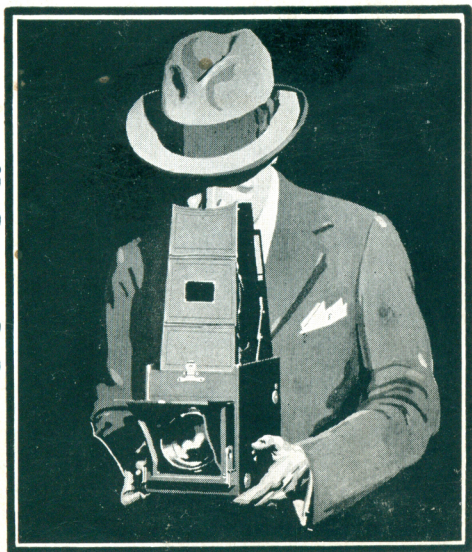


# GRAFLEX

*and*

# GRAPHIC

# FOCAL PLANE SHUTTER PHOTOGRAPHY





## Graflex and Graphic Focal Plane Shutter Photography

THE following pages of this booklet will explain the best methods of using the Graflex under varying conditions of light with different subjects, and also show by illustration how in some cases improvement could have been made.

A Graflex fitted with a high speed anastigmat lens will do everything that any other camera will do, with the one exception of wide angle work, and it will, in addition, do work that other cameras can not do. There are, however, certain laws of optics which even the Graflex can not alter, and it is because of this fact that photographers sometimes expect the impossible of their lens and camera.

What many Graflex users would like, is an  $f.2.5$ ,  $f.3.5$  or  $f.4.5$  long focus lens which will, on the same negative, give sharp images of both nearby and far distant objects when it is used with its largest stop. In other words, they want a lens which combines great speed and great focal length with great depth of focus. Such a lens never has been, and, owing to an unalterable law of optics, never can be constructed.

A lens may have two of these qualities but it can not have all three of them.

If it has great speed and great focal length it can not have great depth of focus.

If it has great speed and great depth of focus it can not have great focal length.

Depth of focus is the distance between the nearest and farthest objects the lens can sharply focus at the same time.

Depth of focus depends on the focal length of the lens, on the size of the stop used, and on the distance from lens to subject.

The shorter the focal length of the lens the greater the depth of focus.

The smaller the stop used the greater the depth of focus.

The farther the subject is from the lens the greater the depth of focus.

The series of target pictures on pages 16 to 21 graphically illustrate how the unalterable law we have mentioned affects



the sharpness of the pictures. The notes under the pictures explain how the operator can secure the desired depth of focus with any long focus high speed lens. The pictures are particularly helpful to Graflex users, as they show the effect produced with lenses of various focal lengths and with different diaphragm openings.

The target pictures show that it is not possible to secure great speed and depth of focus at the same time with a long focus lens. By using a fast lens at full aperture, exposures may be made with extreme rapidity, but the image on the negative will not be perfectly sharp over its entire area; the object on which the lens is focused will be sharp but objects that are closer to and farther from the camera than the subject focused upon, will be blurred because they are out of focus. If it is desired that everything recorded by the lens be absolutely sharp and distinct, the lens must be stopped down; the amount of stopping down that is necessary can be seen by watching the ground glass. Naturally the smaller lens openings will not admit as great a volume of light as the larger ones, and more exposure must be given than when the lens is used at its larger openings. When making exposures a choice must be made between a negative that shows good definition of objects at different distances, by using one of the smaller diaphragm openings, or, a negative made with very short exposure at full lens aperture with the principal subject only in perfect focus. Certain subjects, such as horse and automobile races and athletic events permit no choice, as the speed at which the objects move makes it necessary to admit all the light possible, so that the shutter may operate fast enough to arrest movement in the image that the lens projects to the sensitive surface.

It is difficult to state definitely the exposure that should be given in each case, as many factors combine to determine how long the film or plate should be exposed to record the image perfectly, but the beginner can not go far wrong in average work, when the sun is shining brightly, if the lens diaphragm is set at  $f.8$ , the curtain aperture at  $\frac{3}{4}$  and the tension at No. 4 or 5.

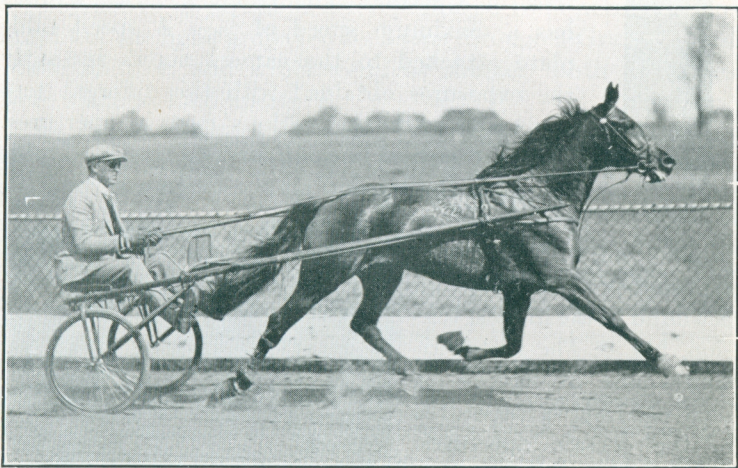
The illustrations on pages 3 and 8, and from 16 to 21 show a variety of subjects photographed under different conditions. By using the same tension, curtain aperture, and lens opening on similar subjects, the Graflex user will get correctly timed negatives.





### Outdoor Sports

**S**UBJECTS of this description are most successfully secured with the Graflex. Focusing the image and watching the action on the ground glass screen, until the most desirable effect is shown and then obtaining in the negative just what was seen, by means of the extremely short exposure possible, are features which make the Graflex indispensable. The upper picture was made with a Graflex, exposure  $\frac{1}{350}$  second at  $f.4.5$ . The lower photograph was made with a Graflex, with  $7\frac{1}{2}''$   $f.3.5$  lens at  $f.3.5$  diaphragm opening, exposure  $\frac{1}{680}$  second. This speed was required as the horse was traveling directly across the range of vision. Had the operator stood so that the horse moved away from or towards the camera,  $\frac{2}{3}$  less shutter speed could have been used or, at an angle of 45 degrees,  $\frac{1}{2}$  less.





