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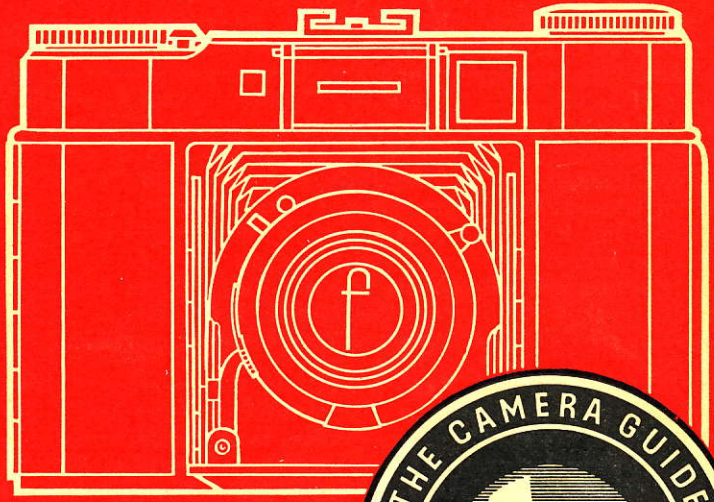
SUPER IKONTA GUIDE

IKONTA M



THE CAMERA GUIDE

FOCAL PRESS

CONTENTS

THE MODELS

The Ikonta rollfilm cameras with rangefinder fall into two main groups. These cover the Super Ikonta models where the rangefinder is coupled to the focusing movement of the lens, and the Ikonta M (formerly known as Ikonta III or Mess-Ikonta) series where the rangefinder is built-in but not coupled with the lens.

The name Ikonta also is borne by cameras not covered in this guide, namely the rollfilm Ikontas without rangefinder and the 35 mm. miniature Ikonta.

The rangefinder Ikontas are constructed with particular regard to simple and quick handling, ability to stand up to hard wear, and full efficiency.

The Super Ikontas

Of the Super Ikonta series Models III and IV were in production up to 1959 and these, like all other models, are now discontinued. The following is the full range of models that have been produced:

1. 4.5 × 6 cm. SUPER IKONTA for 16 pictures $1\frac{5}{8}$ in. × $2\frac{1}{4}$ in. (4.5 × 6 cm.) on $2\frac{1}{4}$ in. × $3\frac{1}{4}$ in. film (="120", "20"); some models are suitable for both "120" and the metal narrow core "620" spools. The weight is 19 ozs. and the dimensions are $1\frac{3}{16}$ in. × $3\frac{5}{8}$ in. × $4\frac{1}{2}$ in. The body is hard aluminium-alloy with hinged back the front is fully self-erecting, giving perfect rigidity, metal parts are stove enamel and fittings nickel-plated. Focusing is done by a built-in rangefinder which is coupled automatically to the focusing front cell of the camera lens. The front is connected with leather bellows to the camera back. Either the Novar *f* 3.5 or the Zeiss Tessar *f* 3.5 has been fitted in the Compur Shutter and the Compur Rapid shutter respectively. The finder is of the direct vision optical type. (*This model which first appeared on the market in June* 1934 *had the Code No.* 530.)

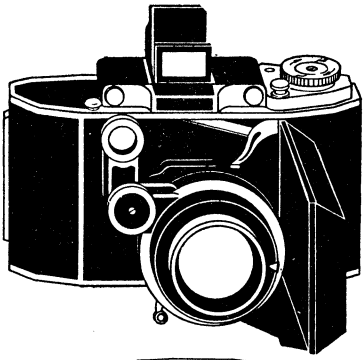
The last edition of this series has been fitted with a body release and some with Van Albada Finder.

In 1937 a second model of the Super Ikonta was introduced (*Code No.* 531), incorporating double-exposure prevention device, body release, Van Albada viewfinder which opens automatically with the camera, and chrome finish of metal parts. Models made between 1946 and 1950 were fitted with the Schneider Xenar *f* 3.5.

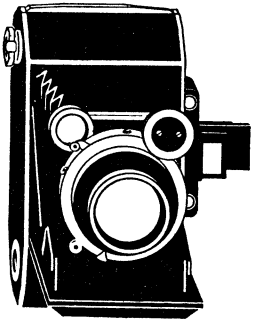
Models made since 1950 are again fitted with a coated Tessar *f* 3.5 lens, and flash-synchronized Compur-Rapid shutter.

THE SUPER IKONTAS

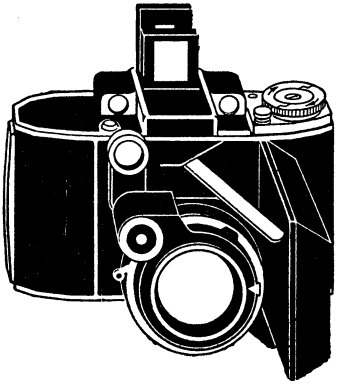
2¼ × 3¼ in. Super Ikonta takes 8 exposures 2¼ in. × 3¼ in. (6 × 9 cm.), on standard 2¼ in. × 3¼ in. film (=120, 20). It has a built-in rangefinder coupled to the lens, and body release with interlock to prevent double exposures. An optical signal indicates whether the film has been wound on. The picture size does not normally call for enlarging, on the other hand the negative will stand enlargement up to 8 in. × 10 in. and more. The camera is too big to be carried in one's pocket. Particulars on page 9.



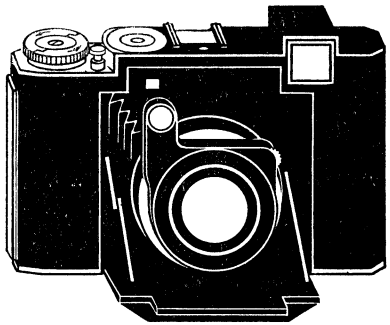
Early 2¼ × 3¼ in. Super Ikonta models were similar to above but without body release. There is no double exposure lock, nor optical signal to indicate whether the film has been wound on. The camera takes 8 exposures 2¼ in. × 3¼ in. (6 × 9 cm.) on standard 2¼ in. × 3¼ in. film (=120, 20).



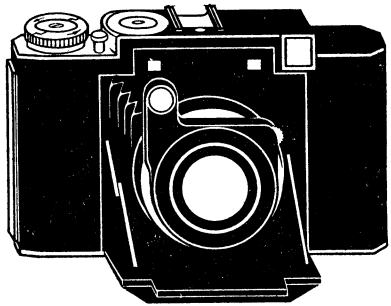
1⅝ × 2¼ in. Super Ikonta is, apart from size, similar to the 2¼ × 3¼ in. Super Ikonta (*above*), and fitted with body release and double exposure lock. The original model (not shown) corresponds to the original 2¼ × 3¼ in. Super Ikonta. Both models take 16 exposures 1⅝ in. × 2¼ in. (4.5 × 6 cm.) on the standard 2¼ in. × 3¼ in. film (=120, 20). Particulars on page 4.



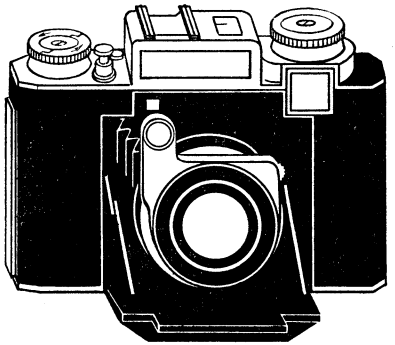
SUPER IKONTAS $2\frac{1}{4} \times 2\frac{1}{4}$



Model 532/16 takes 11 exposures $2\frac{1}{4}$ in. $\times$ $2\frac{1}{4}$ in. (6 $\times$ 6 cm.), on standard $2\frac{1}{4}$ in. $\times$ $3\frac{1}{4}$ in. film (=120, 20). It has built-in range-finder in one eyepiece with the viewfinder, double exposure lock, automatic exposure counter, depth of field scale, automatic film transport stop. As lens the Tessar *f* 2.8 has been fitted in a Compur-Rapid or Synchro-Compur shutter. Particulars see page 8.



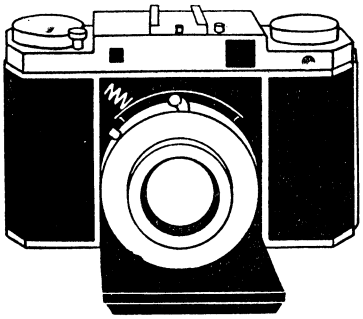
Model 530/16 for 11 exposures $2\frac{1}{4}$ in. $\times$ $2\frac{1}{4}$ in. (6 $\times$ 6 cm.) is the predecessor of the 532/16 model above and similar to it except that the range- and viewfinder are in separate eyepieces. The earlier models have no automatic film stop. The lens is the Zeiss Tessar *f* 3.5 or *f* 2.8 in a Compur-Rapid shutter. Particulars on page 8.



Model 533/16 is similar to the 532/16 model, but takes 12 exposures per film and has a built-in photo-electric exposure meter. Additional features: after threading in the film, winding is fully automatic; a signal device shows red until all 12 exposures are made, at which point it changes to white. Particulars see page 8.

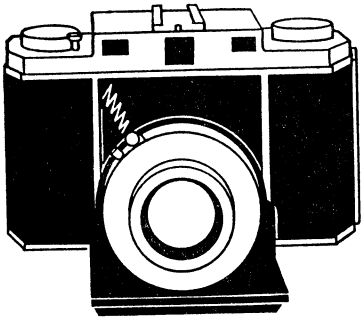
Super Ikonta III takes 12 exposures $2\frac{1}{4}$ in. × $2\frac{1}{4}$ in. (6 × 6 cm.) on standard $2\frac{1}{4}$ in. × $3\frac{1}{4}$ in. film (120, 20). It has a built-in rangefinder in one eyepiece with the viewfinder, double exposure lock, automatic exposure counter, depth of field scale, and a film indicator. The lens is the Novar *f* 3.5 or Tessar *f* 3.5 in a Synchro-Compur shutter. Particulars see page 8.

Super Ikonta IV (illustration on back cover) is like Model III but with built-in photoelectric exposure meter. Particulars see page 9.

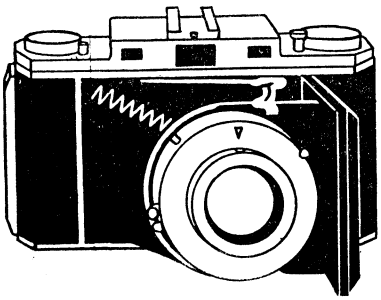


IKONTAS M

$2\frac{1}{4}$ *in. Square Ikonta M* has a body release, depth of field indicator, double exposure prevention device, and takes 12 exposures, $2\frac{1}{4}$ in. × $2\frac{1}{4}$ in. (6 × 6 cm.) on $2\frac{1}{4}$ in. × $3\frac{1}{4}$ in. film (=120, 20, Brownie 2). It has a rangefinder built into the top of the camera for measuring the distance between the camera and the subject. This distance is then set on the lens. The camera is small enough to fit into a pocket while the picture size is large enough for contact prints. Particulars see page 9.



$2\frac{1}{4}$ × $3\frac{1}{4}$ *in. Ikonta M* has a body release, depth of field indicator, double exposure prevention device, and takes 8 exposures $2\frac{1}{4}$ in. × $3\frac{1}{4}$ in. (6 × 9 cm.) on $2\frac{1}{4}$ in. × $3\frac{1}{4}$ in. film (=120, 20, Brownie 2). A rangefinder is built into the top of the camera for measuring the distance between the camera and the subject. This distance can then be set on the lens. Particulars see page 10.



2. 2¼ in. SQUARE SUPER IKONTA for 11 exposures 2¼ in. × 2¼ in. (6 × 6 cm.) on standard 2¼ in. × 3¼ in. film (="120", "20"). Weight 36 ozs., dimensions 2 in. × 3¾ in. × 5⅞ in. The finish is black enamel, edges and fittings are chrome, the covering is fine grain leather—the camera front is connected to the back by leather bellows. The front cell of the lens is also engraved with distances from infinity to 6 ft. Depth of field scale is provided. The viewfinder is built in, other finders can be slid into the shoe provided on top of the camera. As lenses the Zeiss Tessar *f* 3.5 and *f* 2.8 have been fitted into a Compur Rapid shutter with built-in delayed action release. Body release, double-exposure prevention device and automatic exposure counter are provided. (*The Code No. of this model is* 530/16.)

In 1937 a second model, the Super Ikonta II 2¼ in. sq. was introduced with combined eyepiece for rangefinder and viewfinder so that both distance setting and viewing the image can be done at the same time, and an automatic stop for the film transport has been fitted. As lens, only the Tessar *f* 2.8 has been built in. (*This model bears the Code No.* 532/16.)

In 1939 the Super Ikonta 2¼ in. sq. with a built-in photo-electric exposure meter was put on the market with the following additional features: the capacity is 12 exposures; after threading in the film the winding is fully automatic, a signal device shows red until all 12 exposures are made, at which point it changes to white. In 1949 the same model was produced with a different exposure meter. (*The Code No. of this model is* 533/16.)

Since 1950 the Super Ikonta 532/16 has been known as the Super Ikonta I (B), and model 533/16 with built-in exposure meter as the Super Ikonta II (BX). Both have coated lenses and flash-synchronized shutters and take 12 exposures.

The *Super Ikonta III* was introduced in early 1954. It takes 12 exposures on standard 2¼ in. × 3¼ in. film ("120", "20"). It weighs 24 ozs. and measures 5½ in. × 4⅛ in. × 1⅝ in. The finish is black enamel, edges and fittings are chrome, the covering is fine grain leather. The front cell of the lens carries the distance scale from ∞ to 4 ft. and a depth of field scale is engraved on the shutter front. The view finder is combined in one eyepiece with the rangefinder, but the coupling is different from the earlier Super Ikonta models. The Super Ikonta III does not have the rotating wedge mounted on the front of the lens panel but uses the mirror principle (see page 13). An accessory shoe is provided on the top of the camera. A body release, film transport interlock preventing double or blank exposures (with coloured indicating disc), an automatic exposure counter, and a film indicator are provided. The lens is a coated Novar *f* 3.5 in a Synchro-Compur shutter; originally the Tessar *f* 3.5 was also fitted. (*The code No. is* 531/16.)

Super Ikonta IV, introduced early 1956, is identical to the Super Ikonta III but has a photoelectric exposure meter built into the space

between the rangefinder and viewfinder windows. It is fitted with the Tessar *f* 3.5 and the Synchro I-I Compur shutter with light value scale.

3. $2\frac{1}{4} \times 3\frac{1}{4}$ in. SUPER IKONTA for 8 exposures $2\frac{1}{4}$ in. $\times$ $3\frac{1}{4}$ in. (6 $\times$ 9 cm.) and with mask for 16 exposures $1\frac{5}{8}$ in. $\times$ $2\frac{1}{4}$ in. on standard $2\frac{1}{4}$ in. $\times$ $3\frac{1}{4}$ in. film (="120", "20"). Some models are suitable for both "120" and the metal narrow core "620" spools. The weight is 28 ozs., the dimensions are $1\frac{5}{8}$ in. $\times$ $3\frac{1}{2}$ in. $\times$ 6 in. The mechanical specifications are the same as for the original Super Ikonta 4.5 $\times$ 6 cm. (above). As lenses either the Zeiss Triotar *f* 4.5 or the Zeiss Tessar *f* 4.5 or *f* 3.8 have been used, the former in Klio shutter with speeds from 1/5 to 1/175 sec. and built-in delayed action, the latter with Compur Rapid (1 sec. to 1/400 sec.) and built-in delayed action. (*Code No. is* 530/2.)

In 1936 the Super Ikonta II was introduced, incorporating body release, double-exposure prevention device, Albada finder. The Tessar *f* 3.8 lens has been built in, and all edges and trimmings have been chrome finished. (*Code No.* 531/2.)

In 1938 modifications were made in the optical equipment and both the Zeiss Tessar *f* 4.5 and *f* 3.5 fitted.

Models produced since 1950 have a coated lens and a flash-synchronized shutter.

4. $2\frac{1}{2} \times 4\frac{1}{2}$ in. SUPER IKONTA for 8 exposures $2\frac{1}{2}$ in. $\times$ $4\frac{1}{2}$ in. and mask for 16 exposures $2\frac{1}{8}$ in. $\times$ $2\frac{1}{2}$ in. on standard "616" film. (Note: this model is for use with the modern small diameter metal core film only.) Its weight is 34 ozs., dimensions $1\frac{5}{8}$ in. $\times$ $3\frac{3}{4}$ in. $\times$ 7 in. The mechanical specifications are the same as for original 4.5 $\times$ 6 cm. Super Ikonta (see above). As lenses the Zeiss Triotar *f* 4.5 in Klio shutter (1/5 to 1/100 sec.) with built-in delayed action release and the Zeiss Tessar *f* 4.5 in Compur shutter (1 sec. to 1/250 sec.) or Compur Rapid shutter (1 sec. to 1/400 sec.) with built-in delayed action have been fitted. (*The Code No. is* 530/15.)

This model was discontinued in 1939.

The Ikonta M with Rangefinder

At the end of 1951 a new type of rangefinder Ikonta was introduced—the Ikonta M with rangefinder. In this model the rangefinder is built-in but not coupled to the lens, so that one has to read off the distance on the rangefinder scale and set the lens accordingly.

1. IKONTA M for 12 exposures $2\frac{1}{4}$ in. $\times$ $2\frac{1}{4}$ in. (6 $\times$ 6 cm.) on standard "120" film. The dimensions of this model are $2\frac{1}{4}$ in. $\times$ 4 in. $\times$ $1\frac{3}{4}$ in.,

weight 17 oz. The body is of hard aluminium alloy with hinged back; the front is fully self-erecting, giving perfect rigidity; metal parts are stove enamelled, and fittings nickel-plated. Focusing is effected by rotating front cell. The front is connected with leather bellows to the camera back. The camera has a built-in optical finder, double exposure lock, depth of field indicator, and accessory shoe. A rangefinder is built into the camera top (not coupled to the lens). A film indicator can be set to the type of film loaded into the camera. The lens is the coated Novar *f* 4.5 or *f* 3.5, or Tessar *f* 3.5 and the shutter the Prontor S, SVS, or Compur Rapid. (*Code No.* 524/16.)

