Solution.....	.10
1 Package Bromide Potassium.....	.05
1 Instruction Book.....	.10
	<hr/>
	\$2.30

Price, complete, neatly packed, \$1.50.

This outfit cannot be shipped by mail.

NOTE—If to develop a 3½ x 5½ Film Pack, we suggest the use of 3A Developing and Printing Outfit.

If to develop a 5 x 7 Film Pack provide the following articles :

- 1 Kodak Dark-Room Lamp.
- 4 Developing Trays of proper size.
- 1 4-Ounce Graduate.
- 1 Stirring Rod.
- 1 Pkg. Eastman Special Developer Powders.
- 1 Pound Kodak Acid Fixing Powder.

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

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 very rapid, and therefore, extremely sensitive to white light, either daylight or lamplight, and *would be spoiled if exposed to it*, even for a 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 Dark Room Lamp.

The lamp gives a subdued red light which will not injure the film unless it is held too close to it. Set the lamp on the table at least eighteen inches from the operator. Never use a yellow light or fog will be the result.

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 4 ounce mark with water. Stir until dissolved, with the wooden stirring rod, and pour into second tray.

For removing Film from Film Pack, see page 39.

After removing the exposed Films from the Pack, the black paper to which they will be found attached should be removed and each film placed, emulsion side down, in the tray of water. (The emulsion side, or face, is the dull side.) They should be allowed to stand two or three minutes and then each film should be placed separately in the developing tray, still face down. The tray should be rocked gently from time to time, the films never being allowed to mat together, and the progress of development ascertained by holding the film up to the light of the lamp.

NOTE.—When making an examination of the film do not hold it close to the lamp for any length of time, as it would be liable to fog.

Complete development giving sufficient length of time to bring out what detail you can in the thinnest negatives. Do not check the development too soon, or the detail will be lost and the negative will be void of contrast, weak and flat; neither continue it too long, as fog and flatness will result.

It usually requires a longer time to develop instantaneous exposures, as they are rarely fully timed, and a film or plate which has not had full exposure requires longer time for development.

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.

After completing development transfer to the third tray and rinse two or three times with clear, cold water, and transfer to fixing bath (see page 49).

Developing Formulae for Dark-Room Development

We recommend using Eastman Special Developer Powders, which are furnished in packages and are compounded by simply adding the amount of water marked on each package. The following formulae will also be found satisfactory:

Elon-Hydrochinon or Metol-Hydrochinon

SOLUTION A

Elon or Metol.....	60 Grains
Hydrochinon	30 "
Sulphite of Soda (desiccated)*.....	$\frac{3}{4}$ Oz.
Water.....	20 Ozs.

SOLUTION B

Carbonate of Soda (Desiccated)*.....	$\frac{1}{2}$ Oz.
Water.....	20 Ozs.

To Develop

Take Solution A 1 oz., Solution B 1 oz., Water 2 ozs.
Add one or two drops of a 10 per cent. solution
Potassium Bromide to each ounce of developer.

Pyro Formula

SOLUTION A

Pyrogallic Acid.....	1 Oz.
Salphuric Acid.....	20 Minims.
Water.....	28 Ozs.

SOLUTION B

Sulphite of Soda (Desiccated)*.....	3 Ozs.
Carbonate of Soda (Desiccated)*.....	2 "
Water.....	28 "

To Develop

Take Solution A 1 oz., Solution B 1 oz., Water 8 ozs.

*If crystals are used, double the quantity.

NOTE.—Temperature of all developing solutions should be
65° Fahr.

Fixing

We recommend the use of Kodak Acid Fixing
Powder, or the following formula :

Water.....	16 Ozs.
Hyposulphite of Soda.....	4 "
Sulphite of Soda (Desiccated).....	¼ "

When fully dissolved add the following hardener :

Powdered Alum..... ⅓ Oz. Citric Acid ⅓ oz.

This bath may be made up for future use and
may be used as long as it retains its strength.