## The Graflex Focal Plane Shutter

THE Graflex Focal Plane Shutter consists of a long curtain with a number of fixed apertures varying from full size of the negative to an eighth of an inch in width. These openings being fixed, insure at all times an absolutely uniform rectangular aperture. The curtain operates as closely as possible to the surface of the film or plate. The duration of the exposure is regulated by the size of the curtain aperture employed, and the rapidity with which it moves across the focal plane. The great advantage a focal plane shutter has over those of the usual type will be instantly appreciated when it is considered that the focal plane shutter permits the lens to work at its full efficiency during the whole period of exposure.



Graflex  
Shutter  
Curtain

The shutters in Graflex Cameras, with the exception of the Home Portrait model, are adjusted to give automatic exposures from  $\frac{1}{10}$  to  $\frac{1}{1000}$  of a second. The Home Portrait Graflex has a maximum speed of  $\frac{1}{500}$ . A speed table plate attached to the camera shows instantly the exposures obtained with the different tensions and with the various curtain apertures. The first vertical line of figures on the speed table indicates the tension on the curtain spring, the shutter cur-

### Shutter Speeds

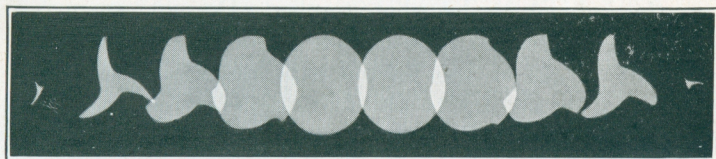
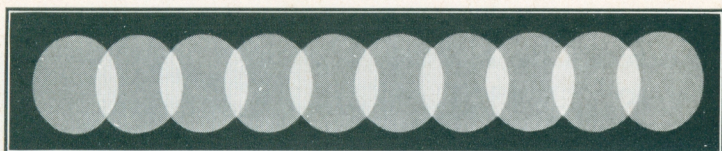
tain moving with the greatest rapidity when the spring is wound to the highest tension, No. 6. The first horizontal line of figures ( $\frac{1}{8}$  inch, etc.) shows the widths of the curtain apertures. The narrower the opening moving across the focal

R. B. GRAFLEX - SERIES D CURTAIN APERTURE				
TENSION NUMBER	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{1}{2}$
1	350	110	40	10
2	440	135	50	15
3	550	160	65	20
4	680	195	75	25
5	825	235	80	30
6	1000	295	90	35

THE FOLMER GRAFLEX CORPORATION  
ROCHESTER, N. Y., U. S. A.

Speed Table Plate





plane, and the higher the tension number employed, the shorter becomes the exposure. The numbers 10 to 1000 indicate fractions of a second in shutter speeds, 1000 showing that when the tension spring is wound to 6 and the curtain aperture one-eighth of an inch, the exposure will be  $\frac{1}{1000}$  of a second. To give an exposure of  $\frac{1}{195}$  of a second the tension should be wound to 4 and the curtain aperture set at  $\frac{3}{8}$  inch, as indicated on the speed table. The shutter is arranged so that time exposures of any duration may be made. By setting the curtain at 0 (open) and allowing the rising mirror to commence and the dropping curtain to terminate the exposure, an automatic exposure of approximately one-fifth second may be made.

The above illustrations are reproduced from actual photographs of the light projected by a lens through a Graflex Focal Plane Shutter, and a between-lens shutter. Both exposures were made at f.4.5 aperture.

The upper illustration shows that with the Graflex Focal Plane Shutter there is no diminishing of the volume of light due to the opening and closing of the shutter.

With the Graflex Focal Plane Shutter the lens works at its full efficiency during the entire period of exposure. The lower illustration shows that a between-lens shutter, when making short exposures, uses most of the exposure period in opening and closing, allowing the lens to work at its full efficiency during but a small fraction of the exposure time. It is therefore evident that the Graflex Focal Plane Shutter allows more light to reach the film or plate during a given interval of exposure than any other type of shutter.



## Correct Use of Stop Openings and Shutter Speeds Under Various Conditions

IT is most important to determine the exposure required by the subject to be photographed. Do not use a  $\frac{1}{1000}$  or even a  $\frac{1}{500}$  second exposure for an ordinary street scene, for which a  $\frac{1}{160}$  or  $\frac{1}{135}$  second exposure is ample. On the other hand, do not try to photograph a speeding automobile or a trotting horse in  $\frac{1}{75}$  of a second. A very few shutter speeds will serve for most work. For ordinary street scenes,  $\frac{1}{160}$  or  $\frac{1}{135}$  of a second, or even  $\frac{1}{110}$  of a second will most frequently be used. Where the action is rapid, such as an automobile traveling at a speed of, say 20 miles an hour,  $\frac{1}{235}$  or  $\frac{1}{295}$  of a second exposure with stop  $f.4.5$  should be given if object is at least 100 ft. distant. If closer, at say 50 ft., the exposure time would be decreased to  $\frac{1}{440}$  or  $\frac{1}{550}$ , or at 25 ft. it would have to be still faster or about  $\frac{1}{825}$  or  $\frac{1}{1000}$ . These speeds are for  $7\frac{1}{2}$  inch lens. A longer focal length of lens would require faster speeds but with shorter lengths, exposure time could be lengthened. For speeding automobiles, horse races, athletic events, motor boats and aeroplanes, the higher speeds such as the  $\frac{1}{680}$ ,  $\frac{1}{825}$ , and in some instances the  $\frac{1}{1000}$  of a second will be required for successful results. For these shutter speeds stop  $f.2.5$ ,  $f.3.5$ ,  $f.4.5$  or  $f.5.6$  should be used. For portraiture, groups, and close range work, when the subject is in the shade, and for nearby subjects under the open sky on cloudy days, the  $\frac{1}{75}$  of a second shutter speed will be useful, with an  $f.4.5$  lens used at full aperture. Some Graflex users find it inadvisable to hold the camera in the hands for speeds slower than  $\frac{1}{40}$  of a second, while others experience no difficulty in making exposures as slow as  $\frac{1}{20}$  of a second. This can best be determined by the individual, although in outdoor work when the wind may be blowing, anything below  $\frac{1}{40}$  of a second is not safe. For the slower exposures the Graflex should be placed on a Crown tripod or some other firm support.