2. IKONTA M for 8 exposures $2\frac{1}{4}$ in. × $3\frac{1}{4}$ in. (6 × 9 cm.) on standard "120" film. The dimensions of this model are 6 in. × 4 in. × $1\frac{3}{4}$ in., weight 23 oz. The general description is the same as for Ikonta M above. The lens is the coated Novar *f* 4.5 or *f* 3.5, or Tessar *f* 3.5, and the shutter the Prontor S, SVS, or Compur Rapid. (*Code No.* 524/2.)

The Lenses

The lenses of the Super Ikonta are *not* interchangeable and consequently neither telephoto nor wide angle lenses can be used. The only optical supplementary equipment employable consists of converging meniscus lenses which allow the camera to be set at nearer distances than would be possible with the unaided lens (see page 52).

NOVAR is a three lens air spaced anastigmat made in two apertures, *f* 4.5, *f* 3.5. It has a good standard of definition over the entire negative field even at full aperture and is gradually improved when stopped down to *f* 8. It is suitable for all general photographic work.

The *f* 3.5, being almost twice as fast as the *f* 4.5 lens, can usefully be employed for taking photographs in particularly poor light, of fast moving subjects, in sports photography, etc.

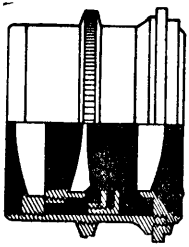
TESSAR is a four lens anastigmat, front component air spaced, back component connected. The Tessar is accepted throughout the world as perfect optical equipment. The definition is to be considered as very good even at full aperture, covering the negative fully and evenly illuminating to the very corners, and has great brilliancy. The best performance of the Tessar is given around *f* 5.6; the correction remains undiminished at smaller apertures. Tessars of varying apertures are built into the Ikonta and Super Ikonta.

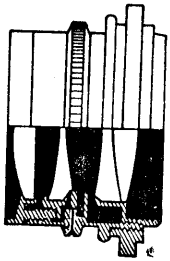
Tessar *f* 3.8 and *f* 3.5 may be called universal types suitable for all general work including landscapes, portraits, street scenes, unfavourable light conditions, fast moving subjects, sports photography, etc.

Tessar *f* 2.8 passes through 50% more light at full aperture than the *f* 3.5 lens. While its field of application is similar to that of the slower Tessars, its fastness permits instantaneous exposures in very poor light, indoors, in artificial light, as well as for very rapid movement.

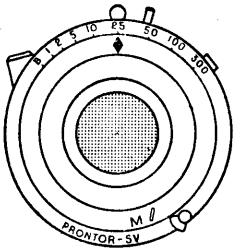
XENAR *f* 3.5, similar to Tessar *f* 3.5 is fitted to some Super Ikontas.

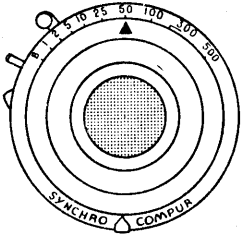
SUPER IKONTA LENSES AND SHUTTERS



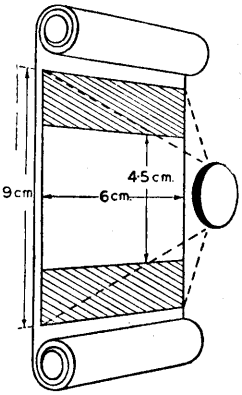


The *Novar* (*left*) is a three-glass anastigmat lens of good definition. The four glass Zeiss *Tessar* (*right*) is one of the best general purpose lenses of medium to fast speed, and pin-sharp definition. The *Xenar* is of the same construction and performance as the Tessar (see also page 10).





Ikontas M are fitted with the Prontor SV, SVS or the Synchro-Compur shutter, Super Ikontas with Synchro-Compur shutter and the Super Ikonta IV with Synchro-Compur with light value scale. The Prontor SVS has eight speeds, 1 to 1/300 sec. and B, while the Synchro-Compur has nine speeds (the latest version ten speeds), going up to 1/500 sec. Both shutters are speed-synchronized for flash shots at any shutter speed. Earlier versions, the Prontor S and the Compur-Rapid are similar, but are synchronized for flash bulbs at 1/25 sec. only (see page 75).



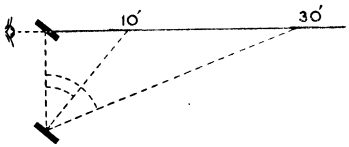
The $2\frac{1}{4} \times 3\frac{1}{4}$ *in.* (*6 × 9 cm.*) *Super Ikonta* is supplied with a mask for 16 exposures, $1\frac{5}{8} \times 2\frac{1}{2}$ in. (4.5 × 6 cm.). When used with the smaller picture size the lens covers a smaller angle of view, but that is frequently an advantage as it eliminates unwanted foreground.

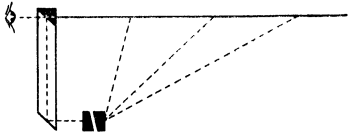
Lens Coating

The latest development in improving the performance of a photographic lens is a process generally called coating or blooming. It consists of the application of a microscopically fine film of some inorganic substance on the glass surfaces, which considerably reduces the light reflection between glass and air surfaces in the lens. The gain will be fully appreciated if it is understood that, for example, in a Tessar the loss of light due to surface reflection is in the region of about 35%, a figure which can be reduced by coating to about 5%. Apart from a gain in the speed of the lens which may be in actual practice 50% (= half a stop), its main importance lies in the elimination of the scatter of light which impairs the contrast of the image. This results in a more brilliant negative, especially in the shadow regions where the tones are most subdued and so brilliance and contrast is most needed. The post-war Super Ikonta models have factory-coated lenses. With the older cameras the coating, however, can be undertaken by reliable optical manufacturers through photographic dealers. The fact that a lens has been coated can be recognized by observing in the lens reflections of, let us say, a lamp, which appear distinctly coloured, as a rule a rather deep blue with a tinge of red.

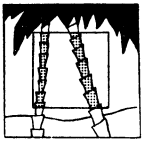
The treatment and care of lenses is a matter of importance. On account of its chemical composition, optical glass of high quality is susceptible to the influence of moisture, and for this reason touching the glass with the fingers should be avoided. Since complete protection is impossible, the lens surface should be cleaned occasionally with a clean, soft chamois leather.

THE LENS HOOD is a tube, as a rule made from metal, placed over the front of the lens to protect it from light coming from outside the actual picture area. There is no picture which could not be improved in clarity and brilliancy by the use of a lens hood. The wider the aperture of the lens the more important is the use of the lens hood. The light coming from objects outside the actual picture area

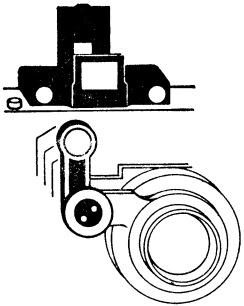


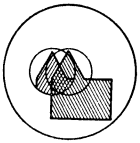


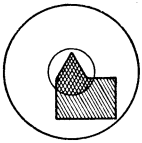
The rangefinder of Super Ikonta III and IV, and Ikonta M, employ the pivotted mirror principle (*left*). All other models employ rotating wedges (*right*).



The rangefinder spot of Super Ikonta III, IV, and Ikonta M is rectangular.







The rangefinder spot of models other than III, IV and M is circular. The focusing ring is turned until the two images merge.

The rangefinder arm of the $2\frac{1}{4}\times 1\frac{5}{8}$ in. and $3\frac{1}{4}\times 2\frac{1}{4}$ in. models has to be swung upwards for use.

Holding the camera for rangefinder focusing—$2\frac{1}{4}\times 3\frac{1}{4}$ in. and $1\frac{5}{8}\times 2\frac{1}{4}$ in. models (*left*), the older $2\frac{1}{4}$ in. sq. models (*centre*), and models III and IV (*right*).

will touch the lens and reduce the brilliancy of the picture considerably. This applies not only to photographs taken against the light—when the lens hood becomes indispensable—but also to sunshine in general.

The Rangefinder

Photographic rangefinders (distance meters) work on the principle of combining two distinct images, and the mechanical operation of effecting combination is made to indicate the actual distance. Generally this is done by having two mirrors or prisms, one of which remains stationary while the second one is pivoted. The angle through which the movable prism or mirror has to be turned to fuse the double image into one is used to show the distance on the scale. This is the principle employed in the Super Ikonta II, IV and the Ikonta M.

The rangefinder built into other Super Ikontas has two stationary prisms and combination of the double image into one is effected by two revolving supplementary wedges. This system affords high accuracy, as the wedges of the Super Ikonta must rotate through 60° to cover this distance, while less accurate systems have only 30° movement. The rangefinder is also very robust, the base being of one solid piece of glass and even if the arm carrying the wedges is bent the adjustment is not affected.

In the 4.5 × 6 cm., 2¼ in. × 3¼ in. and 2½ in. × 4½ in. models of the Super Ikonta the rigid casing, containing the solid portion of the distance meter, is secured to the body of the camera. In the 2¼ in. sq. Super Ikonta this element is built into the camera body. The rotating wedges on the lens front, which are fixed in position in the 2¼ in. sq. model, in all other models are fitted to a pivoted arm which has to be swung out for use and pushed back to close the camera.

To use the rangefinder, look through the viewing aperture, which in models *531/16*, *532/16*, *533/16*, *III* and *IV* is the same eyepiece as the viewfinder. In the centre of the field there is a smaller area which shows a double image of the subject. Turn the focusing ring or distance setting disc until

the two images fuse into one. The rangefinder is then set to the correct distance. With the Ikonta M read off this subject distance and set the focusing scale on the lens mount to the same figure. On the Super Ikontas the adjustment of the rangefinder automatically sets the lens to the correct distance.

The Shutters

The Ikonta M models are fitted with Prontor SV or SVS or Synchro-Compur shutters, while the Super Ikonta cameras have the Synchro-Compur and the Super Ikonta IV the Synchro-Compur with light value scale. The earlier models were fitted with the Compur or Compur Rapid, except one $2\frac{1}{4} \times 3\frac{1}{4}$ in. Super Ikonta which had a Klio shutter.

The shutters require tensioning before each exposure and are released by the camera body release. Early models had no body release, the release lever on the shutter itself being used.

The modern shutters (Prontor SV, SVS and Synchro-Compur) are synchronized for use with flash bulbs and electronic flash at all speeds (see page 75).

THE PRONTOR S, SV and SVS have 8 speeds: 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, and 1/300 sec. (1/250 in $2\frac{1}{4} \times 3\frac{1}{4}$ in. Ikonta M), and a B setting for time exposures, as well as a built-in delayed action release.

To set the shutter turn the outside milled ring until the top of the diamond mark ◆ points to the speed required. The engraved figures 1, 2, 5, 10, 25, 50, 100, and 300, stand for 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, and 1/300 sec. respectively. To tension the shutter pull the tensioning lever on top of the shutter anti-clockwise as far as it will go.

A delayed action release (also called self-timer) is built into the Prontor S, SV and SVS, and permits the photographer to appear in the photograph himself. To use the delayed action release, set the camera in the usual way and mount it on a rigid support, best a tripod. In the Prontor SVS, tensioning the shutter also winds the self-timer. On the Prontor S and SV press down the delayed action setting lever as far as it will go. This is the lever with a red dot in its centre on the lower part of the shutter rim. On pressing the shutter release, the shutter goes off after a delay of approximately 8 sec., giving the operator time to take his place in the picture. The synchronizing lever on the SV shutter (see page 76) must be set to X when the self-timer is used.

THE SYNCHRO-COMPUR AND COMPUR-RAPID shutters have 9

speeds: 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/300, and 1/500 sec. as well as a B setting for time exposures.

The Synchro-Compur and recent Compur-Rapid shutters differ only in their flash synchronization (see page 76). Older Compur-Rapid shutters are not synchronized for flash, nor is the pre-war Compur. The latter has a top speed of 1/300 sec. The older Compur-Rapid for larger sizes went up to 1/400 sec.

To set the shutter, turn the outside milled ring until the arrow head points to the speed required. The engraved figures, 1, 2, 5, 10, 25, 50, 100, 300, and 500 stand for 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/300, and 1/500 sec. respectively. To tension the shutter, pull the tensioning lever on top of the shutter in a clockwise direction as far as it will go.

The speeds from 1 to 1/10 and 1/25 to 1/300 sec. range continuously and may be set to any in-between value, i.e. setting between 50 and 100 gives an exposure of 1/75 sec. On the other hand no intermediate speeds can be set between 1 sec. and B, between 1/10 and 1/25 sec., or between 1/300 and 1/500 sec. When turning the outside milled ring of the shutter from 1/300 to 1/500 sec. a resistance is felt which is due to an additional spring needed to achieve this fastest speed. On the Compur shutter, with a top speed of 1/300 sec., this spring comes into action between 1/100 and 1/300 sec.

THE SYNCHRO COMPUR WITH LIGHT VALUES is the latest version of the Synchro-Compur shutter. It is fitted with some different shutter speeds, namely, 1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, 1/125, 1/250 and 1/500 sec. All the speeds (including 1/500 sec.) can be set before or after tensioning. On the base of the shutter rim a range of numbers is engraved in red from 2–18 which represent light values for correct exposure. Each light value represents a range of shutter speed-aperture combinations, but is covered by a single setting. The built-in photo-electric exposure meter of the Super Ikonta IV as well as the latest exposure meters are now also calibrated in light values; the reading can thus be transferred directly to the shutter.

To set the light value, slightly pull out the serrated lever on the left of the shutter front and move it to the appropriate light value on the scale. You can now choose any shutter speed or aperture without changing the exposure. If you alter the shutter speed, the aperture will set to the correct value, *or* if you change the aperture, the shutter speed adjusts itself automatically to keep the effective exposure constant.

To change the shutter-aperture combination just move the speed setting ring until the aperture lever or speed index points to the required aperture or shutter speed respectively. Intermediate light values can also be set, e.g. $5\frac{1}{2}$, $6\frac{1}{2}$, etc., for fully accurate work.

The shutter may be used in the conventional way too; in this case the shutter speed has to be adjusted first and then the aperture.

The shutter has a built-in delayed action release; to use it set the lever to V, *but only after the shutter has been tensioned.* The lever will—after release—have moved away from the V setting to prevent accidental delay release.

THE KLIO SHUTTER has speeds from 1 to 1/175 sec. B, T, and built-in delayed action. It is similar in manipulation to Prontor SV (see page 15).

FOR TIME EXPOSURES with any of the shutters described, set the shutter speed ring to B (brief time). The shutter requires tensioning in the usual way. On releasing, the shutter will remain open as long as the release button is pressed down and closes as soon as the pressure on the release is removed. For such time exposures the camera must be mounted on a firm support such as a tripod. It is usually safest to release the shutter with the help of a cable release to avoid shaking the camera. This release is screwed into the cable release socket of the shutter (in models without body release), or in the centre of the body release (models with body release).

For long time exposures—where the shutter is to remain open for longer than you can conveniently keep the release depressed—a cable release with locking screw should be employed. To make the exposure set the shutter to B, depress the cable release plunger, and tighten its fixing screw. The shutter will now remain open until the fixing screw is unlocked.

In the older cameras with Compur shutter but no body release there is a "T" setting for long time exposures. When the outer milled ring is set to T the shutter opens when the release lever is pressed down and will only close when the release is pressed a second time. Consequently the T setting is only employed when the shutter is required to remain open for a long time—that is, whenever it would be inconvenient or impracticable to keep the release lever pressed.

THE DELAYED ACTION RELEASE of the Compur shutters (only built into the larger models) can only be used with the speeds from 1 to 1/200 sec., but not with B or the fastest speed. To use the delayed action release (for self-portraiture) set the shutter to the speed required and tension in the usual way. The tensioning lever will come to a stop at a small milled knob (the delayed action knob) which is pushed backwards towards the camera body. The tensioning lever can now be pulled farther to another stop. When the shutter release is pressed the clockwork is set in motion and after about 15 sec. automatically releases the shutter, thus giving the operator the chance of appearing in the picture.

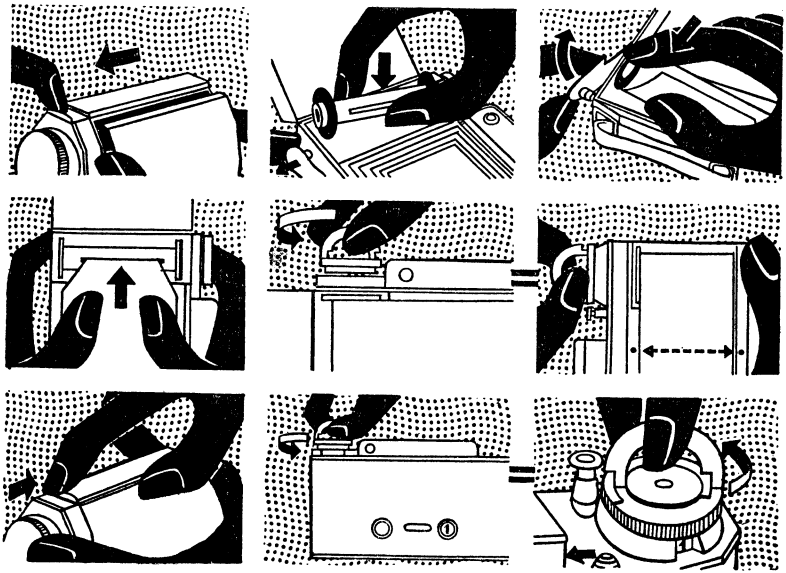
HANDLING

Loading

Loading of film into the camera is best done in subdued daylight, i.e. in one's own shadow.

1. Open camera back.
2. Insert empty spool in chamber on winding key side.
3. Insert rollfilm in other empty chamber.
4. Fix paper end on to empty spool.
5. Wind film transport key two turns.
6. Close camera back.
7. Turn film to No. 1.