Fixing

The Kodak Acid Fixing Bath should be prepared
as per directions on the package. Put this into a
fourth tray 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.

After the negatives have been placed in the Fixing Solution, keep them separated a part of the time. This insures the solution reaching every part of the Film. Allow the negatives to remain in the solution two or three minutes after they have cleared or the milky appearance has disappeared, then remove for washing.

Washing and Drying

All negatives must be thoroughly washed so as to remove every trace of hypo and other foreign substance. Where running water is accessible the films may be placed in a tray or washing box and left under a tap from which runs a gentle stream, for about an hour. Films should be moved about from time to time, so that a complete and thorough washing may be had. Do not crowd too many films in too small a tray during this process. When running water is not accessible, the negatives may be placed in a tray or bowl of cold water, and left to soak for five minutes, when the water should be changed and the process repeated five or six times. After carefully washing the films can be pinned up by one corner to an overhanging ledge or frame, as it is imperative that the surfaces touch nothing until perfectly dry; otherwise they would stick and the negatives would be ruined. After negatives are thoroughly dry they are ready for printing.

SECTION 3

Developing Plates—The Eastman Plate Tank

Plates may be developed by the tank method by use of an Eastman Plate Tank, which is the same in theory as the Premo Film Pack Tank with, of course, such modifications as are necessary for the physical difference between plates and films.

With the plate tank, dry plates are loaded in the cage by use of a loading block, the cage is lowered into a solution cup just as the cage of films was, and development proceeds in exactly the same way. Full instructions are included with every plate tank.

The dark room method for the development of Plates is almost identical with that employed for the Film Pack Film, the chemical treatment being the same.

Plates however, must be developed separately in a tray, so as not to scratch the emulsion, with the face, or emulsion side up. The preliminary wetting however, may be omitted, and great care should be taken that the developer covers the entire plate simultaneously. Then rock the tray gently to keep the developer moving across the plate.

NOTE—Plates should be developed to the same density as film negatives and may be examined, while developing, before the dark-room lamp in the same manner.

For those who prefer to mix their own developers, we suggest the use of formulas on page 48.

Fixing

Plates should be fixed with Kodak Acid Fixing Powder as recommended for films, but if preferred, formula on page 49 may be used.

For fixing plates it is best to procure a fixing box, which is arranged with a set, usually of twelve grooves. Each plate may thus be dropped into a groove for fixing, thus eliminating the danger of scratching or over-lapping.

Washing

In washing plates be careful that they do not overlap or touch each other, owing to the likelihood of the corners scratching the emulsion.

After the negatives have been thoroughly washed they must be dried.

Plates should be placed in a drying rack and kept in a cool place until dry. They are then ready for printing.

Defective Negatives

By following closely the foregoing directions, the novice can make seventy-five per cent. or upwards of good negatives. Sometimes, however, the directions are not followed, and failures result.

To forewarn the camerist is to forearm him, and we therefore describe the common causes of failure.

Over-Development

Over development may be caused by a mistake in leaving films or plates 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 the use of Eastman Reducer or the following method:

Reducer

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

Water.....	6 Ozs.
Hyposulphite of Soda.....	½ "
Ferri-Cyanide Potassium (saturated solution)	20 Drops

Rock tray gently back and forth until negative has been reduced to the desired density, then wash ten 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.

Under-Development

An under-developed negative differs from an under-exposed one, in that it is apt to be thin and full of detail, instead of harsh and lacking in detail.

This defect would be caused by a mistake in removing film from the 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-developing 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.

Be Sure to Use Pure Chemicals

To get the best negatives from your films and plates—to get the best prints from your negatives—it is imperative that the chemicals which you use be absolutely pure.

For all our film, plates and papers we furnish powders and solutions mixed in just the proper proportions and compounded from the purest chemicals, rigidly tested in our own laboratories.

But we go even further than this. For those who prefer to mix their own solutions by formula, we have prepared a line of carefully tested standard photographic chemicals.

Don't mar good films and plates and good paper with inferior chemicals.