The amount of light that reaches the film or plate during the period of exposure depends both on the shutter speed and the size of stop used. Lenses working at  $f.2.5$ ,  $f.3.5$  or  $f.4.5$  offer many advantages and are, in fact, the only lenses which will





Bright sunlight, exposure  $\frac{1}{295}$  second,  
stop  $f.6.3$

permit the use of a Graflex to its full capacity. The fact that it is an extremely rapid lens does not mean that it should always be used as such. One of its great advantages is that when used with its largest stop it is a fast lens, and when used with smaller stops it does the work for which slower lenses are designed. For average pictures and moderate speed work under favorable conditions of light, stop  $f.5.6$  or stop  $f.8$  should generally be used. Occasionally  $f.11$  or  $f.16$  may be used when the subject is in very

bright sunlight and when depth of focus is important.

Smaller stops than  $f.8$  or  $f.16$  are not usually recommended for instantaneous work. For photographing at close range, for work on rainy or heavily clouded days, early or late in the day, or when subjects are in the shade, full aperture or  $f.5.6$  should be used. For practically all portraiture and for all instantaneous exposures indoors or when working under very adverse conditions of light,  $f.2.5$ ,  $f.3.5$  or  $f.4.5$  is desirable. When an  $f.6.3$  lens is used with its largest stop the exposure must be about twice as long as with the largest stop on an  $f.4.5$  lens, and six times as long with the largest stop on an  $f.2.5$  lens.

It is a wise practice to always use the slowest shutter speed that it is practical to employ for the subject to be photographed, for the reason that the slower the shutter speed the smaller the stop that can be used, and the smaller the stop the greater the depth of focus. The exposure should always be ample to insure a fully timed negative.

The actual diameter of the stop opening does not determine the speed of a lens. Speed depends entirely upon *relative aperture*—that is; the relation that exists between the effective aperture and the focal length of the lens. Take for example, two lenses each with an effective aperture one inch in diameter, the first 8 inch focus, the second 4 inch focus. This first lens works at  $f.8$  (the factor, or relation of 1 to 8); the second lens





Negative made with a Graflex, bright sun,  $\frac{1}{595}$  second,  $f.8$

$f.4$ . The aperture of both lenses are the same in diameter, yet the 4 inch lens is exactly four times as fast as the 8 inch lens. However, stop the second lens down to  $f.8$ , or in other words, close the diaphragm until it has an effective aperture of one-half inch diameter, and both lenses will have the same speed.

It holds true with all lenses that the shorter the focal length in relation to the stop used the greater the depth of focus. If a lens does not give sufficiently sharp images of objects at different distances it can be made to do so by stopping down, or by getting farther away from the subject.

The target pictures plainly illustrate what is meant, particularly series No. 1, No. 2 and No. 4. Take for illustration a few examples of practical, everyday work. In the first instance we are working in a confined position, that is, we can not get more than 15 or 18 feet away from the subject, which we will presume to be a group of three or four people. There is little movement in the subject, so we decide that an exposure of  $\frac{1}{160}$  second will be sufficient to obviate any possibility of a blur from movement. We have an  $f.4.5$  lens, but as conditions are favorable, say about 1 or 2 o'clock in the afternoon in bright sun, we can easily stop down to  $f.8$  or  $f.11$ , and



with the exposure of  $\frac{1}{160}$  of a second the result will be a success. If we wish to stop down still farther in order to obtain better depth of focus, we can stop down to  $f.11$  and use a shutter speed of  $\frac{1}{80}$  and obtain about the same result.

As a second illustration, we will presume that for some reason we find it necessary to again photograph the same or a similar group in order to perhaps secure additional pictures of one or two people of note or prominence, but this time it is much later in the day, say 4 P. M., and in addition the sky has become clouded. We feel that  $\frac{1}{160}$  second exposure at  $f.8$  is too slow and if used our negative would be so undertimed that the result would be a failure. It is here that the reserve speed of the lens is called for, so we open the diaphragm  $f.4.5$ , and with the shutter exposure of  $\frac{1}{160}$  second, our negative renders a very excellent print. In this case we would have to arrange our picture so that the entire group is in focus, but we could not expect sharpness of detail in foreground or background and will have to be satisfied with our efforts in getting the principal figures in focus.

A further example: Suppose we have a group of four or five people to photograph and desire to have each one sharp in the negative. The group is perhaps a family gathering and the last person to arrive does not appear until 5 P. M. It being so late in the day we know that it will tax even the capacity of our fast lens to secure a good instantaneous exposure and to be sure of success an exposure of  $\frac{1}{80}$  of a second at  $f.4.5$  is the slowest which we dare use. We would, of course, like to have the group as large on the print as possible, but if we get too close we either have to stop down the lens, causing great under-exposure, or perhaps get only two or three of the group in good focus if we use the lens at its full opening. Neither is desirable and our only alternative is to get farther away, and have the entire group much smaller on the film. Instead of being but 12 or 15 feet away, it is necessary to get back to a distance of perhaps 20 or 25 feet from our group. Now, although each individual figure will necessarily be smaller the entire group will be sharp and in focus.