1. Slide the locking latch on top of the camera in the direction of the arrow, and the camera back will open on its hinge.
   In Super Ikonta 2¼ × 2¼ in. models I and II with film transport locking device the film should only be inserted when locking mechanism is disengaged (see page 28, No. 1).
2. The empty film spool has to be in the take-up chamber—that is the one below the film window key—before a film can be inserted. The empty spool has a slot at one end, while the other end has a round hole. The projecting bar of the film winding key is engaged in the end with the slot, while the other end receives the peg on the opposite side of the chamber. The peg is on a spring plate which has to be pulled slightly outwards to allow the spool to drop into position.
3. The full roll of film is placed into the chamber opposite the one with the film key by pulling out the side pin on its spring to allow the spool core to enter and then replacing the pin in the central bore of the core itself. The pointed end of the backing paper on the spool must point towards the empty take-up spool.
4. The gummed paper slip holding down the backing paper of the full spool is now broken and as far as possible removed. The pointed end of the backing paper is drawn across the film aperture and fitted into the *longer* slit in the core of the empty spool. The black inner side of the backing paper must face the camera lens.
5. By turning the film winding key twice in a clockwise direction the backing paper is pulled taut. The paper has to lie flat between the flanges of the empty spool and must on no account chafe or rub them. If the paper does not lie flat and straight, it must be adjusted.



Top row: Open camera back (*left*), transfer empty spool to take-up end (*centre*) put full spool into feed chamber (*right*).

Centre row: Fix paper end to empty spool (*left*), pull paper taut on spool (*centre*) by turning key two turns or (with Super Ikonta 533/16) wind up backing paper until double arrow on it registers with dots on camera (*right*).

Bottom row: Close camera back (*left*), turn film winding key until No. 1 appears in red window (*centre*). On Super Ikonta 533/16 push film counter setting stud towards exposure meter, and turn winding key until it locks, with counter showing No. 1 (*right*). *For full details see page 18.*

In Super Ikonta 533/16 (with Exposure Meter), Super Ikonta III, and *IV,* turn the film winding key until a heavy crossline (or two arrows, according to the make of film used) about 8 in. from the film backing paper end is in line with the two white dots above and below the film aperture in the back of the camera.

6. The back of the camera is now closed and made secure by trying to pull it open without touching the catch.

7. The film winding key is now turned until No. I appears in the red window on the camera back. Where the window has a shutter this must, of course, be opened to allow observation. On the models with two windows, it is always the one which is *furthest away* from the film wind key which is used for setting film to No. 1.

In Super Ikonta $2\frac{1}{4} \times 2\frac{1}{4}$ *in. (530/16 and 532/16)* proceed as above, then the film counter disc is pressed down and turned in the direction of the arrow to the number 1, when a strong resistance will be felt. Then release the disc. The camera is now ready for the first exposure.

In Super Ikonta 533/16 (with Exposure Meter) no further winding beyond that indicated under No. 5 above is allowed until the film counter setting stud is pushed to the left, thus engaging the automatic counting device. The winding key is now turned in the direction of the arrow until it comes to a definite stop. The cut-out window of the film counter shows No. 1. The camera is ready for the first exposure.

In Super Ikonta III and *IV (531/16)* turn the film transport key until it comes to a definite stop. The film counter will now automatically indicate No. 1.

The Super Ikonta III, IV and Ikonta M are fitted with a film indicator which should be set after loading the film. This shows the type (black-and-white or colour) and speed of film in the camera and thus helps you remember these details.

Shooting

1. **Open camera front.**
2. **Set aperture.**
3. **Set exposure time.**
4. **Set distance.**
5. **View the image.**
6. **Release.**
7. **Wind on film for next exposure.**
8. **Close camera.**

1. Pressure on the front-opening button releases the camera front, which will at once spring into proper taking position (hence the

name "self-erecting" camera). The camera should be tilted slightly forward as it is opened. There is no need to retard the quick-opening movement by applying the hand as a brake (as some users do) to prevent the film from being sucked forward out of its focal plane. The camera is fitted with bellows ventilation which prevents the film from being pulled out of true when the camera is opened.

2. The aperture (stop) is set by turning the diaphragm lever below the lens until the indicator points to the stop required (scale on lower part of the shutter, or on top on Super Ikonta III). The purpose of the diaphragm is to adjust the effective opening of the lens. The smaller this opening (i.e. the more the lens is "stopped-down") the greater the depth of field (see page 30). However, as less light can pass through the "stopped-down" lens in any given time, the exposure must be lengthened accordingly (see page 68).
3. The exposure time is set according to the shutter with which your camera is fitted. Full details on page 15.
4. *On the Super Ikonta* the distance is measured and set with the built-in rangefinder which is coupled to the lens. For handling the rangefinder see pages 14 and 52. The scale of focusing distances is engraved on the outside of the lens front. To set the distance without using the rangefinder, the focusing ring is turned until the distance figure—representing the distance from the back of the camera to the subject to be photographed—comes to lie opposite the index mark on the shutter casing.

   With the Ikonta M determine the subject distance with the help of the built-in rangefinder (see pages 14 and 52), and then set the lens to that distance as described above.
5. The rangefinder Ikontas are fitted with an eye-level direct vision finder.

   In Ikonta M and all Super Ikonta $2\frac{1}{4}$ *in.*$\times 2\frac{1}{4}$ *in. models* this is built-in and does not require opening.

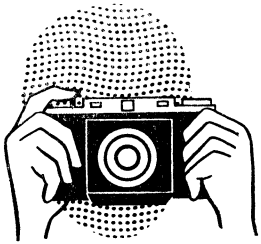
   In the $1\frac{5}{8} \times 2\frac{1}{4}$ *in. and* $2\frac{1}{4} \times 3\frac{1}{4}$ *in. Super Ikonta* it is of the folding type which opens up automatically on opening the camera front. (The later models of these are fitted with the Van Albada type finder described below.)

   To view the image, the back-sight is held close to the eye. Do not attempt to turn the camera to the right or left, away from the eye, nor must the eye be moved from the centre of the eyepiece to find the limitation of the field of view. This "spying round the corner" is deceptive, as only that section seen in the centre of the eyepiece while looking straight ahead, will appear on the negative. The field of view is exact for photographs taken at 9 ft. to 12 ft. distance. At infinity a trifle more appears on the negative than is seen through the finder, and at $3\frac{1}{4}$ ft. to 6 ft. a shade less.

   The Van Albada Finder is an optical viewfinder built in the later types of Super Ikonta $1\frac{5}{8}$ in. $\times$ $2\frac{1}{4}$ in. and $2\frac{1}{4}$ in. $\times$ $3\frac{1}{4}$ in. The actual

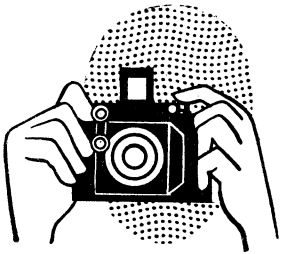
HOLDING THE IKONTA M AND SUPER IKONTAS

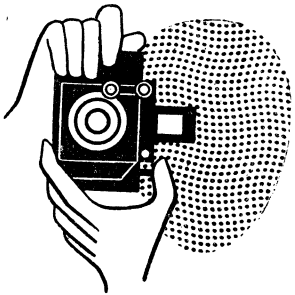
$2\frac{1}{4} \times 2\frac{1}{4}$ *in. Ikonta M:* Hold the camera with both hands at either end of the body with the camera back pressed against the nose. The index finger of the right hand lies on top of the body release.



$2\frac{1}{4} \times 2\frac{1}{4}$ *in. Super Ikonta (all models).* Hold the camera against the forehead, the right hand gripping the body with the right thumb against the camera back. The thumb of the left hand presses against the body release, while the palm of the left hand supports the camera from underneath.

$1\frac{5}{8} \times 2\frac{1}{4}$ *in. Super Ikonta:* For horizontal pictures hold the camera with the right hand gripping the camera body. The index finger of the left hand presses on the body release while the left palm supports the camera body.

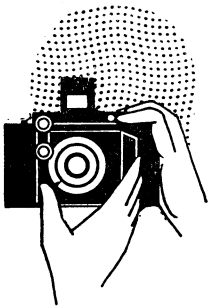




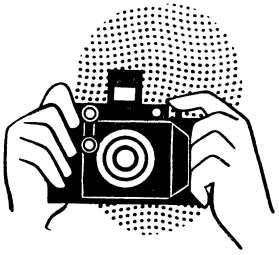
$1\frac{5}{8} \times 2\frac{1}{4}$ *in. Super Ikonta.* For upright pictures hold the camera with the right hand from above, while the left thumb presses against the body release and the lower part of the camera rests in the arch formed by the thumb and index finger.

HOLDING THE SUPER IKONTAS

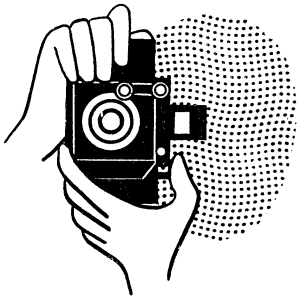
$2\frac{1}{4} \times 2\frac{1}{4}$ in. Super Ikonta (all models). Hold against the nose, the right hand gripping the body, with the right index finger against body release. The left middle finger works the focusing wheel or ring and the left palm supports the camera body.



$2\frac{1}{4} \times 3\frac{1}{4}$ in. Super Ikonta: In the case of early models without body release, hold the camera against the nose, the left hand gripping the camera body. Place the thumb of the right hand on the shutter release while the camera front comes to rest in the palm of the right hand.



$2\frac{1}{4} \times 3\frac{1}{4}$ in. Super Ikonta: For horizontal pictures hold the camera against the nose, the right hand gripping the camera body with right thumb on back, and index finger on top of camera. The palm of the left hand supports the body, with the left index finger on the body release.



$2\frac{1}{4} \times 3\frac{1}{4}$ in. Super Ikonta: For upright pictures hold the camera against the forehead, with the right hand gripping the top of the camera body, the left thumb against the body release and the palm of the left hand supporting the body from underneath.

field covered by the camera is indicated by a white boundary line which seems to be just as far away as the subject. As some part of the surroundings of the field to be included on the negative—outside the boundary line—remains visible through the finder, it is possible to keep an eye on these surroundings at the same time. This is of particular value when photographing moving subjects. The actual handling of the finder is the same as described previously for the direct vision finder.

In the Super Ikonta 2¼ in. × 3¼ in. cameras with mask for two picture sizes, the finder also carries a mask to reduce the field of the finder for pictures of half-size.

6. The exposure is made by pressing the body release very gently. In early models without body release, press the release lever on the shutter. Exposures of 1/25–1/50 sec. and less, are "instantaneous" and can be taken from the hand. It is, however, advisable to use 1/25 sec. as sparingly as possible from the hand, as there is some danger of jerking the camera. Even a slight jerk, enlarged six or eight times on the print, results in unsatisfactory definition. On the other hand, if one has a steady hand and a chance of leaning against a wall or—even better—of supporting the camera on something firm, not only the 1/25 but also 1/10 and even 1/5 sec. exposure can, with care, often be given without shaking. Time exposures should be made with the cable release. This screws into the cable-release socket of the shutter, in the case of a model without body release, otherwise into the body release socket.

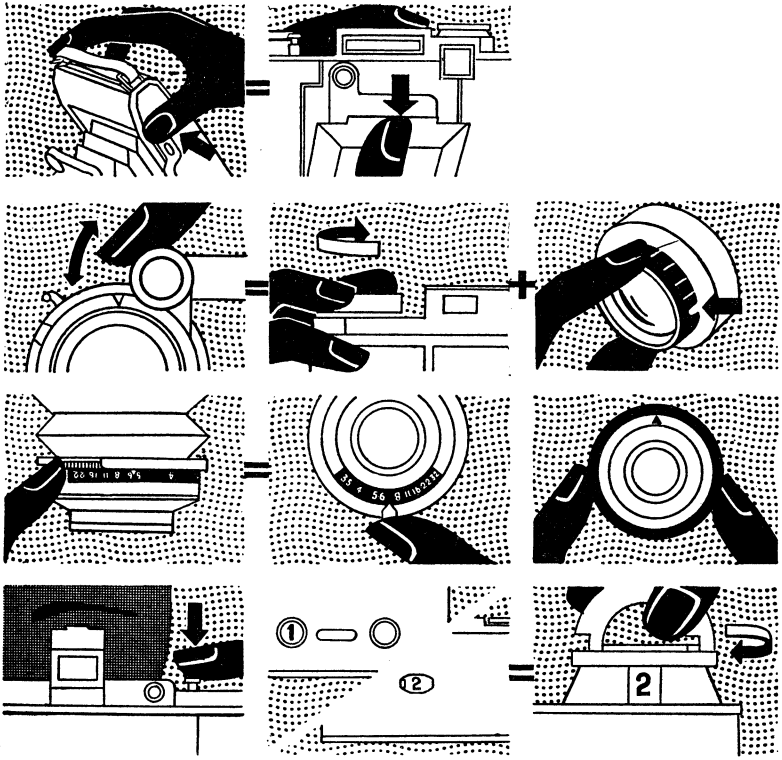
Ikonta M and Super Ikontas with double exposure interlock can only be released after the film has actually been wound on. The film winding key of these models sits on a slightly elevated metal plate which carries a small circular aperture, in which a red or white disc appears. The white disc indicates that the film has not yet been wound on, and that the shutter cannot be released. The red disc, on the other hand, shows that the film has been transported and that pressure on the shutter release will expose it. (This signal device is not incorporated in the 2¼×2¼ in. Super Ikontas.)

In Super Ikonta 2¼ × 2¼ in.: The film is wound by turning the film key as far as it will go.

In the older models, without automatic film lock, turn until the next number on the disc comes up to the index line.

7. *Winding Film in Models with One Window only:* The film winding key is turned until first a hand and then a few dots have passed the film window and finally the figure 1 appears (as explained under Loading, page 20, No. 7). To get the film into position for the second exposure, the key is turned until No. 2 appears in the window and so on until all exposures have been taken.

Winding Film in Models with Two Windows: When the 2¼ × 3¼ in. or 2½ × 4¼ in. model Super Ikonta is used for full size, only the



Top: Open camera front by pressing opening button on body (*left*) or baseboard (*right*).

Upper row: Focus camera by coupled rangefinder of Super Ikontas (*left*), or by separate rangefinder of Ikonta III (*centre*); in latter case set distance on lens mount (*right*).

Lower row: Set aperture ring (*left*) or lever (*centre*), set shutter speed (*right*).

Bottom row: View and release (*left*), advance film to next number in red window (*centre*) or on film counter (*right*).

far window is used as explained above while the near window (the one nearest to the film winding key) is ignored.

If the latter type is used with the removable mask in the film gate for 16 exposures of half size, both windows will be used. This applies also to the 1⅝ in. × 2¼ in. model. To get the film into position for the first exposure the film winding key is turned until first a hand, and then a few dots are passed and finally the figure 1 appears in the window which is farthest away from the winding key (as instructed under loading No. 1). To get the film in position for the second exposure the film winding key is turned until the same No. 1 appears in the second window, or "near window", i.e. the one nearest the key. For the third exposure the film is wound until No. 2 is visible in the far window, for the fourth exposure one has to wind until No. 2 appears in the rear window and so on. Consequently each No. on the film corresponds to two exposures (one in the near and the second one in the far window) and as the film has eight numbers there will be sixteen exposures in all.

8. The camera is closed by pressing down the upper links of the struts on either side and then raising the baseboard of the camera until it engages on the main body.

In the Super Ikonta 2¼ in. × 3¼ in. and 1⅝ in. × 2¼ in. models the viewfinder is folded down.

Unloading

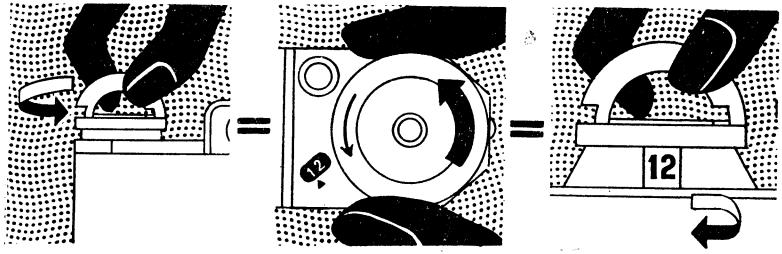
1. Wind off paper end.
2. Open camera back.
3. Remove exposed film.
4. Close camera back or reload with new film.

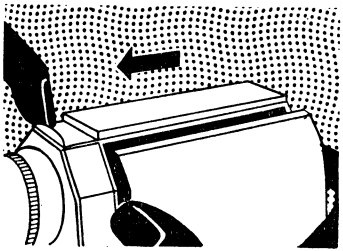
1. After all exposures have been taken, wind on the film key until the paper end disappears in the film window on the back of the camera, and finally give a further three turns to the key to wind the paper fully on to the take-up spool.

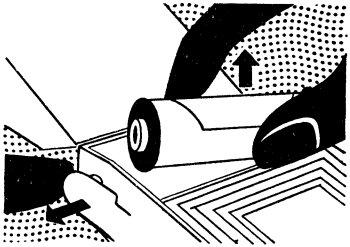
In the Super Ikonta 533/16 (with exposure meter) there is a heavy white circle inside the camera opposite the window. The fact that this circle is visible through the window indicates clearly that the paper end (which otherwise would hide this circle) has passed and that the film has been wound off.

One variation of this model has no film window on the camera back at all. Here, five full turns on the key after the last exposure are necessary to make sure that the film has been wound off.

In the Super Ikonta III and *IV (531/16)* wind the film key as far as it will go. A red dot will appear on the film counter.







Top: Wind off end of backing paper after last exposure, by turning film winding key until end of paper passes film window, or through five turns where there is no film window.

Bottom: Open camera back (*left*), remove full film spool (*right*) and seal immediately to prevent film from unrolling. *For further details see page 26.*

2. The camera back is opened as described on page 18, No. 1.
3. The film is removed by pulling back the spring stud on the bottom of the camera and lifting the film out of its chamber. The film is now firmly fastened by the gummed label adhering to it and should be wrapped up until it is developed.
4. Close the camera back as described on page 20, No. 6, or reload as instructed on page 18.

The Interlock of $2\frac{1}{4} \times 2\frac{1}{4}$ in Super Ikontas

The $2\frac{1}{4}$ in. sq. Super Ikonta cameras have an arrangement whereby the body release cannot be depressed until the film has been transported. This automatically prevents double or blank exposures.

The early models of the Super Ikonta 530/16 and 532/16 had no automatic stop, so that the film counter had to be watched and had to be wound on until the next engraved number of the disc showed against the index.