This seal stands for the highest purity. Be sure it is on the package before purchasing.



PART IV

Printing on Velox Paper

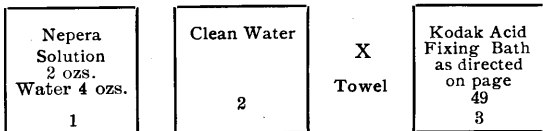
Manipulation

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, preferably gas with a Welsbach burner, 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 Welsbach light.

The comparative exposures with Velox using various sources of light is as follows:

Size of Negative	Distance from Light	Welsbach Burner	32 C. P. Elec. or 6 ft. gas Burner	16 C. P. Elec. or 4 ft. gas Burner	Average Oil Lamp
4 x 5 or Smaller	7 inches	10 Sec.	20 Sec.	30 Sec.	40 Sec.

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



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 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 56.

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 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. Regular Velox should be developed not to exceed fifteen 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 films or plates.

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 Hyposulphite of Soda 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 shorter exposure, 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 formulas 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 print when developer is first flowed on. Remedy, use more developer, break air bells with finger.

Ask your dealer, or us, for a copy of the

Velox Book

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,
Rochester, N. Y.

PART V

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 the tissue of the same size as the print by applying the point of a hot flatiron to small spots at opposite ends. Turn the print face up and trim to size desired, place in position on mount and 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.

Remedy: Lower or raise the temperature of the iron and apply again.

When mounting with the ordinary paste, prints should be mounted wet. After the prints have been trimmed to correct size, immerse in clean water for a few moments, then place in a pile face down on a sheet of clean glass and squeegee off all surplus moisture, apply the paste with a bristle brush, working in the paste thoroughly, then lift the print by the opposite corners, turn it over and place it in proper position on the mount.

Cover with a sheet of clean blotting paper and press into contact with squeegee or rubber print roller.

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Tuition two dollars which includes a
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of the School Text Book

**“HOW TO MAKE
GOOD PICTURES”**

PRICE LIST

Filmplate Premo, $3\frac{1}{4} \times 4\frac{1}{4}$, Shutter fitted with Autotime Scale, including Plate Holder and Film Pack Adapter.....	\$24 00
Do., 3A ($3\frac{1}{4} \times 5\frac{1}{2}$) or 4×5	26 50
Do., 5×7	35 00
Sole Leather Carrying Case, for $3\frac{1}{4} \times 4\frac{1}{4}$	1 75
Do., for 3A ($3\frac{1}{4} \times 5\frac{1}{2}$) or 4×5	2 00
Do., for 5×7	2 50
Premo Film Pack (12 Exposures) $3\frac{1}{4} \times 4\frac{1}{4}$...	70
Do., $3\frac{1}{4} \times 5\frac{1}{2}$	80
Do., 4×5	90
Do., 5×7	1 60
Premo Film Pack Tank No. 2 for 12, $2\frac{1}{2} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 5\frac{1}{2}$, or 4×5 films.....	3 50
Premo Film Pack Tank No. 3, for 6, 5×7 films	4 00
Premo Tank Developing Powders, in package of $\frac{1}{2}$ dozen No. 2.....	25
Premo Tank Developing Powders, in package of $\frac{1}{2}$ dozen No. 3.....	35
Eastman Plate Tank, 4×5 or $3\frac{1}{4} \times 5\frac{1}{2}$, including Solution Cup, Plate Cage, Loading Block, and Adjustable Kit for $3\frac{1}{4} \times 4\frac{1}{4}$ plates.....	3 50
Do., 5×7 , without Kit.....	4 50
Kits for 5×7 Tank, to take $3\frac{1}{4} \times 5\frac{1}{2}$, $4\frac{1}{4} \times 6\frac{1}{2}$, $4\frac{3}{4} \times 6\frac{1}{2}$ plates, each.....	75
Eastman Plate Tank Developer Powders, for 4×5 Tank, per pkg. $\frac{1}{2}$ dozen.....	20
Eastman Plate Tank Developer Powders, for 5×7 Tank, per pkg. $\frac{1}{2}$ dozen.....	35