Bromide enlargements sixteen by twenty inches have been made very successfully from an area of about 3 x 4 inches of a selected portion of a 4 x 5 Graflex negative. In fact, on account of the clean, sharp detail obtained in the negative at the point or principal portion of interest, Graflex negatives lend themselves better to enlarging than perhaps any other.



## Shutter Speeds

**F**OR very slow instantaneous or for time exposures use a Crown tripod or some firm support.

For photographing in the deep shade, portraiture at close range, and for indoor portraits in exceptionally good light, or wherever the action in subject is exceedingly slight or there is practically no movement,  $\frac{1}{40}$  or  $\frac{1}{25}$  of a second shutter speed (No. 1 tension at  $\frac{3}{4}$  inch aperture or No. 4 tension at  $1\frac{1}{2}$  inch aperture) is recommended.

For ordinary street scenes, general out-of-door hand work, or where action is not excessive, use  $\frac{1}{160}$ ,  $\frac{1}{135}$  or  $\frac{1}{110}$  of a second exposure. (No. 3, 2 or 1 tension,  $\frac{3}{8}$  inch aperture.) These three shutter speeds will probably be used more frequently and prove more serviceable than any other, for average work.

For people moving briskly, street scenes with automobiles, or when making exposures from a moving object, such as the deck of a boat; photographing children at play, in fact, all work where the action is brisk, use  $\frac{1}{295}$  or  $\frac{1}{350}$  of a second. (No. 6 tension,  $\frac{3}{8}$  inch aperture or No. 1 tension,  $\frac{1}{8}$  inch aperture.)

NOTE: Where the same exposure, or approximately the same exposure, is obtained by varying the tension and width of slot in curtain, to avoid distortion use preferably, in photographing moving objects, a combination of a narrow slit and low curtain tension rather than a wide slit and high curtain tension.

For extreme speed work, horses racing, speeding automobiles, motor boats, athletic sports, diving, jumping, birds flying and aeroplanes, use  $\frac{1}{680}$ ,  $\frac{1}{825}$  or  $\frac{1}{1000}$  of a second (Nos. 4, 5 or 6 tensions,  $\frac{1}{8}$  inch aperture.)

Compute the shutter speed to be used consistent with the action of the subject to be photographed.

For general work, where the light is good, say between 10 and 2 o'clock in winter, and between 9 and 4 in summer, use stop  $f.5.6$  or  $f.8$ . Where the light is exceedingly good, very bright sun, and where the shutter speed is not faster than  $\frac{1}{350}$ , stop  $f.11$  may be used. Seldom, if ever, are lighting conditions suitable to use smaller than stop  $f.16$  with the higher shutter speeds.



For indoor portraiture use *f.2.5*, *f.3.5* or *f.4.5*. For portraiture in deep shade, work in the woods, when raining, when the sky is heavily clouded, when the light is dull and weak, very early or late in the day (before 9 A. M. or after 4 P. M. in summer) or in fact, for all work under adverse lighting conditions use stop *f.2.5*, *f.3.5*, *f.4.5*, or perhaps at times *f.5.6*. For all work where limited depth of field is desired, or where no detail in the background is wanted, use *f.2.5*, *f.3.5* or *f.4.5*.

A few suggestions in regard to photographing children, particularly indoors, will be of value. The *f.2.5*, *f.3.5* or *f.4.5* lens is undoubtedly the best for this work. First it is well to determine the slowest shutter speed that will arrest movement. Where conditions are unusually good, such as in a sun parlor where direct sunlight enters, or in rooms with walls and hangings light in color and with several windows,  $\frac{1}{50}$  of a second can be used successfully. With very young children and babies, negative quality can not always be considered, as the exposure must be quick enough to avoid blurring from unlooked-for movement of the subject. White or light colored clothing very materially assists in shortening the exposure. A sheet or something similar placed on the floor reflects light into the faces and a large towel or white cloth over the back of a chair aids in lighting up the shadow side of the face, especially in close-up portraits. When taking pictures of children playing on the floor, do not point the camera down at them, but hold it so the lens will be about on a level with the children's eyes. In using the slower exposures the camera should be placed on a Crown tripod or some firm support. For natural and unstrained effects let the children pose themselves. The simpler a child is dressed the more natural and unaffected will be the result.

In outdoor work extremely rapid action will require exposures of  $\frac{1}{825}$  to  $\frac{1}{1000}$  of a second. There are, of course, exceptions and variations to all rules that may be laid down for the use of any camera, and the individual worker will soon adopt those methods which produce the best results. We believe, however, that the fundamental principles have been sufficiently outlined to quickly help the Graflex user to obtain highly satisfactory results.

The Graflex Exposure Chart shown on the next page is extremely simple, but will be found of value in photographing the great majority of subjects.



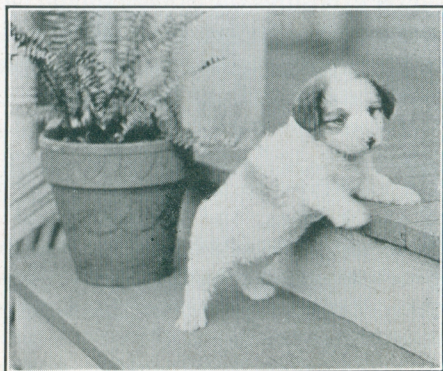
## Graflex Exposure Chart

	SUBJECT	SPEED	STREET	POR- TRAIT	LAND- SCAPE
TENSION	SHUTTER OPENING	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{2}$
	LENS APERTURE	f.4.5	f.6.3	f.8	f.16
	SPEED OF SUBJECT	60 mi.	15 mi.	Still	Still
1.	Very Dull	350	110	40	10
2.	Dull	440	135	50	15
3.	Clear	550	160	65	20
4.	Bright	680	195	75	25
5.	Very Bright	825	235	80	30
6.	Brilliant	1000	295	90	35

*IN the following illustrations we have endeavored to include a sufficient variety of subjects to show the wide range of photography for which the Graflex is pre-eminently adapted.*

### Picturing Insect and Animal Life

THE Graflex is the ideal camera when it is necessary to work at close range in order to get large images of small objects, and to make the exposures instantaneously. A Graflex with  $7\frac{1}{2}$  inch f.4.5 lens was used, and in making the picture of the puppy, the bellows was racked out to its limit to get as large an image as possible.