The particular design of this automatic film lock device of the Super Ikonta models 530/16 and 532/16 makes it advisable to set out their manipulation in detail.

1. *Putting the film lock out of action.* When the eleventh exposure has been taken the double exposure locking device becomes automatically disengaged. If the film counting disc shows any other number turn the film winding key to its limit stop, then cock the shutter and, when releasing it, keep the release knob pressed down. In this position one can move the counting disc by pressing it down beyond the No. 11, thereby disengaging the locking mechanism. With the film lock out of action the film winding key turns independently of the counter disc and shutter and can be rotated at will. The shutter can be set, but not released Only in this position should the camera be loaded.

2. *Setting the automatic film lock into action.* While pressing down the counter disc turn it in the direction of the arrow up to No. 1, when a strong resistance will be felt. The counter disc should then be released. With the film lock in action the film winding key can only be turned from one picture to the next, on condition that the shutter has been previously set and released. The camera may not be loaded with film in this position. When releasing the shutter for the twelfth picture the lock becomes disengaged automatically.

Super Ikonta 533/16: with Exposure Meter ($2\frac{1}{4}$ in. sq.) shows a modification in the film loading counter and automatic locking device. This film counting disc is replaced by a cut-out window below the film transport key.

1. *To put the lock out of action* the procedure is the same as that described above, except that, instead of turning the disc, the film transport key is turned past No. 12 to a red circle with a red dot in its centre. In this position the key can be turned at will, while the counting mechanism remains disengaged. And in this position only should the camera be loaded with film.

2. *Setting the automatic film lock into action.* The milled projecting stud on the camera top plate (between winding key and exposure meter) is pushed to the left; this brings the automatic film lock into action. At the same time the warning window beside the stud shows "red", indicating that the camera is loaded and set. This operation is performed after inserting the film and turning it until the crossline points to the two white dots in the camera back as instructed under Loading, page 18, No. 5. On the other hand, the colour of the warning window turns white when the film key is moved after the twelfth exposure. This means: "There is *no* film left".

FOCUSING

Depth of Field

The lens is focused at some definite distance. This means that its position relative to the film is adjusted in such a way that whatever is exactly at the focused distance will be represented by a "sharp" image on the film. Everything else—everything nearer to the camera or farther from it—will be, strictly speaking, "unsharp".

In practice the decline of definition is, of course, gradual. Thus there is a zone—stretching from somewhere in front of the focused distance to somewhere behind it—which will appear sufficiently sharp to the human eye. This is called depth of field.

Now, what should or should not be accepted as sufficiently sharp is debatable. Certain standards, however, have been agreed upon. It is agreed that any pin-point represented on a $1\frac{5}{8}$ in. $\times$ $2\frac{1}{4}$ in. and $2\frac{1}{4}$ in. $\times$ $2\frac{1}{4}$ in. negative by a "dot", the diameter of which does not exceed 1/25 mm., should be regarded as sharp. The technical term for that dot is circle of confusion. (The accepted circle of confusion for $2\frac{1}{4}$ in. $\times$ $3\frac{1}{4}$ in. negatives is 1/20 mm.)

The limits defined by the circle of confusion are reached more quickly with certain lenses than with some others. The results also vary with the conditions under which one definite type of lens is used.

Short focus lenses yield more depth of field than long focus lenses.

Small apertures yield more depth of field than large apertures.

Far focusing distances yield more depth of field than near-focusing.

Control of Depth of Field

The depth of field—dependent on the distance actually focused at, the aperture employed and the focal length of the lens—has to be ascertained for each individual case.

To start with, let us assume that we work with a standard lens of 7.5 or 8 cm. focal length of a $1\frac{5}{8} \times 2\frac{1}{4}$ in. or $2\frac{1}{4}$ in. sq. Ikonta M or Super Ikonta only. There remains the interplay of "aperture" and "focusing distance". Their effect can be read off on the depth of field table on page 50.

Let us assume we are working with *f* 5.6 and the lens is set to 8 ft. We find in the horizontal column *f* 5.6, above the bold distance figure 8, 6–$9\frac{1}{4}$ and below 9–$9\frac{1}{4}$, and so the range of focus stretches from 6 ft. $9\frac{1}{4}$ in. to 9 ft. $9\frac{1}{4}$ in. When working with the lens set at the same distance of 8 ft., but with aperture *f* 3.5, the range of sharpness will extend only from 7 ft. $2\frac{1}{4}$ in. to 9 ft. $0\frac{1}{4}$ in., while aperture *f* 8 will produce a sharp area from 6 ft. $4\frac{1}{4}$ in. to 10 ft. 9 in. Note how we can vary the area of sharpness by playing with the stop, without changing the setting of the distance: the smaller the stop the larger the depth of field. So the stop (aperture) is one of the variables by which a convenient zone of sharpness can be obtained.

The other one is, of course, the distance setting. Let us compare the depth values for, let us say, aperture *f* 5.6 at a distance first of 10 ft., then of 20 ft. and lastly 50 ft. We learn that in the first case the depth of field stretches from 8 ft. $1\frac{3}{4}$ in. to 12 ft. 11 in.; in the second case from 13 ft. 9 in. to 36 ft. 11 in.; and in the last case from 23 ft. 3 in. to ∞ (*infinity*). So we see confirmed that the depth of field grows as we set the lens at distances farther and farther away from the camera.

Incidentally, we also conclude that the depth of field in front of the focused distance is always more limited than the depth gained behind it. With the lens set at 10 ft. we get $1\frac{3}{4}$ ft. depth in front of the focused distance and almost 3 ft. behind it. At 20 ft. we get over 6 ft. in front of the focused distance and 17 ft. behind it. At 50 ft. we get 27 ft. in front and to ∞ in the rear.

With the longer focal length lens 10.5 cm. ($4\frac{1}{8}$ in.) to 12 cm. ($4\frac{3}{4}$ in.) of the $2\frac{1}{4}$ in. $\times$ $3\frac{1}{4}$ in. and $2\frac{1}{2}$ in. $\times$ $4\frac{1}{4}$ in. models the depth of field is somewhat reduced (see table on page 51).

The comparative shallowness of the depth of field in front of the focused distance will sometimes make it necessary—e.g. in landscape photography, where the subject may have to include much foreground—to set the lens nearer than the main point of interest lies, in order to gain additional sharpness towards the foreground while covering the main point of interest by the depth of field behind the focused distance. This trick, however, must be used with moderation. It should be recalled, that the widely held idea that everything is equally sharp within the depth of focus area and completely unsharp outside these limits is quite wrong. There is a gradual decline of sharpness even within the depth of field areas. Critical "pin-point" definition can be expected only in the plane actually focused. So care should be taken to place the focus as near as possible to the spot on which the greatest sharpness is required. Thus in the case of distant landscapes use should not be made of the *hyperfocal distance* (described below) if the sharpness is required in the far distances; focusing at the far distance will give better results.

When a lens is focused on such a distance that the depth of field just reaches the far distance (infinity) then the lens is focused on the "infinity-near-point" or hyperfocal distance. This setting of focus is advisable when it is desired to secure adequate sharpness from the farthest distance to as far as possible in the foreground, rather than extreme sharpness in the far distance only (see table on page 49).

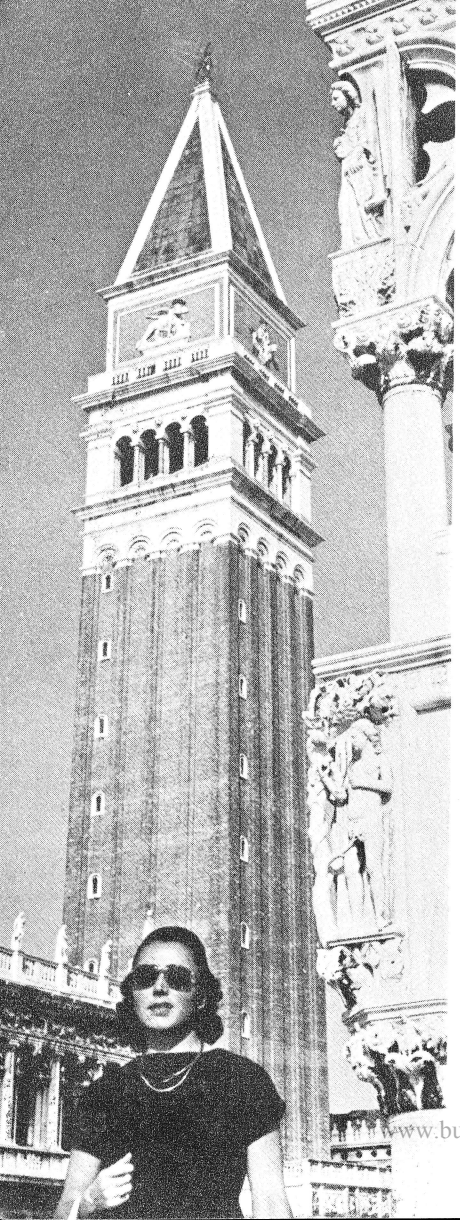
Zone Focusing

There are opportunities in a photographer's life which, like time and tide, wait for no man; when to bring your whole technical armament to bear—rangefinder focusing, exposure meter and the rest—would be to let your prey escape you for ever. Such situations are best dealt with by applying a kind of pre-prepared depth focusing which is indicated on the camera by red dots on both the distance scale and the aperture scale.

OUTDOOR PORTRAITS need plenty of sunshine. In this shot at the airport an informal effect has been obtained with neither of the girls looking at the camera. The low viewpoint not only emphasizes the foreground but magnifies the appearance of the aircraft in the background, helping to establish the location of the picture. Fine grain pan film, f 5.6, 1/50 second.—W. Dessecker.

INDOOR PORTRAITS can be arranged to suit the lighting to the subject. Remember that artificial light is not as bright as daylight and you will have to use fairly slow exposures. Make sure that your camera is firm and steady on the tripod and use a cable release for firing the shutter. Fine grain pan film, f 4, 1/5 second.—W. Dessecker.

SHOTS WITHOUT SUNLIGHT often tend to be rather flat and uninteresting, so make the foreground the main part of the subject. The high viewpoint avoids inclusion of the overcast sky and concentrates attention on to the girl and the car. Fast pan film, f 6, 1/50 second.—R. Schaffrath.

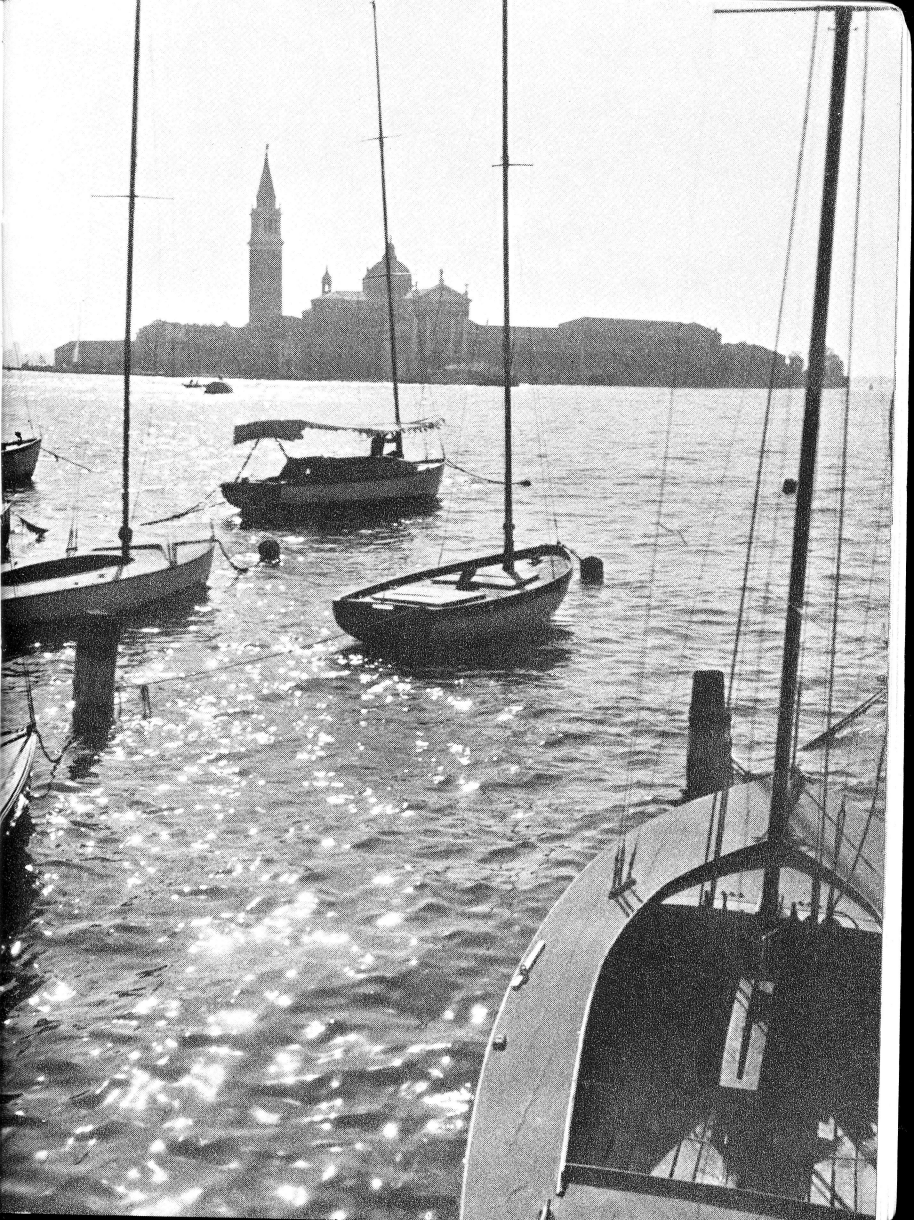


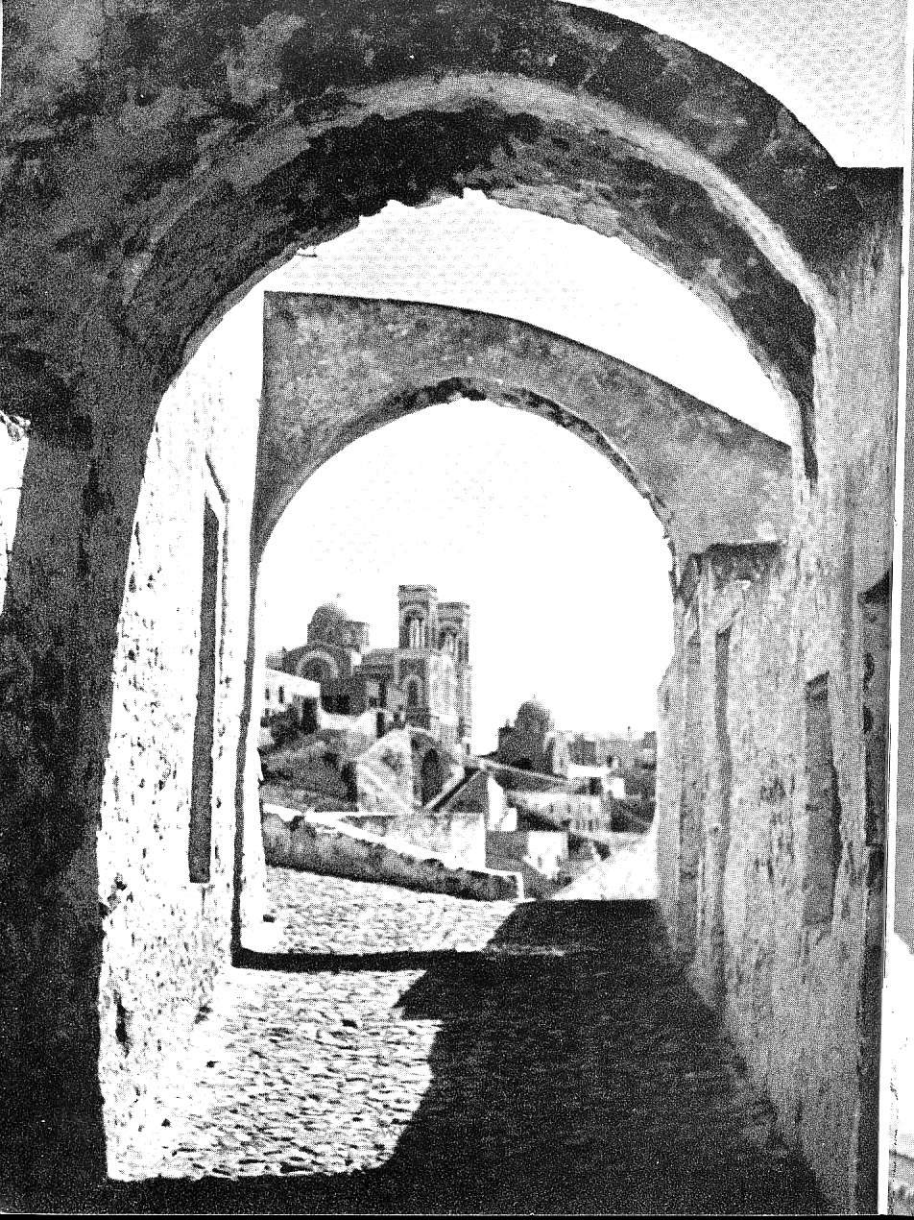
ARCHITECTURAL SUBJECTS may cause trouble with converging verticals. You can only correct this at the printing stage when the negative carrier or baseboard is tilted to compensate. Fine grain pan film, f 11, 1/100 second.—A. Sickert.