Standard Dry Plates $3\frac{1}{4} \times 4\frac{1}{4}$, per dozen....	\$ 45
Do., 4×5 or $3\frac{1}{4} \times 5\frac{1}{2}$	65
Do., 5×7	1 10
Eastman Eikonogen Developer Powders (for dark room development), per doz. pairs..	50
Do., per $\frac{1}{2}$ doz. pairs	25
Eastman Hydrochinon Developer Powders (do not stain the fingers), per doz. pairs.	50
Do., per $\frac{1}{2}$ doz. pairs	25
Eastman Pyro Developer Powders (for dark room development), per doz. pairs.....	50
Do., per $\frac{1}{2}$ doz. pairs	25
Eastman Hydrochinon, Eikonogen, Pyro and Special Developer Powders, in sealed tubes, per box of 5 tubes.....	25
Glass Stirring Rod Thermometer.....	60
Kodak Acid Fixing Powder, pound package.	25
Do., $\frac{1}{2}$ pound package.....	15
Do., $\frac{1}{4}$ pound package.....	10
Eastman Reducer, per package, 5 tubes.....	25
Royal Re-developer, per package, 6 tubes....	75
Bromide of Potassium, per ounce bottle.....	10
Solio Paper, per pkg. 2 doz sheets, $3\frac{1}{4} \times 4\frac{1}{4}$	20
Do., $3\frac{1}{4} \times 5\frac{1}{2}$ or 4×5	25
Do., 5×7 , per pkg. 1 dozen sheets.....	30
Combined Toning and Fixing Solution, for Solio, per 8 ounce bottle.....	50
Do., per 4 oz. bottle (in mailing case, including postage, \$.50).....	30
Velox Paper, per pkg., 1 doz. sheets $3\frac{1}{4} \times 4\frac{1}{4}$ or $3\frac{1}{4} \times 5\frac{1}{2}$	15
Do., 4×5	25

Do., 5 x 7.....	\$ 35
Velox Transparent Water Color Stamps.....	25
Eastman Printing Masks, No 6, for 3¼ x 4¼ Film Pack Negatives, each	06
Do., No. 8, for 3¼ x 5½ Film Pack Negatives	10
Do., No. 12, for 4 x 5 Film Pack Negatives...	10
Do., No. 13, for 5 x 7 Film Pack Negatives...	15
Nepera Solution, for developing Velox, 4 oz. bottle	20
Nepera Capsules, for use with Nepera Solution, 1 dozen	15
Eastman Flash Sheets, No. 1, per package of ½ doz.....	25
Do., No. 2, per package of ½ doz.....	40
Do., No. 3, per package of ½ doz.....	60
Eastman Flash Sheet Holder.....	1 00
Kodak Dry Mounting Tissue, per package of 3 doz. sheets, 3¼ x 4¼	10
Do., per pkg. 2 doz. sheets, 3¼ x 5½ and 4 x 5	10
Do., per pkg. 1 doz. sheets, 5 x 7.....	10
Kodak Metal Tripod, No. 0.....	1 60
Do., No. 1.....	2 50
Do., No. 2.....	3 25
Leather Carrying Case, for Nos. 0, 1 or 2....	1 50
R. O. C. Tripod, for cameras 5 x 7 or smaller	1 70
R. O. C. Tripod Truck No. 1.....	1 00
Premo Plate Holder, 3¼ x 4¼, 3¼ x 5½ and 4 x 5.....	1 00
Do., 5 x 7.....	1 25
Universal Clamp for attaching camera to chair, fence, etc.....	75