Exposure,  $\frac{1}{30}$  Second



Upper picture  
made with stop  
*f*.6.3, shutter  
speed  $\frac{1}{5}$  second.  
Result is good



### Effects of Too Slow Shutter Speed



Lower picture  
made with stop  
*f*.8, shutter speed  
 $\frac{1}{5}$  second. Result  
a failure, due to  
movement of  
camera during  
exposure—shutter  
speed too slow  
for hand work





### The Graflex in Hospital Work and for Commercial Purposes

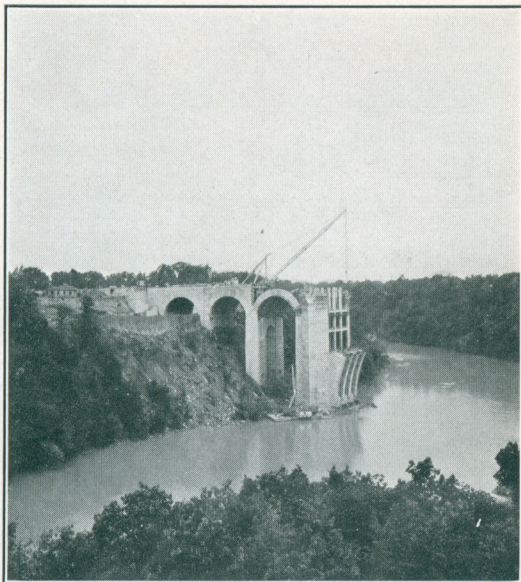
THESE pictures show the wide diversity of subjects that can be photographed successfully with a Graflex.

The upper picture was made with a Graflex, exposure  $\frac{1}{20}$  of a second with stop *f.5.6*. The lower picture was made with an R. B. Auto Graflex, exposure  $\frac{1}{65}$  of a second, stop *f.4.5*, dull gray day.

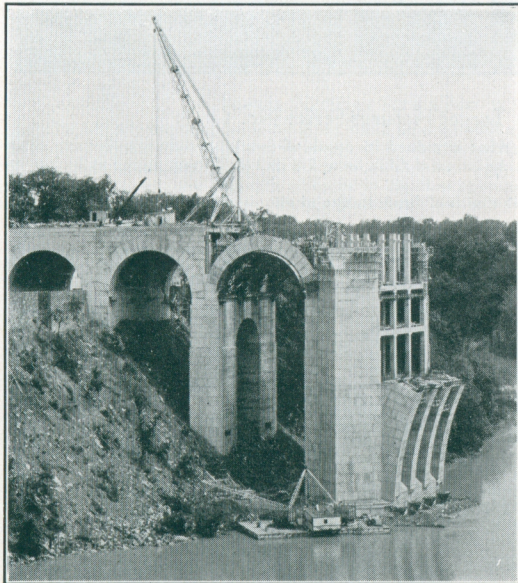




Upper picture  
taken with a  
Graflex fitted  
with  $f.4.5$  lens  
of  $6\frac{1}{2}$  inch  
focal length



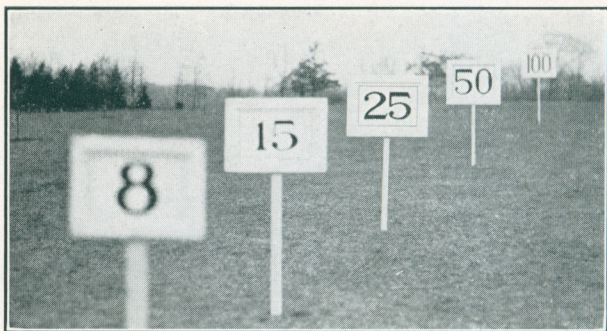
#### Advantages of a Telephoto or Long Focal Length Lens



Lower picture  
taken with the  
same Graflex  
fitted with  $f.4.5$   
Telephoto lens of  
14 inch focal  
length. Position  
of camera  
unchanged

Telephoto or  
long focal length  
lenses are  
necessary when a  
large image is  
required of a  
distant object





Lens  
Aperture  
*f.4.5*

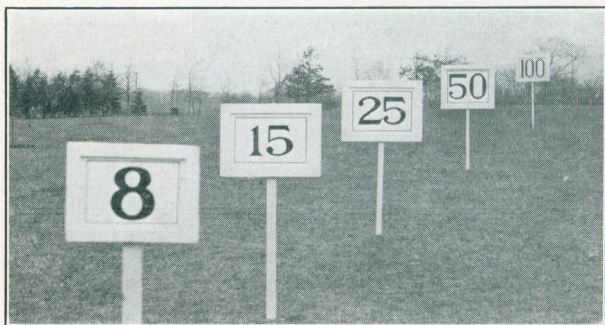


Lens  
Aperture  
*f.8*

### Target Pictures Series No. 1

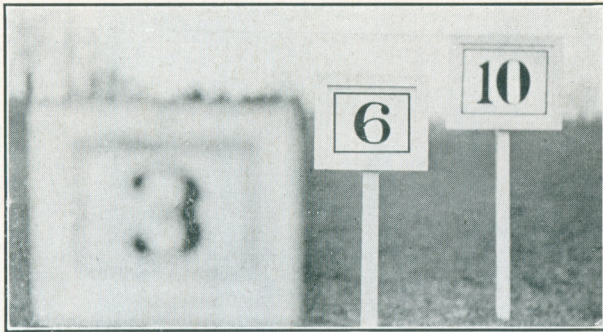
**ILLUSTRATING** clearly what is gained in depth of focus by reducing the size of the lens aperture. Lens used: Anastigmat *f.4.5*, focus  $7\frac{1}{2}$  inches. Target placed at 25 feet was focused upon.