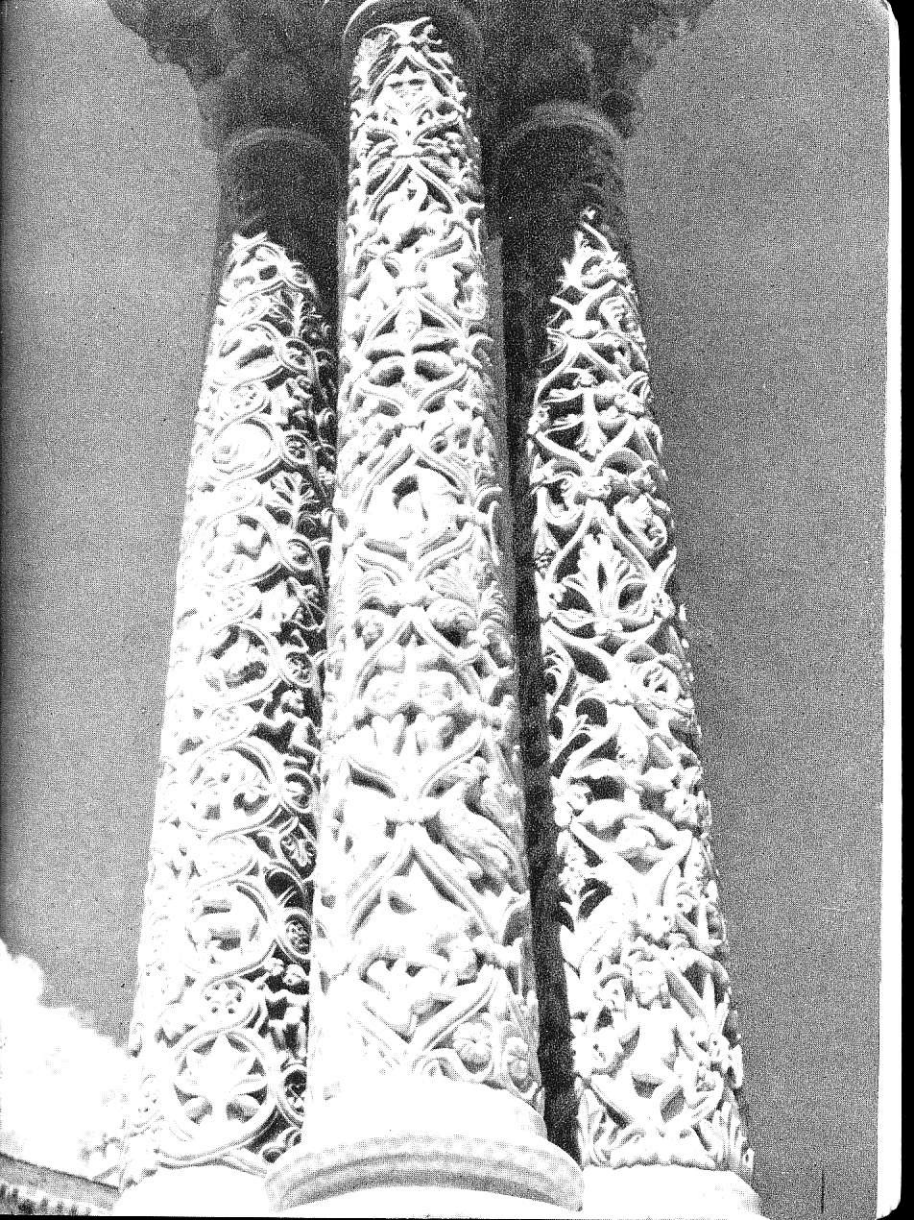
AGAINST THE LIGHT pictures (opposite) *require accurate exposure to be completely successful. Detail in and around the boats was sacrificed so that detail on the island could be recorded. The sparkle of sunlight on the water adds a lively touch to the scene. Fine grain pan film, f 11, 1/100 second.*—A. Sickert.

UNDERNEATH THE ARCHES (p. 38) *with their shadow striped walls, forming a picturesque setting for the view of the distant town. Use the smallest aperture possible to allow plenty of depth of field, but without clogging up the shadows in the foreground. Fine grain film, f 11, 1/50 second.*—H. Roth.

MINUTE DETAIL (p. 39) *requires accurate focusing and a steady camera. Use a small aperture with the camera on a tripod. A red filter will darken the sky and add contrast to the white masonry. Fine grain pan film, red filter, f 22, 3 seconds.*—L. Windstosser.

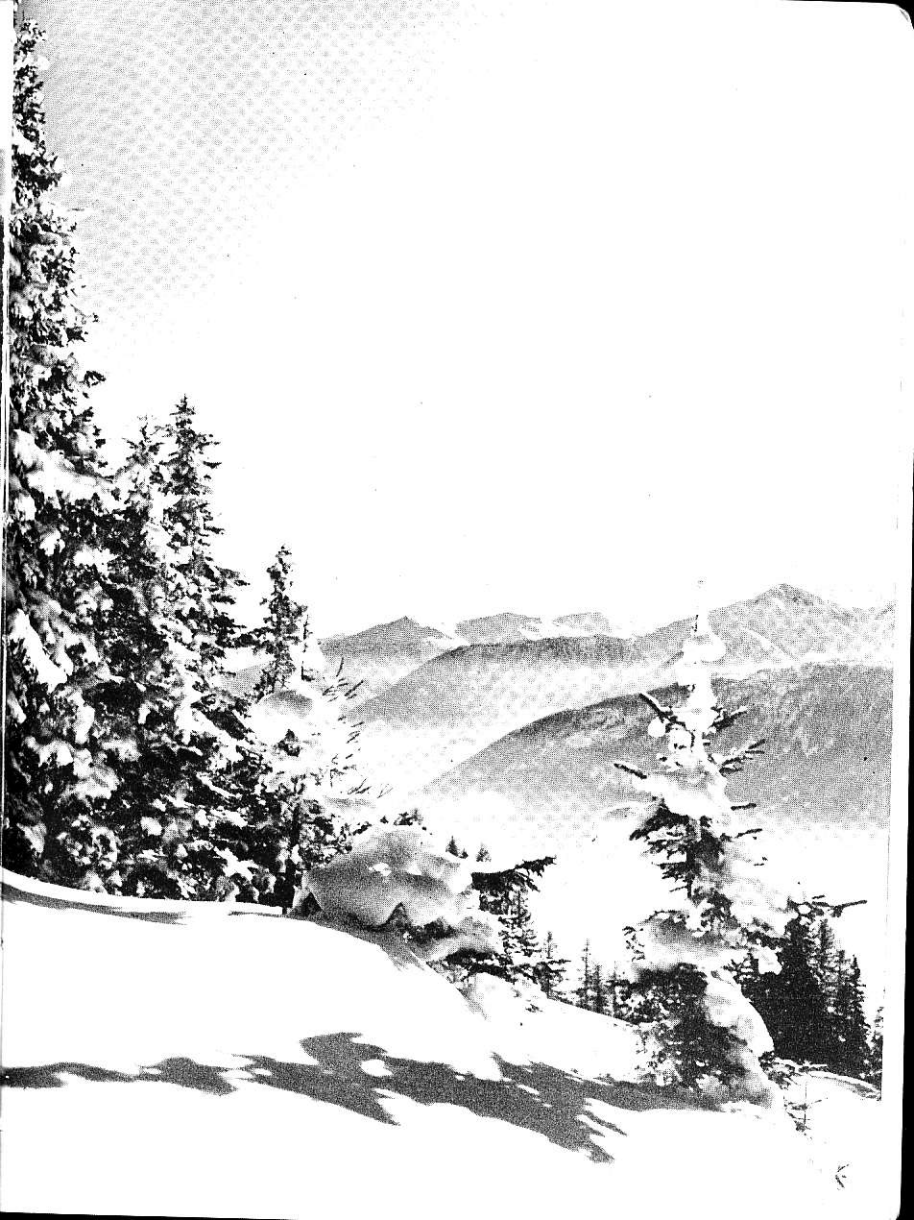




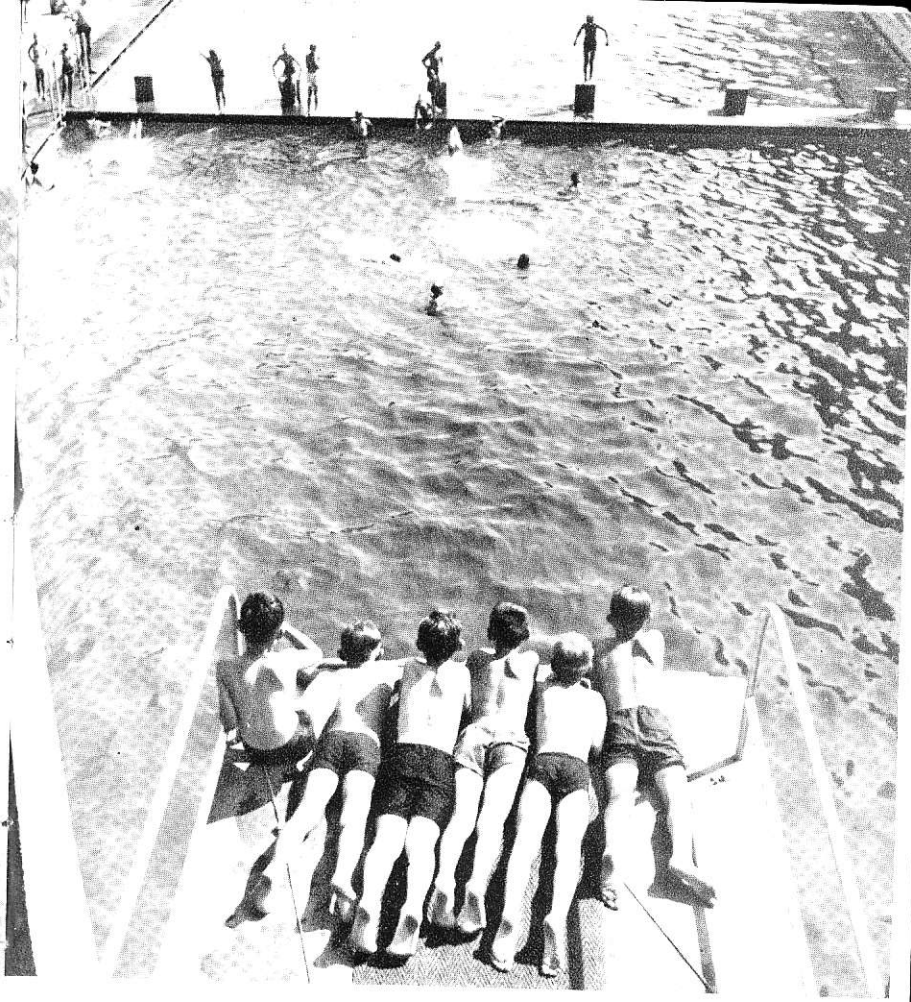


THE GRAND VIEW is always at its best on a bright sunny day. Set your camera to infinity and use a medium yellow filter to penetrate the distant haze. A fairly short exposure will help to guard against camera shake. Fine grain pan film, medium yellow filter, f 9, 1 100 second.—H. Flothmann.

SUNLIT SNOW SCENES (opposite) *may contain excessive contrasts between snow and shadows, so avoid large shadow areas as far as possible. Haze is negligible in the mountains so a light filter is all that is necessary to pierce it. Fine grain pan film, light yellow filter, f 16, 1 50 second.*—A. Sickert.



CHILDREN IN THE SNOW will provide plenty of opportunities or good pictures. Use a small stop to give enough depth of field and pre-focus on a spot that the children will pass. Try to show texture in the snow by shooting against a low sun. Fine grain pan film, f 16, 1 100 second.—A. Sickert.



THE SWIMMING POOL can be the centre for many rewarding shots if you keep your eyes open and your camera ready for instant action. Set your exposure according to lighting conditions, focus at about 12 feet and you will be ready for anything that catches your eye. Medium pan film, f 11, 1 50 second.—L. Windstosser.

PLAYTIME INDOORS with the children enjoying themselves is an ideal subject for electronic flash shots. No matter how lively the youngsters may be, the flash will be short enough to freeze their movements. In a small room the light will be sufficient for a small stop; you then have more depth of field for moving subjects. Medium pan film, f 16, electronic flash.— H. Gehrer.

BABY IN THE BATH is an eternally popular subject with all parents. Use as much light as possible to keep exposures down to a minimum. This way you will catch every fleeting change of expression that the child makes. Put the camera on a tripod and use a cable release so that you are free to give all your attention to baby. Fine grain pan film, two 500 watt lamps, f 4, 1 25 second.—E. Gnilka.

NATURE PHOTOGRAPHS will call for all your skill if you are to do them adequate justice. Birds, such as these fledgling jackdaws, do not usually remain static for very long. You may have to use a hide to get close enough, especially if you take birds at their nests. Fast pan film, f 5.6, 1 100 second.— H. Frankenberger.

PETS will not be so timid as wild life and you can get much closer without frightening them. Even so, remember that animals are always on the move so load your camera with fast film and choose a fairly fast shutter speed. Fast pan film, f 5.6, 1 100 second.—R. Sommer.

SPORTS SUBJECTS are invariably full of action and you will need your fastest film and shutter speed to capture all the thrill of movement. With high speed subjects moving directly across your field of view you will have to resort to "panning" to ensure adequate sharpness. You swing the camera round, following the subject in the viewfinder, and expose whilst still moving. The background will be blurred, but this adds to the suggestion of high speed. Fast pan film, f 4, 1 500 second.—P. Freytag.

On the Ikonta M 2¼ in. × 2¼ in. and some Super Ikonta 1⅝ in. × 2¼ in. models there is a red dot between *f* 8 and *f* 11 on the aperture scale and near 30 ft. on the distance scale. If both distance and aperture are set to these red dots everything from 13 ft. to infinity will be sharp.

In the Super Ikonta 2¼ in. × 2¼ in. the red dot will be found between *f* 11 and *f* 16, the one on the distance scale at 28 ft. If this red dot setting is used everything from 13 ft. to infinity will be in focus.

On the 2¼ in. × 3¼ in. and 2½ in. × 4¼ in. models a red dot will be found on the aperture scale between *f* 11 and *f* 16 and on the distance scale at about 33 ft. If both distance indicator and stop indicator are set to the red dots—*everything from about 16 ft. to infinity will be sharp.*

Hyperfocal Distance and Depth of Field Tables

In the depth of field tables (see pages 50 to 51), the figures on the left of each group relate to the setting of the lens stop.

The bold (middle) figures in each group indicate the distance in feet to which the lens has to be set on the focusing mount.

The corresponding figures above them give the distance of the near limit (in feet and inches) of the region of depth of field.

The figure below gives the corresponding distance of the far limit.

HYPERFOCAL DISTANCES

(For conversion into metric units see p. 82)

This is the approximate focusing distance giving the greatest possible depth of field from the foreground to infinity.

Aperture f (*a*)	(*b*)	*Setting of Lens in ft.*	*Extent of Depth to infinity from*
2.8	3.5	90	45–0
3.5	4.5	70	35–0
4	5.6	60	30–0
4.5	6.3	50	25–0
5.6	8	44	22–0
6.3	9	35	17–6
8	11	30	15–0
9	12.5	27	13–6
11	16	22	11–0
12.5	18	20	10–0
16	22	15	7–6
18	25	14	7–0
22	32	11	5–6

The figures in column (*a*) apply to the 1⅝ × 2¼ in. and 2¼ × 2¼ in. Ikonta M and Super Ikonta, the figures in column (*b*) apply to the 2¼ in. × 3¼ in. and 2½ in. × 4¼ in. models.

NOTE.—The infinity near point (hyperfocal distance) should not be used when maximum sharpness is required in the far distance.

DEPTH OF FIELD

For 7.5–8 cm. (3 in. to 3 3/16 in.) Lenses in 1 5/8 × 2 1/4 in. and 2 1/4 in. square Ikonta M and Super Ikonta

(For conversion into metric units see p. 83)

f2.8	3–10	4–8 3/4	5–7 1/2	6–5 3/4	7–4	8–2	8–11 3/4	10–7	12–10	16–3	22–4	31–9	46–5	86–6
	4	5	6	7	8	9	10	12	15	20	30	50	100	∞
	4–2 1/4	5–3 1/2	6–5 1/4	7–7 1/4	8–9 1/2	10	11–3	13–11	18–1	25–11	45–10	118	∞	∞
f3.5	3–9 1/2	4–8	5–6 1/4	6–4 1/2	7–2 1/4	7–11 3/4	8–9	10–3	12–4	15–7	21	29–1	40–11	69–2
	4	5	6	7	8	9	10	12	15	20	30	50	100	∞
	4–2 3/4	5–4 1/2	6–6 3/4	7–9 1/4	9–1/4	10–4	11–8	14–6	19–1	28	52–9	178–8	∞	∞
f4	3–9 1/4	4–7 1/2	5–5 3/4	6–3 1/2	7–1	7–10 1/4	8–7 1/4	10	12–1	15–1	20–1	27–5	37–9	60–7
	4	5	6	7	8	9	10	12	15	20	30	40	100	∞
	4–3 1/4	5–5 1/4	6–7 3/4	7–10 3/4	9–2 1/4	10–6	11–11	14–11	19–10	29–9	59–2	283	∞	∞
f5.6	3–8	4–6	5–3 1/2	6–1/2	6–9 1/4	7–5 3/4	8–1 3/4	9–5	11–2	13–9	17–9	23–3	30–3	43–3
	4	5	6	7	8	9	10	12	15	20	30	50	100	∞
	4–4 3/4	5–7 1/2	6–11 1/4	8–3 3/4	9–9 1/4	11–4	12–11	16–6	22–10	36–11	96–9	∞	∞	∞
f8	3–6 1/2	4–3 3/4	5–1/4	5–8 1/2	6–4 1/4	6–11 1/2	7–6 1/2	8–7 1/2	10–1	12–1	15–1	18–11	23–3	30–3
	4	5	6	7	8	9	10	12	15	20	30	50	100	∞
	4–7	5–11 1/2	7–5 1/4	9–1/2	10–9	12–9	14–10	19–8	29–5	58	∞	∞	∞	∞
f11	3–5	4–4 1/4	4–9	5–4	5–10 3/4	6–5	6–11	7–9 3/4	8–11 1/2	10–6	12–9	15–4	18–1	22
	4	5	6	7	8	9	10	12	15	20	30	50	100	∞
	4–10	6–5	8–2	10–2	12–5	15	18–1	25–11	46	202	∞	∞	∞	∞
f16	3–2 1/2	3–9 1/2	4–4	4–9 3/4	5–3 1/2	5–8 1/2	6–3/4	6–8 3/4	7–7	8–8	10–1	11–8	13–2	15–2
	4	5	6	7	8	9	10	12	15	20	30	50	100	∞
	5–4 1/4	7–4 1/4	9–9 1/4	12–9	16–7	21–7	28–7	55	∞	∞	∞	∞	∞	∞
f22	2–11 1/2	3–5 3/4	3–11	4–3 3/4	4–8	5	5–3 1/2	5–9 1/2	6–4 3/4	7–1 3/4	8–1	9–1/2	9–11 1/2	11
	4	5	6	7	8	9	10	12	15	20	30	50	100	∞
	6–1 3/4	8–11	12–9	18–6	27–9	45–7	93–10	∞	∞	∞	∞	∞	∞	∞