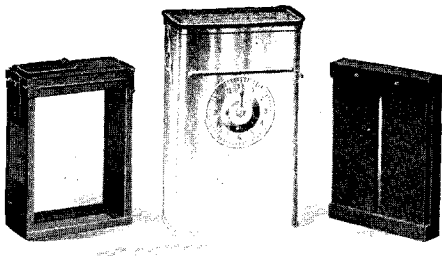
Amateur Printing Frame, $3\frac{1}{4} \times 4\frac{1}{4}$, $3\frac{1}{4} \times 5\frac{1}{2}$, 4 x 5.....	\$ 25
Do., 5 x 7.....	35
Developing Trays, $3\frac{1}{4} \times 4\frac{1}{4}$, Bull's Eye Com- position	12
Do., 4 x 5.....	15
Do., 5 x 7, Bull's Eye Composition.....	25
Kodak Dark Room Lamp No. 2, $\frac{5}{8}$ inch wick	1 00
Kodak Candle Lamp	25
Eastman Indexed Negative Albums, to hold 100, 4 x 5 or smaller film negatives.....	1 00
Do., for 100, 5 x 7 or smaller film negatives..	1 50
The Forum Album, 25 black or sepia leaves $5\frac{1}{2} \times 7$	35
Do., 25 black or sepia leaves, 7 x 10.....	50
Bevplane Mounts, for pictures $3\frac{1}{4} \times 4\frac{1}{4}$ per 100.....	85
Do., per 50.....	45
Do., for pictures $3\frac{1}{4} \times 5\frac{1}{2}$ and 4 x 5, per 100..	90
Do., per 50.....	45
Do., for pictures 5 x 7, per 100.....	1 70
Do., per 50.....	85
Kodak Trimming Board No. 1, 5 in.....	40
Do., No. 2, 7 x 7	60
Premo Negative Rack, No. 1, for 12 negatives	20
Do., No. 2, for 24 negatives.....	25
Premo Optical Outfit, contains 6 supplemen- tary lenses.....	6 00
Premo Portrait attachments for use with Film- plate Premo, with exception of 5 x 7.....	50
Premo Ray Screen, for use with Filmplate Premo, $3\frac{1}{4} \times 4\frac{1}{4}$, 3A ($3\frac{1}{4} \times 5\frac{1}{2}$) or 4 x 5.	40

A B C Developing and Printing Outfit, for dark room development (for 4 x 5 or smaller negatives).....	\$ 1 50
3A Developing and Printing Outfit, for dark room development. (For 3¼ x 5½ or smaller negatives).....	1 50
Focusing Cloth.....	50
Paste, 3-ounce Tube.....	15
Graduate, 8 ounce.....	20
Developing, printing and mounting (on velox)	
12 exposures, 3¼ x 4¼ Premo Film Pack	1 50
Do., prints unmounted.....	1 38
Developing only.....	70
Printing only, mounted, each.....	08
Do., unmounted, each.....	07
Developing, printing and mounting (on velox)	
12 exposures, 3¼ x 5½ or 4 x 5 Premo Film Pack.....	1 80
Do., prints unmounted.....	1 68
Developing only.....	1 00
Printing only, mounted, each.....	10
Do., unmounted, each.....	09
Developing, printing and mounting (on velox)	
12 exposures, 5 x 7 Premo Film Pack....	2 40
Do., unmounted.....	2 10
Developing only.....	1 20
Printing only, mounted, each.....	12½
Do., unmounted, each.....	10

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The Eastman Plate Tank

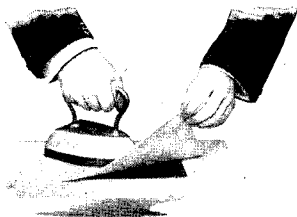
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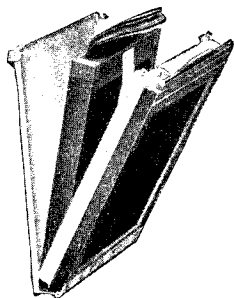
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Do not spoil good film by taking chances with cheap, imitative make-shifts.

The Premo Adapter is the only device for loading your plate camera in daylight, with the assurance of clear,

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Unless it has a hinged back, do not accept it.

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A. Jensen	234
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Paul	165
Time office Jhr	120
Scale shop	112
A. Smith	96