Note gradual increase in depth of focus as size of stop is reduced.

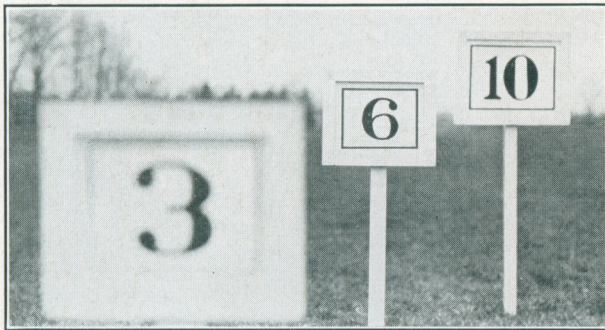


Lens  
Aperture  
*f.16*





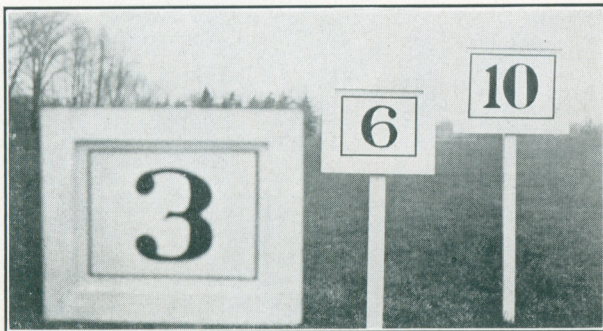
Lens  
Aperture  
*f.4.5*



Lens  
Aperture  
*f.8*

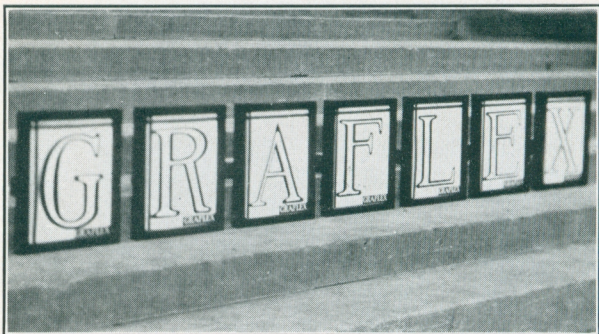
### Target Pictures Series No. 2

**I**LLUSTRATING depth of focus obtained when photographing objects at near distances. The above pictures show clearly, in comparison with Series No. 1 of the target pictures, that the depth is not as great in "close up" work as when objects farther away are focused upon. Notice the increase in depth of focus as the stop openings are reduced. Lens used: Anastigmat *f.4.5*, focus  $7\frac{1}{2}$  inches. Target placed at 6 feet was focused upon.



Lens  
Aperture  
*f.16*





Distance  
to  
Subject  
8 feet



Distance  
to  
Subject  
15 feet

### Target Pictures Series No. 3

ILLUSTRATING resulting depth of focus when using the same diaphragm opening in the lens, but varying the distance of camera from subject. Lens used: Anastigmat  $f.4.5$ , focus  $7\frac{1}{2}$  inches. All exposures made at  $f.4.5$ . Note decided increases in depth of focus.



Distance  
to  
Subject  
25 feet





Left: Made with 6 $\frac{3}{8}$  inch  
Anastigmat Lens



Above: Made with 8 $\frac{1}{2}$  inch  
Anastigmat Lens

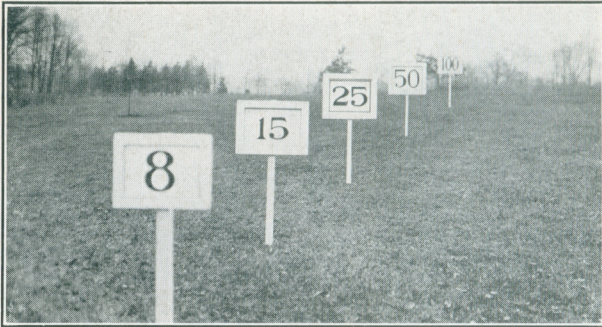


Left: Made with 12 inch  
Anastigmat Lens

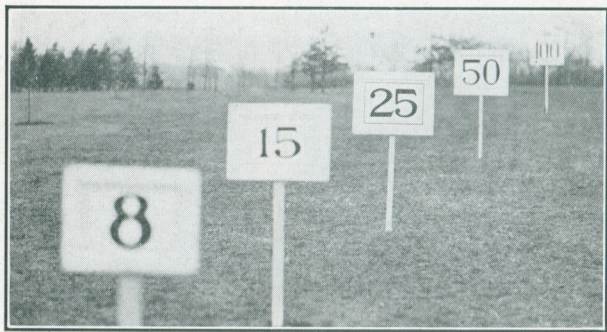
#### Target Pictures Series No. 4

**I**LLUSTRATING relative size of image with lenses of different focal lengths without changing position of camera. Target 25 feet from lens in each instance.





Made  
with  
5½ inch  
focus  
lens

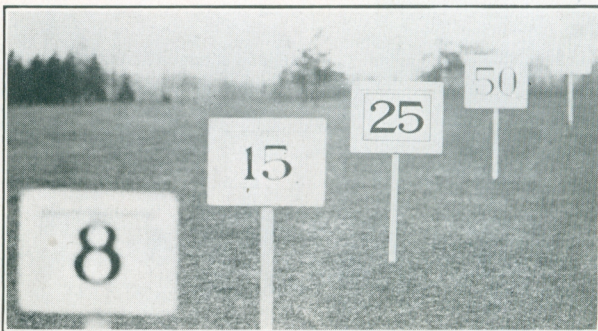


Made  
with  
7½ inch  
focus  
lens

### Target Pictures Series No. 5

SHOWING relative depth of focus with lenses of different focal lengths. The target at 25 feet was the one focused on in each instance. Full aperture of lens  $f/4.5$ , used in all three pictures.