DEPTH OF FIELD

For 10.5–12 cm. (4¼ in.–4¾ in. Lenses in 2¼ × 3¼ in. and 2½ × 4¼ in. Ikonta M and Super Ikonta

(For conversion into metric units see p. 83)

f3.5	3–10	4–8¾	5–7½	6–5⅝	7–4	8–2	8–11¾	10–7	12–10	16–3	22–4	31–9	46–5	86–6
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	4–2¼	5–3½	6–5¼	7–7¼	8–9½	10	11–3	13–11	18–1	25–11	45–10	118	∞	∞
f4.5	3–9½	4–8	5–6½	6–4½	7–2¼	7–11¾	8–9	10–3	12–4	15–7	21	29–1	40–11	69–2
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	4–2⅜	5–4½	6–6¾	7–9¼	9–¼	10–4	11–8	14–6	19–1	28	52–9	178–8	∞	∞
f5.6	3–9¼	4–7½	5–5¾	6–3½	7–1	7–10¼	8–7¼	10	12–1	15–1	20–1	27–5	37–9	60–7
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	4–3¼	5–5¼	6–7⅜	7–10⅜	9–2¼	10–6	11–11	14–11	19–10	29–9	59–2	283	∞	∞
f8	3–8	4–6	5–3½	6–¼	6–9¼	7–5⅜	8–1⅝	9–5	11–2	13–9	17–9	23–3	30–3	43–3
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	4–4⅜	5–7½	6–11¼	8–3⅜	9–9¼	11–4	12–11	16–6	22–10	36–11	96–9	∞	∞	∞
f11	3–6½	4–3¾	5–¼	5–8½	6–4¼	6–11½	7–6½	8–7½	10–1	12–1	15–1	18–11	23–3	30–3
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	4–7	5–11½	7–5¼	9–⅛	10–9	12–9	14–10	19–8	29–5	58	∞	∞	∞	∞
f16	3–5	4–1¼	4–9	5–4	5–10⅜	6–5	6–11	7–9⅜	8–11½	10–6	12–9	15–4	18–1	22
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	4–10	6–5	8–2	10–2	12–5	15	18–1	25–11	46	202	∞	∞	∞	∞
f22	3–2¼	3–9½	4–4	4–9⅜	5–3¼	5–8¼	6–⅜	6–8⅜	7–7	8–8	10–1	11–8	13–2	15–2
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	5–4½	7–4½	9–9¼	12–9	16–7	21–7	28–7	55	∞	∞	∞	∞	∞	∞
f32	2–11½	3–5⅜	3–11	4–3⅜	4–8	5	5–3½	5–9½	6–4⅜	7–1⅜	8–1	9–½	9–11⅜	11
	4	**5**	**6**	**7**	**8**	**9**	**10**	**12**	**15**	**20**	**30**	**50**	**100**	∞
	6–1⅜	8–11	12–9	18–6	27–9	45–7	93–10	∞	∞	∞	∞	∞	∞	∞

Rangefinder Focusing Methods

The orthodox way of focusing by looking through the rangefinder eyepiece (see page 14) while turning the setting disc until the two images which are visible in the eyepiece coincide may be adopted for taking photographs of subjects that are fairly stationary. It works equally well with the Ikonta M where the measured distance has to be read off, and then the lens adjusted to the corresponding setting.

A different method of focusing has to be adopted when taking subjects in motion. Set the rangefinder at a distance at which the subject will be in a given moment, or focus at some spot which it actually has to pass, and press the release button when the subject reaches the pre-focused point. To use this method with the Ikonta M, set both the lens and the rangefinder scale to this predetermined distance.

With subjects who are liable to react self-consciously (e.g. children), set the lens at a suitable distance, and then approach your subject quickly, exposing as soon as the two images in the rangefinder coincide.

Alternatively, focus at some object which is at the same distance from your camera as your real subject, but in a different direction, and when the range is found swing round to press the release button as soon as your victim slips into the finder's field of view.

Close-up Work

While the rangefinder Ikontas normally focus down to 3½ to 6 ft., according to the model, one can work still closer with the *Zeiss* Proxars. Where the original lenses are not available any photographic dealer or optician will be in a position to supply a range of meniscus type lenses of suitable size for the right sort of filter mount, and which will serve the same purpose as the original lenses with the same efficiency.

These close-up lenses can be applied to all types of near distance photography such as plants, objets d'art, small creatures, table top work, copying of books, documents, etc.

When working with these lenses the distance should be measured from the front of the supplementary lens to the subject. No increase in exposure is called for, but it is advisable to stop down to *f* 5.6 when using them.

CLOSE-UPS WITH 2¼ × 2¼ in. IKONTA M and 1⅝ × 2¼ in. SUPER IKONTA

(For conversion into metric units see p. 82)

1. *Proxar 1 or + 1 diopter lens*

Lens Set to (ft.)	*Distance Front of Lens—Object (in.)*	*Subject Field* (in.)*
∞	39¼	30 × 30
50	36½	27¾ × 27¾
25	34½	26½ × 26½
15	32	24½ × 24½
12	30½	23¼ × 23¼
9	28¼	21½ × 21½
4	21¼	15½ × 15½

2. *Proxar 2 or +2 diopter lens*

Lens Set to (ft.)	*Distance Front of Lens—Object (in.)*	*Subject Field* (in.)*
∞	19¾	15¼ × 15¼
50	19	14½ × 14½
25	18¼	14 × 14
15	17½	13¼ × 13¼
12	17	13 × 13
9	16½	12½ × 12½
4	13½	10¼ × 10¼

*The field size for 1⅝ in. × 2¼ in. negatives has the same length as given, but is only two-thirds as wide.

CLOSE-UPS WITH 2¼ × 2¼ in. SUPER IKONTA

(For conversion into metric units see p. 82)

1. *Proxar 0.5 or +0.5 diopter lens*

Lens Set to (ft.)	Distance Front of Lens—Object (in.)	Subject Field (in.)
∞	78¾	56½ × 56½
50	69¼	49¾ × 49¾
25	61¼	44¼ × 44¼
15	54½	39 × 39
12	50¼	36 × 36
9	44¾	32 × 32
6	36½	25½ × 25½
5	32¾	22¾ × 22¾

2. *Proxar 1 or + 1 diopter lens*

Lens Set to (ft.)	Distance Front of Lens—Object (in.)	Subject Field (in.)
∞	39¼	29¼ × 29¼
50	36½	26½ × 26½
25	34¾	24¾ × 24¾
15	32	23 × 23
12	30½	21½ × 21½
9	28¼	20¼ × 20¼
6	24¾	17¾ × 17¾
5	23	16 × 16
4	20½	15½ × 15½

3. *Proxar 2 or + 2 diopter lens*

Lens Set to (ft.)	Distance Front of Lens—Object (in.)	Subject Field (in.)
∞	19¾	14¼ × 14¼
50	19¼	13½ × 13½
25	18¼	13¼ × 13¼
15	17½	12¾ × 12¾
12	17¼	12¼ × 12¼
9	16¼	11¾ × 11¾
6	15	10¾ × 10¾
5	14¾	10¼ × 10¼
4	13½	10 × 10

CLOSE-UPS WITH $2\frac{1}{4} \times 3\frac{1}{4}$ n. IKONTA M and SUPER IKONTA

(For conversion into metric units see p. 82)

1. *Proxar 0.5 or + 0.5 diopter lens*

Lens Set to (ft.)	Distance Front of Lens—Object (in.)	Subject Field (in.)
∞	$78\frac{3}{4}$	$43 \times 65\frac{3}{4}$
50	$68\frac{3}{4}$	$37\frac{1}{2} \times 57\frac{1}{2}$
25	$61\frac{3}{4}$	$33\frac{1}{2} \times 51\frac{1}{4}$
15	$54\frac{1}{2}$	$29\frac{3}{4} \times 45\frac{1}{2}$
12	$50\frac{1}{4}$	$27\frac{1}{4} \times 41\frac{1}{2}$
9	$44\frac{1}{2}$	$24 \times 36\frac{3}{4}$
6	36	$19\frac{1}{4} \times 29\frac{1}{2}$
5	$32\frac{1}{4}$	$17\frac{1}{4} \times 26\frac{1}{4}$

2. *Proxar 1 or + 1 diopter lens*

Lens Set to (ft.)	Distance Front of Lens—Object (in.)	Subject Field (in.)
∞	$39\frac{1}{4}$	$21\frac{1}{4} \times 32\frac{1}{2}$
50	$36\frac{1}{2}$	$20 \times 30\frac{1}{2}$
25	$34\frac{1}{4}$	$18\frac{1}{2} \times 28\frac{1}{2}$
15	32	$17\frac{1}{4} \times 26\frac{1}{4}$
12	$30\frac{1}{2}$	$16\frac{1}{4} \times 25$
9	$28\frac{1}{4}$	$15\frac{1}{4} \times 23\frac{1}{4}$
6	$24\frac{3}{4}$	$13\frac{1}{4} \times 20$
5	23	$12\frac{1}{4} \times 18\frac{3}{4}$

3. *Proxar 2 or + 2 diopter lens*

Lens Set to (ft.)	Distance Front of Lens—Object (in.)	Subject Field (in.)
∞	$19\frac{3}{4}$	$10\frac{3}{4} \times 16\frac{3}{4}$
50	19	$10\frac{1}{2} \times 16$
25	$18\frac{1}{4}$	$10\frac{1}{4} \times 15\frac{1}{2}$
15	$17\frac{1}{2}$	$9\frac{3}{4} \times 15$
12	$17\frac{1}{4}$	$9\frac{1}{4} \times 14\frac{1}{4}$
9	$16\frac{1}{4}$	$8\frac{3}{4} \times 13\frac{1}{2}$
6	15	$8\frac{1}{4} \times 12\frac{1}{2}$
5	$14\frac{1}{4}$	$7\frac{3}{4} \times 11\frac{3}{4}$

The Contameter

This device for the $2\frac{1}{4} \times 2\frac{1}{4}$ in. Super Ikonta permits the taking of instantaneous close-up shots of small objects. While the Super Ikonta $2\frac{1}{4}$ in. sq. allows focusing down to 5 ft. (models III and IV to 4 ft.), with the aid of the Contameter objects at distances of $26\frac{1}{2}$ in. (67.2 cm.), $20\frac{1}{2}$ in. (52 cm.), and $13\frac{5}{8}$ in. (34.6 cm.), may be photographed with the camera held in the hand.

The Contameter works on the same principle as the coupled rangefinder. Proxar lenses are placed over the camera lens giving sharp focus at the three distances of $26\frac{1}{2}$ in. (67.2 cm.), $20\frac{1}{2}$ in. (52 cm.), and $13\frac{5}{8}$ in. (34.6 cm.) respectively. The instrument comprises a combined range and viewfinder attachment and three Proxar lenses. The earlier version had also three interchangeable prisms. The Code No. of the Contameter for the Super Ikonta is 442 and of the early models for Super Ikonta 530/16, No. 1341, for 532/16, and 533/16, No. 1343.

Working with the Contameter is as follows:

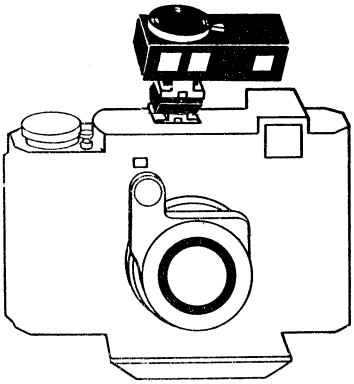
1. **Set camera lens to "infinity".**
2. **Fix rangefinder in camera shoe.**
3. **Set attachment for Proxar lens to be used.**
4. **Slip appropriate supplementary lens on to front of camera lens.**
5. **Set stop and exposure time.**
6. **Focus and view with Contameter.**
7. **Release.**

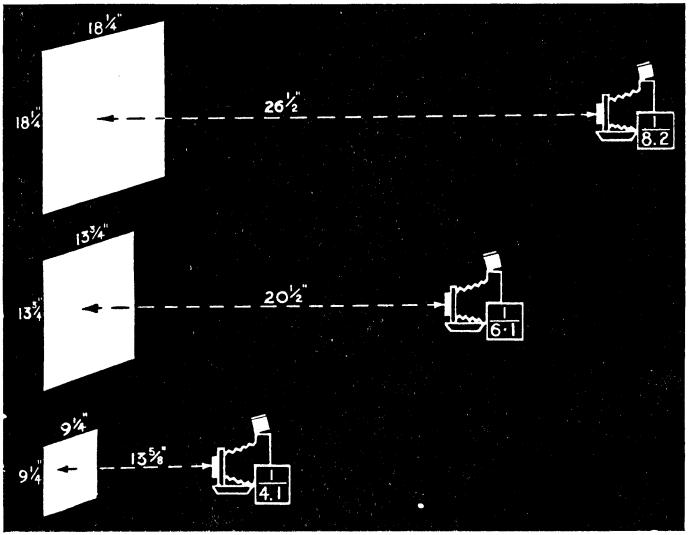
2. Slip the Contameter attachment into the necessary shoe of the Super Ikonta II (with exposure meter) as far as it will go. On Super-Ikontas I, III, IV, the intermediate piece supplied with the instrument is placed between the camera and Contameter attachment so as not to upset the parallax correction of the Contameter.

The early model of the Contameter attachment has two shoes, one marked "70–50", the other one "20". When working at 70 or 50 cm., slip the shoe with 70–50 marking into the camera accessory shoe, use the other one ("20") when working at 20 cm. distance These shoes tilt the Contameter to correct parallax error.

CONTAMETER

The Contameter is a combined range and viewfinder to fit on top of the camera. There are three alternative supplementary lenses (to go in front of the camera lens) which allow the camera to be used at distances of 26½, 20½, and 13⅝ in. (67.2, 52, and 34.6 cm.) respectively. *See also page 56.*





The diagrams indicate the area covered with each supplementary lens, the working distances, and the ratio of reduction (e.g. in the bottom diagram the image on the negative will be approx. ¼ natural size, in the middle one ⅙, etc.). *Top*, camera and Contameter with 26½ in. (67.2 cm.) lens; *centre*, 20½ in. (52 cm.) lens; *bottom*, 13⅝ in. (34.6 cm.) lens.

CLOSE-UP DEPTH OF FIELD

(For conversion into metric units see p. 83)

	37¾	33¾	29	25 5/16	20½	19 1/16	15¾	11⅞	10 3/16
f3.5	**39½**	**35**	**30**	**26**	**21**	**19½**	**16**	**12**	**11**
	41⅜	36½	31¼	26 3/16	21 9/16	20	16¼	12¼	11 3/16
	36 9/16	32⅝	28⅝	24⅝	20⅛	18¾	15⅝	11¾	10 3/16
f5.6	**39½**	**35**	**30**	**26**	**21**	**19½**	**16**	**12**	**11**
	42 5/16	37 9/16	31⅝	27 5/16	22	20⅜	16½	12 7/16	11 5/16
	35 7/16	31 1/16	27⅝	24 1/16	19¾	18 7/16	15 5/16	11 9/16	10 9/16
f8	**39½**	**35**	**30**	**26**	**21**	**19½**	**16**	**12**	**11**
	44⅝	38⅞	32 9/16	28	22½	20 3/16	16¾	12⅝	11 7/16
	32⅛	29 1/16	25⅜	22½	18⅝	17 7/16	14½	11⅛	10 3/16
f16	**39½**	**35**	**30**	**26**	**21**	**19½**	**16**	**12**	**11**
	51¼	43¾	35 5/16	30 7/16	24 3/16	22 3/16	17 1/16	13 3/16	12

The depth of field is obviously rather limited when working at close range with the supplementary lenses. The table gives the extent of depth of focus for close-up work. It gives clear indications of the depth of field to be expected when working at such short lens-subject distances. The figure on the left of the groups is the aperture, the bold middle figure gives the distance from front of lens to subject according to tables on pp. 53, 54, 55, while the figure above gives the near limit, the figure below the far limit of the depth of field.

3. Set the disc on top of the attachment to the figure 30, 50 or 70, according to the Proxar lens to be used on the camera. (These figures correspond approximately to the actual distances).
   The early Contameter is supplied with three prisms marked 70, 50 and 20 respectively. Push the one corresponding to the supplementary lens to be used into the tube of the attachment.
5. Set the stop and exposure time in the usual way, no change of exposure is required on account of the Proxar lens.
6. To focus, move the camera forwards and backwards to or from the subject until the two images seen in the *centre* of the finder of the attachment fuse into one. *The camera finder is not used at all.* The field seen in the finder is that reproduced on the negative.

The depth of field when working at close range with the Contameter is, of course, rather limited; the approximate depth may be taken from the table on page 58.

NEAR FOCUSING BY IKOMETER. The Ikometer is a British made close-up focusing device. It consists of a close-up supplementary lens in a mount and a similar lens to fit over the rangefinder wedge.

The Ikometer is available for the $2\frac{1}{4} \times 2\frac{1}{4}$ in. Super Ikontas 530/16, 532/16, and 533/16, No. 1 for distances from 52 in. to 28 in., No. 2 for $26\frac{1}{2}$ in. to 18 in. For the "16 on" Super Ikonta Models 530 and 531, No. 1 Ikometer covers distances from 39 in. to 21 in., No. 2 from $19\frac{1}{2}$ in. to 14 in. For the $3\frac{1}{4} \times 2\frac{1}{2}$ in. Super Ikonta models 530/2 and 531/2 the lenses and ranges are similar.

To use the Ikometer, the supplementary lens is pushed over the taking lens. In the case of the $2\frac{1}{4}$ in. $\times$ $2\frac{1}{4}$ in. models the rangefinder attachment lens will automatically be placed in position, while with all other models the rangefinder attachment lens is separately clamped to the rotating wedge. Now the distance can be measured in the ordinary way through the rangefinder. As the Ikometer does not compensate the viewfinder field, care must be taken that the object to be photographed does not quite fill the field of the viewfinder, to compensate for the effect of parallax.