Notice gradual loss of depth with longer focus lenses.



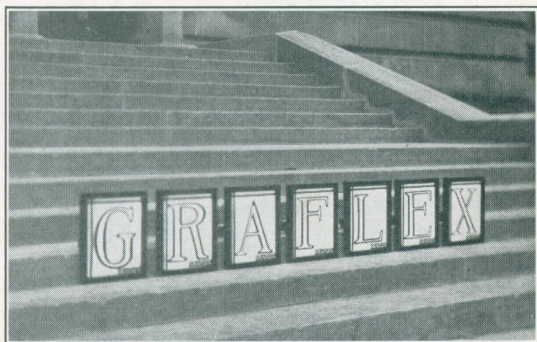
Made  
with  
8½ inch  
focus  
lens





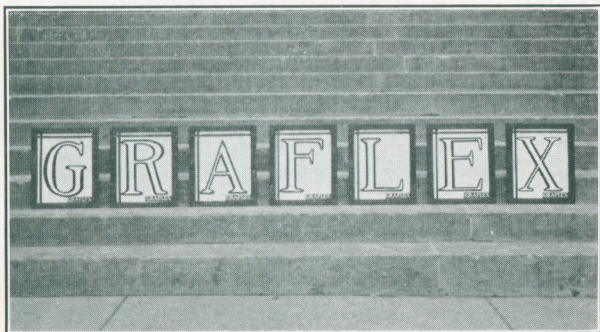
Shows end targets considerably out of focus, camera at angle to subject

Shows increase in definition obtained by moving camera more directly in front of targets



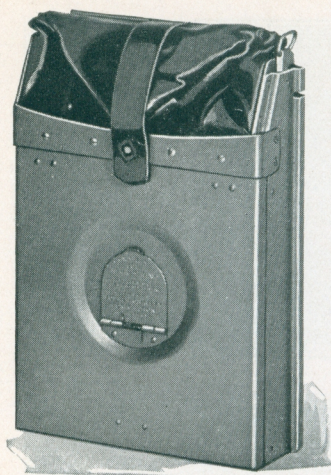
### Target Pictures Series No. 6

**I**LLUSTRATE resulting depth of focus by varying position of camera, but keeping about the same distance from subject, using same diaphragm opening  $f.4.5$ , Anastigmat lens used. Distance of lens to subject, about 15 feet.



Shows perfect detail in all images, camera held parallel to targets





## Graflex Plate or Cut Film Magazines

THESE magazines carry a dozen plates or cut films at one loading, ready for use in quick succession, each in a metal septum. By means of a sliding rod, the septum containing an exposed film is drawn into a light-tight leather bag (shown folded) and is re-inserted behind the films that have previously been used.

Each septum bears a numeral so that the number of exposures made since loading can be quickly told by looking through the ruby window that lies underneath the small spring flap on the back of the magazine.

The Graflex Plate or Cut Film Magazine can be detached from the camera at any time and one or more films removed in a dark room without waiting for all twelve to be exposed.

### Details

	$2\frac{1}{4} \times 3\frac{3}{4}$	$3\frac{1}{4} \times 4\frac{1}{4}$	$3\frac{3}{4} \times 5\frac{1}{2}$	4x5	5x7
Dimensions	$5\frac{1}{8} \times 3\frac{3}{4} \times 1\frac{3}{8}$	$6\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{8}$	$7\frac{5}{8} \times 4\frac{7}{16} \times 1\frac{5}{16}$	$7 \times 5 \times 1\frac{5}{16}$	$9\frac{1}{4} \times 6\frac{1}{4} \times 1\frac{5}{8}$
Weight loaded	12 oz.	18 oz.	1½ lbs.	1½ lbs.	2½ lbs.

## Telephoto Lenses

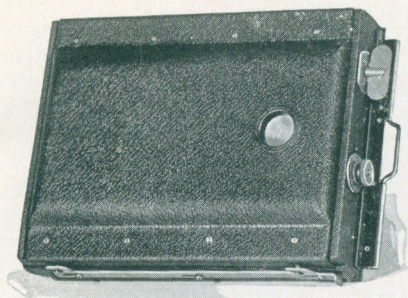
TELEPHOTO lenses are designed for use where closeups are unattainable such as in nature and wild animal photography or where large size images of distant subjects are desired. In such cases a telephoto lens with twice the focal length of the regular lens permits the placing of the camera at twice the distance from the object without any loss in the size of the image, or, at the same distance the image is twice the size. Telephoto lenses afford a much sought auxiliary and broaden the scope of the use of the Graflex camera. A complete list of telephoto lenses, suitable for Graflex cameras is available upon request. To assure correct fitting, lenses should be fitted at the Graflex factory.

## Color Photography

All Graflex models are adapted for the accommodation of color plates by simply obtaining, as additional equipment, a Graflex Ground Glass Focusing Panel and Filters. Through reversing the ground glass in the panel the difference in register of focus between the color and standard dry plates is compensated for. With the ground glass reversed, color plates may be used in the standard Graflex Plate Holders.



## Graflex Roll Holder



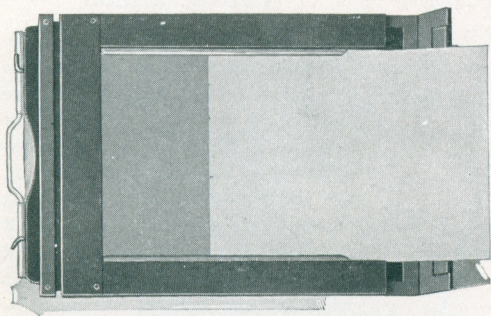
ROLL FILM loads in daylight and, with a Film Tank, develops in daylight. The Roll Holder makes these advantages possible with any Graflex. After inserting the dark slide, the holder can be detached and re-attached between exposures but it need not be removed when the camera goes into the case.

The recently developed Model C GRAFLEX Roll Holder—provided in  $4\frac{1}{4} \times 3\frac{1}{4}$  and  $5 \times 4$  sizes only—is equipped with a spring-actuated ruby window cover to accommodate Super-Sensitive Panchromatic film as well as Verichrome and Regular.

Graflex Roll Holders are numbered in accordance with the corresponding sizes of Graflex Roll Holder Film Cartridge and come in the following sizes: No. 50,  $3\frac{1}{4} \times 2\frac{1}{4}$ ; No. 51,  $4\frac{1}{4} \times 3\frac{1}{4}$ ; No. 53,  $5 \times 4$ ; No. 54,  $7 \times 5$  inches.

*Graflex Roll Holders fit only Graflex Cameras  
and Graphic Cameras with Graflex backs*

## Graflex Plate or Cut Film Holders

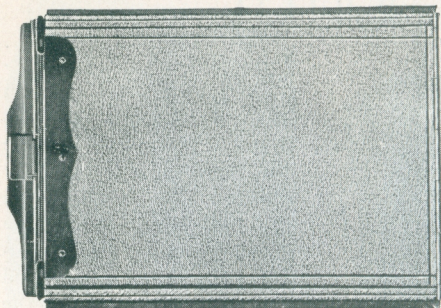


THROUGH these holders, the advantages of making negatives on plates or cut film become available to the owner of any Graflex except the Autographic models.

When the dark slide is withdrawn, the end of the frame opens on a hinge as shown in the illustration. The plate or film slips in or out smoothly, making loading and unloading easy indeed. And the film stays flat, held in narrow channels, the sensitized surface forming a uniform focal plane.

Fit any Graflex except the Autographic models and can remain attached, prepared, while the camera is in its regular case. Supplied in sizes:  $2\frac{1}{4} \times 3\frac{1}{4}$ ;  $3\frac{1}{4} \times 4\frac{1}{4}$ ;  $4 \times 5$ ;  $5 \times 7$  inches.





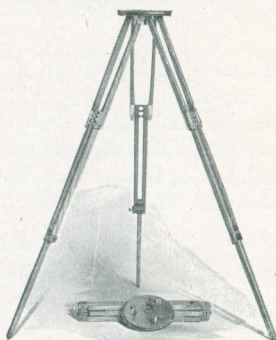
## Graflex Film Pack Adapter

FILM PACKS, daylight loading, are usable in any Graflex except the Autographic Models, with the aid of this attachment, which is available in the following sizes:  $2\frac{1}{4} \times 3\frac{1}{4}$ ;  $3\frac{1}{4} \times 4\frac{1}{4}$ ;  $3\frac{1}{4} \times 5\frac{1}{2}$ ;  $4 \times 5$ ;  $5 \times 7$  inches.

## Combination Tripod

THIS is a strong and serviceable three-section tripod made in two sizes to accommodate cameras of different size from  $6\frac{1}{2} \times 8\frac{1}{2}$  to  $10 \times 12$ . The lower section telescopes into the middle section and the upper section folds back upon the second. The tripod is made of ash with lacquered brass trimmings.

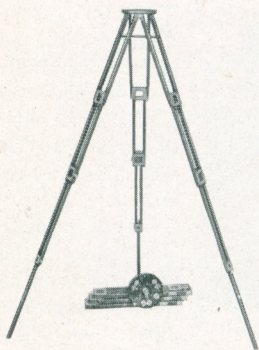
	Length		Weight	Diameter of Top
	Closed	Extended		
No. $2\frac{1}{2}$	$22\frac{1}{2}$ in.	55 in.	$3\frac{3}{8}$ lbs.	5 in.
No. 3	$22\frac{3}{4}$ in.	55 in.	$4\frac{1}{8}$ lbs.	$5\frac{3}{4}$ in.



Combination Tripod

## Crown Tripod

A RIGID four-section tripod, made of selected cherry. The two lower sections telescope into the third upon which the upper section folds back. Binding screws are non-detachable. Expansion brackets in the upper section and taper pins prevent side play. An extra tripod socket in top, set off-center, is useful for counterbalancing the weight when a long bellows extension is employed.



Crown Tripods	Length		Weight	Diameter of Top
	Closed	Extended		
Junior	17 in.	$3\frac{3}{8}$ ft.	32 oz.	$3\frac{1}{2}$ in.
No. 1	$16\frac{3}{4}$ in.	$4\frac{1}{8}$ ft.	36 oz.	4 in.
No. 2	$17\frac{1}{4}$ in.	$4\frac{3}{8}$ ft.	65 oz.	6 in.
No. 4	20 in.	$5\frac{1}{2}$ ft.	90 oz.	$6\frac{1}{2}$ in.



## *You are invited to address the Service Department*

WE have attempted in this booklet to give all of the essential directions for obtaining successful results through Graflex and Graphic Focal Plane Shutter Photography.

If there are any phases not entirely clear, write our Service Department—on any subject in photography. There is no charge, no obligation.

When sending specimens of results for constructive comment, please accompany negatives with data as to time of day; general weather conditions; principal object focused upon; approximate distance of object from camera; diaphragm opening used; shutter speed. We may have suggestions to offer that will improve your work.

### **Folmer Graflex Corporation**

Rochester, New York

*Makers of  
Precision Camera Equipment*

#### **GRAFLEX AND GRAPHIC CAMERAS**

The cameras for more interesting pictures.

#### **STUDIO CAMERAS AND EQUIPMENT**

A camera for every professional need.

#### **AERO CAMERAS—K-5 AND K-10**

Aero Cameras for every type of oblique and vertical aerial photography.

#### **PHOTORECORD**

A camera unit for making standardized identification pictures. Used by Police and Correctional Institutions as well as employers of large groups of employees.

#### **FINGER PRINT CAMERA**

A practical and efficient portable camera for producing accurate photographic records of finger prints, signatures, patterns, etc.



GRAFLEX  
*and*  
GRAPHIC  
FOCAL PLANE SHUTTER  
PHOTOGRAPHY