FILMS AND FILTERS

There is no such thing as "best" film for any or every kind of picture. Each type of film has certain characteristics, especially with regard to colour sensitivity, speed, gradation, latitude, and grain.

Colour Sensitivity

The ordinary emulsion is only sensitive to violet and blue light, and therefore is bound to give an untrue black-and-white rendering of subjects containing yellow, green and/or red (as practically all objects do).

An improvement has been made in the *orthochromatic* emulsion which is sensitive also to green and yellow, while the *panchromatic* film has been made sensitive not only to violet, blue, green and yellow, but also to red. Some particularly fast panchromatic films are over-sensitive to red and will render this colour too light.

The advantages of having a negative material sensitive to all colours—violet, blue, green, yellow and red—are so striking that it was evident that the genuine panchromatic film should displace the other types of film for general purposes. Still, for subjects not containing red (green landscapes) or when lighting conditions tend to blot out reds too much (lips of portraits taken in incandescent light), orthochromatic materials come in very useful.

Speed

The sensitivity of film materials to light in general is measured in *BS*, *ASA*, *Scheiner*, *H. & D.*, *Weston*, *DIN*, and other systems. Scientists and manufacturers all agree that none of the methods employed to determine the speed of films is entirely satisfactory, and continue to give preference to one or the other of them. In any case, although speed is a very obvious asset, it is also a quality which must be paid for by possible disadvantages of the material in some other respect. To call the fastest film the best would be

just as foolish as to select a racing car for daily motoring.

While a scientifically correct conversion of one speed rating system to another cannot be made owing to their different principles, the following list gives some guidance as to their practical relationship.

CONVERSION TABLE OF DIFFERENT SPEED SYSTEMS

BS & ASA Exposure Index Numbers		*European Scheiner*	*Weston Speed*	*DIN*
(Log.)	*(Arithm.)*		*(old)*	
19°	6	20°	5	9°
22°	12	23°	10	12°
25°	25	26°	20	15°
28°	50	29°	40	18°
31°	100	32°	80	21°
34°	200	35°	160	24°
37°	400	38°	320	27°

In this table each value represents twice as fast a film speed as the one immediately above it. In some systems this doubling of film speed means increasing the speed number by 3 each time (BS Log. Index, DIN), while in others the film speed itself is directly proportional to the speed number, and therefore inversely proportional to the exposure required (BS Arith. Index, Weston).

SLOW FILMS of less than about 26° BS can be usefully employed for scientific photography, copying, architectural details. Their main advantage is their extremely fine grain, making special development unnecessary. Their disadvantage is their inability to cope with live subjects in other than exceptionally favourable lighting conditions, lack of latitude and, in most cases, hard gradation.

MEDIUM FILMS of 26–29° BS are the right material for the beginner, and can be well employed for any of the average subjects. Their advantages are: reasonably fine grain without the use of too complicated methods of development, correct tone rendering, good resolving power. Disadvantages: further loss of speed if fine grain development has to be employed for the sake of big enlargements and sometimes steep gradation.

FAST PAN FILMS of 30° BS and over for high-speed sport shots, interiors, stage pictures and night photography. Advantages: increased sensitivity to red (artificial light), use of smaller apertures (depth of focus). Disadvantages: graininess which, however, can be improved by special methods of developing (at some cost of speed), and somewhat uneven tone rendering (reds too light).

Grain

Silver grains themselves form the picture in the emulsion. To the naked eye, they form a compact, dark mass, but under the magnifying glass or microscope the separate clumps of grains are visible. Obviously, if the grain of a negative is coarse, it will soon become visible in an enlargement, and the finer the structure of grain, the greater degree of magnification will be visible without the appearance of any unpleasant granular effect in the print. As a rule, it can be said that the grain size is in direct relation to the speed of the film (page 60). The faster the film, the coarser the grain and vice versa. The grain can to a certain extent be influenced by development (fine-grain development), correct exposure, etc.

Gradation

Every film has an ability of its own to reproduce various degrees of brightness on its emulsion. If the ability of a film is confined to only a small number of black-grey-white tones, we speak of a "high contrast" or hard negative material. If it is able to reproduce many delicate shades of grey between black and white, it is known as a "low contrast" or "soft" film. Generally speaking, low speed films of fine grain possess a higher contrast than fast films.

Latitude

Latitude is the ability of the film to yield usable negatives, even with a certain amount of under- or (more often) over-exposure. Films praised for particularly wide latitude may facilitate exposure, but are likely to have less "resolving power", causing loss of definition, which in big enlargements is just as unpleasant as graininess.

Our negative material has a number of additional properties which help towards good results. There is a special "protective coating", a hardened gelatine layer on top of the actual sensitive layer which protects against scratches. The base has a coloured backing in order to avoid reflection of the light coming through the emulsion on the film-back and thus causing halation.

CHARACTERISTICS OF SOME FILMS

Make	Type	Speed in °BS	Speed in ASA	Grain	Gradation
Agfa:					
Isochrom	O	28°	50	fg	n
Isopan F	P	27°	40	ef	n
Isopan Ultra	R	33°	160	mg	n/s
Isopan Record	R	39°	640	mg	n
Isopan ISS	R	32°	125	mg	n/s
Ferrania:					
Panchromatica 54 ...	P	35°	250	mg	n
Super Pan 32	P	31°	100	mg	n
Ultracromatica 30 ...	O	29°	64	fg	n
Gevaert:					
Gevapan 27	P	26°	32	ef	n
Gevapan 30	P	29°	64	fg	n/s
Gevapan 33	R	32°	125	mg	n
Gevapan 36	R	35°	250	mg	n/s
Gevachrome 30	O	29°	64	mg	n
Ilford:					
F.P.3	P	29°	64	g	n
H.P.3	R	33°	160	mg	n/s
H.P.S.	R	37°	400	mg	n/s
Selochrome Pan	P	29°	64	mg	n
Kodak:					
Panatomic X	P	26°	32	ef	n
Tri X	P	34°	200	mg	n/s
Verichrome Pan	P	29°	64	mg	n
Royal X Pan	R	39°	640	mg	n/s
Perutz:					
Perpantic 18	P	28°	50	fg	n
Peromnia 21	P	31°	100	mg	n/s
Peromnia 25	R	35°	250	mg	n/s
Schleussner:					
Adox R.14	P	23°	16	ef	n
Adox R.17	P	27°	40	fg	n
Adox R.21	P	31°	100	mg	n/s
Adox R 23	R	33°	160	mg	n/s

Index of Abbreviations in above Table

TYPE: O=orthochromatic, P=panchromatic, R=panchromatic with increased red sensitivity.

GRAIN: ef=extra fine grain, fg=fine grain, mg=medium grain

GRADATION: n=normal, n/s=normal tending to soft.

Colour Film

There are two types of colour films suitable for the Ikonta and Super Ikonta.

The first, negative colour film, shows the light parts of the subject as dark and vice versa—as in ordinary negatives. In addition, the colours are reversed; blues are yellow, reds are blue-green, and greens are reddish. These colour negatives are then printed on a similar type of material to give colour prints or colour enlargements.

The second type of colour film, known as reversal film, produces positive colour transparencies on the film which was exposed in the camera. These transparencies can either be viewed against a bright light (e.g. in a viewer) or projected on a screen by means of a transparency projector.

With both kinds of colour film there are different types balanced for either daylight or artificial light photography.

PROCESSING. Most colour materials can be processed by the user. The procedure is somewhat more complicated than with black-and-white film. Special processing kits are usually available.

Alternatively, the film can be returned to the makers or to special colour laboratories for processing.

COLOUR FILMS ON THE MARKET

Film	*Type*	*Speed in* °BS	ASA	*Processing*
Adar Color Neg.	Universal	22°	40	Dealer, user
Agfacolor Neg. CN17	Universal	27°	40	Dealer, user
Agfacolor Rev. CT18	Daylight	28°	50	Maker
Agfacolor Rev. CK	Artificial light	26°	32	Maker
Anscochrome Rev.	Daylight	26°	32	Dealer, user
Anscochrome Super Rev.	Daylight	31°	100	Dealer, user
Anscochrome Super Rev.	Artificial light	31°	100	Dealer, user
Ektachrome Rev.	Daylight	26°	32	Dealer, user
Ektachrome Rev.	Flash (Type F)	24°	20	Dealer, user
Ferraniacolor Rev.	Daylight	24°	20	Dealer, user
Gevacolor Neg. N5	Universal	25°	25	Dealer
Gevacolor Rev. R5	Daylight	27°	40	Dealer
Kodacolor Neg.	Universal	26°	32	Maker, user
Pakolor Neg. Super 40	Universal	27°	40	User

The Use of Filters

The photographic film even when orthochromatic or panchromatic, fails to render colours in their true black-and-white tone values, so that the photograph often gives quite a false impression of the real scene. The explanation of this discrepancy is the following.

Scientifically speaking, to the human eye yellow appears to be over ten times as bright as blue, three times as bright as red, and one and a half times as bright as green. The average panchromatic film (see page 60), however, registers blue with a brilliance of about four-fifths that of yellow, green with one-third and red with two-thirds of the brightness of yellow.

It is, therefore, evident that in order to obtain a colour rendering which shall correspond to the impression of colours as perceived by the eye (with some degree of accuracy), the relative sensitivity of our film to the various colours will have to be corrected. This can be achieved by the use of filters.

Filters are employed to correct on our negative material the various degrees of brightness of the actual picture. On the whole they lighten objects of their own colour and darken those of their complementary colour (e.g. a yellow filter will darken the blue of the sky). They may be used to obtain a colour rendering in our picture which corresponds more closely to the impression made upon our eye by the object; here we speak of "correction filters".

Filters may also be employed to produce certain effects; for instance, our picture can be made to show heavy clouds against a particularly dark sky, whereas the actual landscape revealed only light clouds in a blue sky. Filters employed to such ends are termed "effect filters".

All filters cut out certain parts of the light and an increase in exposure time is always necessary when using them. Exact figures can only be given for each particular case, according to the film used, for the exposure ratio depends not only on the nature of the filter but also on the colour

sensitivity of the film and on the colour of the light in which the photograph has to be taken.

The following list gives a summary of the filters recommended and a short explanation of their use.

YELLOW FILTERS: suitable for orthochromatic and panchromatic film. They mainly reduce the actinic effect of blue, rendering it darker and are therefore particularly suitable for landscape photography in order to obtain clearly defined cloud effects on a normal blue sky. In the case of a very light blue sky, a darker filter should be used and vice versa.

GREEN FILTERS: suitable for panchromatic films. Their effect is similar to that of yellow filters, but they also hold back red (render it darker) to which some panchromatic films are comparatively oversensitive (photographing it too light).

ULTRA VIOLET FILTERS: for orthochromatic and panchromatic film. The very light ultra-violet filter is only to be used at heights of 6,500 ft. (2,000 m.) and over to avoid an unduly dark sky, such as would be obtained by using a yellow filter. At the same time it absorbs the ultra-violet rays of high altitudes for which the lens is not corrected and which would reduce the definition.

ORANGE FILTERS: are for panchromatic film only. They give over-correction and serve therefore as an "effect" filter for drawing heavy clouds against a dark sky, and they show distant views clearly in landscapes, eliminating light haze, etc.

RED FILTERS: are for panchromatic film only. Of still stronger effect than the orange filter, for extreme contrast, creating black sky with brilliant clouds, faking sunshine into moonlight effects, etc.

BLUE FILTERS: are for panchromatic film in artificial light. They absorb part of the red sensitivity. This results in better skin-tones and darker red (lips).

The filter factor is the number by which the exposure time indicated by an exposure chart or meter should be multiplied when a particular filter is used in conjunction with a particular type of film. The above factors will be found sufficiently correct for all practical purposes. Other publications may insist on more exacting values—e.g. 1.4, 1.7. Such factors are of little use to the practical worker. Even if he is a good enough mathematician to play with odd fractions he will probably find that the shutter speeds so arrived at do not exist on most cameras. Besides, the effect

of a difference of 0.1 or 0.2 in the factor is quite negligible—considering that photographic exposure and development are hardly ever scientifically controlled processes even in the hands of very careful workers.

FILTER FACTORS

Filter	*Correct Pan. Film*		*Pan. film with Increased sensitivity for Red*		*Orthochromatic Film*	
	Day Light	*Art. Light*	*Day Light*	*Art. Light*	*Day Light*	*Art. Light*
Light Yellow	1.5	1.5	1.5	1.5	2	1.5
Medium Yellow	2	1.5	2	1.5	2.5	2
Orange	5	2	4	2	—	—
Light Red	7	3	4	2	—	—
Yellow-Green	2	1.5	2.5	1.5	3	2.5
Green	4	3	4	3	—	—
Light Blue	—	1.5	—	1.5	—	—

Polarizing Filter

There are times when the judicious use of reflections will enhance the pictorial effect of the picture, but they are also frequently obtrusive and undesirable. Highly-polished subjects, for example, are difficult to illuminate successfully so as to obtain a true photographic rendering, since they will reflect too much light and so spoil the reproduction with a glare which obscures the detail. To overcome this difficulty the polarizing filter has been introduced. It consists of a layer of herapathite, cemented between two optical flat glasses. It suppresses light vibrating in one particular plane, while light vibrating in a plane at right angles to this will pass through freely. Light reflections from glass, china, enamel, polished wooden surfaces, water, vibrate to a large extent in one plane (i.e. it is polarized) and can, therefore, be almost extinguished by placing the polarizing filter in the correct position over the lens. This filter will prove particularly useful when taking shop windows, furniture, photographing wet objects, etc.

The filter has to be rotated to find out its best position on the lens. It is simply held in front of the eye, and then slowly rotated. Then the filter must be slipped over the lens in the position selected. As the polarizing filter is tinted, the exposure time should be increased, the factor being about three times.

EXPOSURE

The correct exposure time depends on:

1. The amount and colour of light reflected from the object to be photographed. This, in its turn, depends on the season of the year, the time of day, weather, etc.

2. The speed of film, the kind of filter used, and the aperture employed.

The correct exposure time can be ascertained with:

EXPOSURE TABLES. These are based on mathematical calculations and practical experience. They tabulate all or most of the factors given above, and, if used with discretion, will give an exposure figure which lies within the latitude of the film. Such an exposure table is given on page 69. (The *Focal Exposure Chart* is quick working, up-to-date and the most comprehensive exposure table.)

OPTICAL EXPOSURE METERS—also called "visual" or "extinction type" meters. They measure, with the aid of the eye, the amount of light reflected. Their main advantage lies in the fact that they can be used under particularly poor light conditions—indoors, for example. Their accuracy suffers from the fact that the sensitivity of people's eyes to light varies considerably.

PHOTO-ELECTRIC EXPOSURE METERS. They are the most accurate and dependable means available for arriving at the right exposure time. They consist of a photo-electric cell which converts light-energy into electricity, which in turn moves an indicator over a table of light values. The field covered by an electric meter is wider than that covered by the average camera lens which has an angle of around 50°. The measurement should be taken from a point nearer to the subject than the one at which the camera is actually situated. As any meter measures the light value of dark and light objects within its field, it will be necessary to point the instrument towards the darkest detail within the area to be photographed, provided that no deliberate under-exposure of the shadows is intended as may be the case with particularly contrasty subjects like stage shots, etc.

EXPOSURES FOR DAYLIGHT

Add the respective figures in the Tables 1, 2, and 3a; the correct exposure time can be taken from Table 4. For light value shutters add up the figures in brackets in Tables 1, 2, and 3b; the sum is the light value which is set directly on the shutter.

1. *Subject and light*

	Clear sun	*Cloudy light*	*Cloudy med.*	*Cloudy dull*
Distant land or seascape without foreground	0 (13)	1 (12)	2 (11)	3 (10)
—with light foreground ...	1 (12)	2 (11)	3 (10)	4 (9)
Open streets, squares, light buildings	2 (11)	3 (10)	4 (9)	5 (8)
Figures, groups in open, near objects without heavy shade	3 (10)	4 (9)	5 (8)	6 (7)
—in shade	4 (9)	5 (8)	6 (7)	7 (6)
Average interiors, diffused light	10 (3)	11 (2)	12 (1)	13 (0)

2. *Month and time*

	May June, July	*Aug. April*	*Sept. March*	*Oct. Feb.*	*Nov. Dec., Jan.*
11 a.m. to 2 p.m.	0 (3)	0 (3)	0 (3)	1 (2)	1 (2)
9 a.m. to 11 a.m. 2 p.m. to 4 p.m.	0 (3)	0 (3)	1 (2)	1 (2)	2 (1)
4 p.m. to 6 p.m.	1 (2)	1 (2)	2 (1)	2 (1)	3 (0)

3a. *Film speed and aperture*

Film speed °BS	*Stop* f 3.5–3.8	f 5.6	f 8	f 11	f 16	f 22
31–32°	2	3	4	5	6	7
28–29°	3	4	5	6	7	8
25–26°	4	5	6	7	8	9

3b. *Film speed*

Film factor
(+1)
(0)
(−1)

4. *Result (sum of Tables 1 + 2 + 3a)*

Sum		6	7	8	9	10	11	12	13	14	
Seconds		**1/500**	**1/200**	**1/100**	**1/50**	**1/25**	**1/10**	**1/5**	**1/2**	**1**	
Sum	15	16	17	18	19	20	Sum	21	22	23	24
Seconds	**2**	**4**	**8**	**16**	**30**	**60**	**Minutes**	**2**	**4**	**8**	**16**

The Exposure Meter of the Super Ikonta 533/16

The Super Ikonta 533/16 has a built-in photo-electric exposure meter. The photo cell is situated in the rectangular box on top of the Super Ikonta. It covers a horizontal angle of approximately 50°. The light falling through the prism window on the cell generates an electric current which causes the needle of the measuring instrument to move over a scale. The deflection produced depends on the intensity of light falling on the cell.

A variable resistor connected to the exposure time scale on the meter knob compensates for the variable brightness of the object. On setting the knob so that the needle is opposite the index mark, the scale shows the exposure time for all stops. This meter is the Super Ikonta II meter.

Super Ikontas 533/16 made 1949–50 have a different meter omitting the resistance. This model has two measuring scales, and two sets of figures, one in black and one in green on the disc. (This meter is referred to as Super Ikonta 1949 meter.)

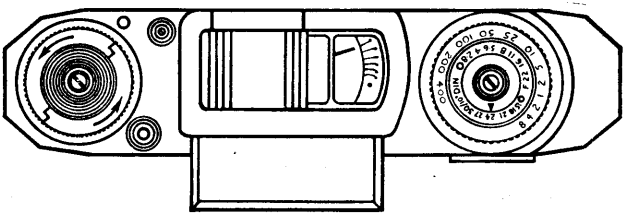
The original models of Super Ikonta 533/16 have a meter built on the same principle as the present one, but with a different scale. (This meter is referred to as "original" Super Ikonta meter.)

The variations in manipulation between the three models are pointed out in the instructions below.

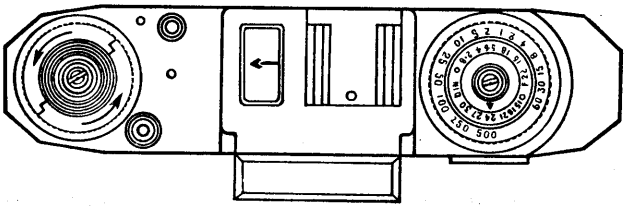
For use:

1. **Set film speed.**
2. **Open cover.**
3. **Point instrument to object.**
4. **Set needle. (Not with 1949 meter.)**
5. **Read off exposure time.**
6. **Use multiplier where applicable.**

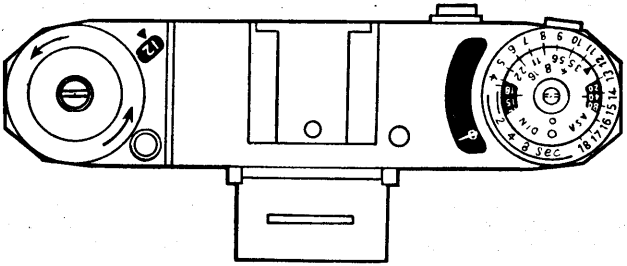
1. The film speed either indicated in °DIN or °Sch. on the inner revolving disc of the meter operation disc has to be set to the black arrowhead ▲ on the fixed centre of the disc (see diagram page 71).
2. To open the exposure meter the cover of the prism window has to be raised by pressing on the knob on the top of the meter box



The Super Ikonta 533/16 exposure meter is operated by setting the time scale disc, which controls a variable resistance, so that the needle is opposite an index mark. The "original" model is illustrated.



The later models of the 533/16 have a meter similar to the "original" model, but it has a smaller housing.



The meter built into the Super Ikonta IV is again similar in principle to the 533/16, but has differently designed scales and the needle window is adjacent to them.

(seen from front), as shown on page 71. The cover will remain in a horizontal position, acting as a shade against strong sky-light.

On the 1949 exposure meter the cover remains closed, and is opened only if the needle reading is less than "2".

3. For ascertaining the exposure time the camera should be pointed horizontally at the subject to be photographed. Make exposure measurements only with the opened camera; the instrument has been calibrated for this position. If the degree of brightness varies considerably, or full details in the deep shadow parts are desired, it is advisable to aim the camera at the shaded parts and to approach as near as possible to them.

Furthermore it must be borne in mind that the angle of acceptance of earlier models is about 60°, while a smaller angle only (about 50°) is used by the lens. It remains therefore essential either to approach the subject closer—at about 2/3 the actual taking-distance—or, if that is not practicable, to adjust the exposure time read off if there is an appreciable difference in brightness compared with its surroundings.

4. To set the needle in the top window the outer milled ring of the meter operation disc (see page 71) should be rotated until the needle points to the diamond mark ◆.

On the meter of the original Super Ikonta: Where the intensity of brightness is very low (e.g. indoors) the needle cannot be brought to the diamond mark ◆ even when the bottom ring has been fully turned to the left (anti-clockwise). With the ring in this position the exposure time indicated on the scale (see below) must be multiplied by a factor which is determined by the position of the needle on the scale below the diamond mark. The numbers 2, 5, 10, 20, and 40 on the scale denote that the indicated exposure times must be multiplied by 2, 5, 10, 20, or 40, as the case may be. If the needle happens to be between the "multipliers" the factor may be estimated. For instance, if the needle is between the numbers 5 and 10, the factor is 8. A condition for the accuracy of all measurements with "multipliers" is that the bottom ring must be turned anti-clockwise to its limit.

5. The correct exposure time corresponding to any lens aperture (or the aperture for any pre-selected exposure time) can be read off on the meter operation disc. The outer scale shows exposure times, black numbers denoting fractions of seconds, e.g. 25 = 1/25th sec., 2 = ½ sec., whereas the red numbers indicate full seconds. Intermediate values can be obtained by setting the stop accordingly.

On the 1949 exposure meter read off the number indicated by the index needle. Set the outer rim of the operating disc until this number points to the mark on the camera top plate edge to the right of the outer disc. For measurements with the meter cover closed use the green figures, with the cover open the black ones. Read off the exposure time opposite the corresponding aperture on the inner

disc. The red numbers on the outer scale are full seconds, the black ones fractions.

With all types of meter: For photographs against the light use 2–4 times the exposure indicated. For interiors with the light use half the exposure time. In artificial light use 1½–2 times the exposure.

6. *On the meter of the original Super Ikonta:* After reading off the multiplier one has to multiply the result by the appropriate number, as explained under 4, second part.

EXPOSURE FACTORS WITH MULTIPLIER

Readings on the Exposure Time Scale		*Exposure Time to be employed with Multiplier*				
		2	**5**	**10**	**20**	**40**
100	...	1/50	1/25	1/10	1/5	1/2
50	...	1/25	1/10	1/5	1/2	1
25	...	1/10	1/5	1/2	1	2
10	...	1/5	1/2	1	2	4
5	...	1/2	1	2	4	8
2	...	1	2½	5	10	20
1	...	2	5	10	20	40

ADJUSTMENT OF THE EXPOSURE METER. Through improper handling it might happen that the zero-point position of the needle becomes displaced (the zero-point on the Super Ikonta II meter is the dot beside the diamond-shaped index mark; on the original model it is at the beginning of the meter scale next to "40"). The scale is adjusted by turning the screw at the back of Super Ikonta II meter (in original Super Ikonta meter between meter and operation disc) with a fine screwdriver. Before making this adjustment, fully turn the outer ring of the operation disc in a clockwise direction to its limit and close the meter cover, covering it with a piece of dark cloth. Adjust the scale until the zero-point lies exactly opposite the needle.

The Exposure Meter of the Super Ikonta IV

To use the built-in photoelectric meter of the Super Ikonta IV:

1. Set film speed.

2. Open cover.

3. Point camera to subject.
4. Set control ring.
5. Read off light value.

1. The film speed, either ASA or DIN, is set in the appropriate cutout opposite the index line on the inner disc.
2. To open the cover of the meter press the stud on the right of the cover (seen from behind the camera) slightly to the left.
3. As first para. No. 3, p. 72.
4. Turn the milled ring of the meter until the white circular mark comes to lie on top of the index needle in the cutout of the meter.
5. The correct light value number (in red) is read off against the red triangular mark situated in front of the ASA cutout.

The light value when set on the shutter (see page 17) automatically covers every shutter speed and aperture combination.

If the exposure time exceeds 1 sec. and therefore the B setting is called for, one can read off opposite the aperture scale on the inner disc the exposure times in full seconds (in black) on the outer disc. The sequence of exposure times can be continued ad. lib. on doubling the last value. For example, if the reading is 8 sec. at *f* 8, then this is the same as 16 sec. at *f* 11, 32 sec. at *f* 16, and 64 sec. at *f* 22.

The Right Negative

The photographer who shoots haphazardly, relying on the latitude of modern films, just like a snapshooter with a box camera, does not deserve and will not get better pictures than the man with that instrument.

The employment of some exposure help is strongly recommended in order to secure negatives suitable for, if necessary, considerable enlarging. The negatives must be sharp, have fine grain and show a well-balanced gradation.

The beginner will be particularly well advised to use the exact exposure time suggested by his table or meter and to employ straightforward methods of development; that is to say, a developer giving fine grain without loss of emulsion speed. In this way he will achieve negatives with the best definition for a reasonable degree of enlargement.

The grain, provided he is using film of medium speed (27°–29° BS), will not show unpleasantly.

It should be borne in mind that the latitude allowed for under-exposure by any film is very small indeed, while on the other hand the old rule rather to over-expose does not hold good for small negatives, as an over-exposed negative will as a rule show more grain and poorer definition.

Further, the shutter speed must not be selected solely to give a well-exposed negative, but every attempt should be made to keep it short.

Short shutter speeds are important in counteracting the danger of camera shake. Even the slightest shake will result in less crisp definition. Practical experience goes to show that 1/100 sec. is safe, while one has to hold the camera particularly steady when using 1/50 sec. or even 1/25 sec. (see also page 24). Short shutter speeds are also desirable to arrest movement of the object.

Bearing in mind that the next bigger aperture (smaller number) allows one to halve the shutter speed should make it easy to arrive at a suitable compromise between a stop yielding sufficient depth of field (see page 30) and still short enough a shutter speed to exclude camera shake and to arrest movement. If, for example, one has found that the right shutter speed is 1/25 sec. at *f* 8, the corresponding shutter speed at *f* 5.6 will be 1/50 sec. and at *f* 4.5 1/100 sec.

FLASH PHOTOGRAPHY

Flash is an efficient light source where no or insufficient daylight is available such as at night, indoors, etc. In the flashlight you carry your own private "sun" with which you can illuminate your subject or scene at any time and place.

The flash bulb is similar to a small electric bulb. However, when current passes through it, it lights up in an intense flash lasting usually about 1/25 or 1/50 sec. Each bulb will flash only once and has to be discarded afterwards. Electronic flash units give several thousand flashes, each of 1/5000 sec.

The flash bulb is inserted in a battery case, and the current of the battery is used to set off the bulb. A reflector behind the bulb makes sure that all the light is directed towards the subject.

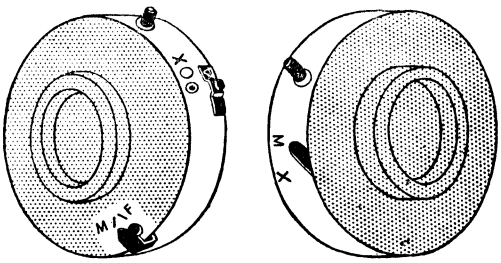
The most efficient types of flash guns incorporate a capacitor unit which increases the reliability of firing, even when the battery is nearly exhausted. The light of the flash bulb is strong enough to allow medium to small apertures to be used for the exposure. The shutter speed—provided it is slower than 1/25–1/50 sec.—has no effect on exposure since the flash is shorter than the exposure time.

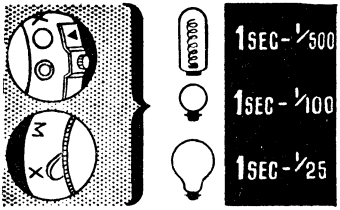
How to Use Flash

The shutters of the Ikonta M and the Super Ikonta models made since 1950 are internally synchronized for flash. A flash contact socket protrudes on the flange of the shutter. An electrical cable from the battery case (with flash bulb and reflector) is connected to their flash socket by means of a special plug. On releasing the shutter an electric circuit is automatically closed through the flash contact when the shutter is fully open, setting off the flash bulb at this very moment.

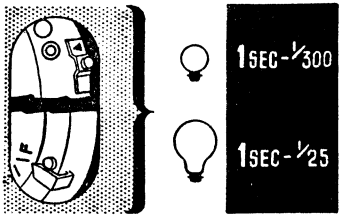
With this internal synchronization shutter speeds up to 1/50 and 1/100 sec. can be used if flash bulbs are employed which need only a short time to come to the peak of their light output, that is some 4–7 milliseconds. Such bulbs are,

Right: The Prontor SV (*left*) and Synchro-Compur (*right*) shutters have adjustable synchronizing settings: X and M (on previous models X, F, M). The Prontor SVS and later Synchro - Compur have three settings, M, X, V (V= self-timer). Prontor S and synchronized Compur-Rapid shutters have only one (X) setting.

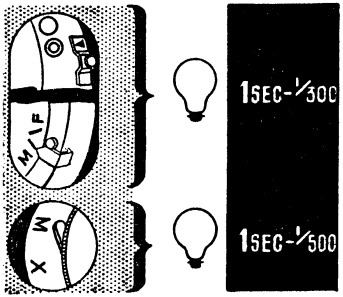




Left: The synchronizing setting determines the shutter speed we can use with flash. The X setting as well as the Vario and Pronto shutters which have only one setting, will synchronize electronic flash at any speed, SM bulbs up to 1/100 sec., and ordinary bulbs up to 1/25 sec.



The F setting (now no longer incorporated) in Prontor SV shutters will synchronize SM bulbs at any speed, and ordinary bulbs up to 1/25 sec.



The M setting will synchronize ordinary bulbs at any speed but is useless for SM bulbs.
Neither the F nor the M setting can be used for electronic flash.

for example, the Speed Midget types. With other bulbs the delay is generally some 20 milliseconds (1/50 sec.); they should be used only at a shutter speed of 1/25 sec. to ensure that the full illumination coincides with the full opening of the shutter. Electronic flash has no firing delay and can be used with any speed.

The shutters of earlier Super Ikonta cameras which are not originally internally synchronized can be so converted. A mechanical synchronizer can be employed, which screws into the cable release socket of the body release. Pressing the plunger of this flash release will then simultaneously release the shutter and fire the flash bulb. However, no mechanical synchronization is entirely reliable.

Speed-Synchronized Shutters

The shutters of the models supplied since 1951 are speed-synchronized for using flash bulbs at even the fastest shutter speeds.

THE SPEED-SYNCHRONIZED PRONTOR SV and SVS shutters have an adjustable flash contact which can close the flash circuit, either when the shutter is fully open (X-setting identical with normal synchronization of shutters with flash contact) or approximately 20 milliseconds earlier to allow for the firing delay of most flash bulbs (M-setting).

For the X-setting move the synchronizing lever to X (SVS shutter) or the red dot (SV shutter). The shutter closes the flash circuit at the moment when the blades are fully open. This setting is suitable for electronic flash at any speed, and with flash bulbs of the Speed Midget type up to 1/100 sec.

For the M-setting move the synchronizing lever of the SV shutter to the yellow dot, and set the delayed action lever to "M". On the SVS shutter just move the synchronizing lever to M. The shutter closes the flash circuit 20 milliseconds before the shutter blades are fully open. This setting is suitable for the majority of flash bulbs, at all shutter speeds up to 1/300 sec. This setting will not synchronize electronic flash or Speed Midget type flash bulbs.

For use, connect the flash lead from the flash gun to the flash socket on the shutter. Set the synchronizing lever and the delayed action lever (except at the X-setting) to the delay time required (see above). Set the aperture and shutter speed as usual. Put a bulb in the flash gun, focus, and release the shutter to fire the flash and take the picture.

With the M-setting the delayed action lever (of the SV shutter only) must be reset for every exposure. At X no resetting is needed.

With the X-setting you can use the delayed action release in the usual way if you want to appear in the picture yourself. At the M-setting the delayed action mechanism is part of the synchronizing system and thus cannot be used for its original purpose as "delayed action".

When the SVS shutter is set to V (delayed action) it is also automatically usable with the X-setting. However, the delayed action of the SVS shutter cannot be used in conjunction with the M-setting.

THE SPEED-SYNCHRONIZED SYNCHRO-COMPUR shutter has two synchronizing settings which are set by means of a synchronizing lever.

For the X-setting move the synchronizing lever to position X. The shutter closes the flash circuit at the moment when the shutter blades are fully open. This setting, which is identical with the normal synchronization of the Compur-Rapid shutter, is suitable for electronic flash at any speed, and for flash bulbs at speeds up to 1/30 sec.

For the M-setting move the synchronizing lever to position M. The shutter closes the flash circuit 16–18 milliseconds before the shutter blades open, to allow for the firing delay of most average flash bulbs. This setting is suitable for normal flash bulb at all shutter speeds up to 1/500 sec. The M-setting will not synchronize electronic flash or Speed Midget type bulbs which have a firing delay of 5 milliseconds.

The Synchro-Compur with built-in delayed action can be used at the same time with the X- or M-flash settings. The Synchro-Compur with light values (see page 17) when set for delayed action (V), is automatically X-synchronized for

The speeds given for the X-setting also apply to shutters with built-in flash contact.

SUITABLE SHUTTER SPEEDS FOR FLASH

Class	*Flash*	*Synchronizing Settings*		
	Prontor SV or SVS: X		F*	M
	Synchro-Compur: X		—	M
F	Sylvania: SF.	1–1/100	1–1/300	—
—	Osram: FO.	1–1/50	1–1/125	—
	Osram: F1, F2.	1–1/25	1–1/50	—
M	Osram: S 2.	1–1/10	1–1/25	1–1/500
M	G.E., G.E.C., Mazda, Westinghouse: No. 5, No. 11, No. 22.			
	Osram: S1.			
	Philips: PF 1, PF 5, PF 25, PF 38, PF 60.	1–1/25	1–1/25	1–1/500
	Sylvania: Press 25, Press 40, No. 0.			
M	Sylvania: No. 2.	1–1/25	1–1/25	1–1/100
S	G.E., Westinghouse: No. 50.	1–1/10	1–1/25	1–1/100
	Philips: PF 100.			
	Sylvania: No. 3.			
X	Electronic flash (most types).	1–1/500	—	—

*This F setting is only found on some Prontor SV shutters now discontinued (see also page 77).

flash, but the delayed action of this shutter *cannot* be used in conjunction with the M-setting.

For use connect the flash lead from the flash gun to the flash socket on the shutter. Set the synchronizing lever to the appropriate position. Set the aperture and shutter speed as usual. Put a bulb in the flash gun, focus, and release the shutter to fire the flash and take the picture.

The table on page 80 summarizes the shutter speeds at which most flash bulbs on the market can be synchronized with the various synchro-settings of the Prontor SV and the Synchro-Compur speed-synchronized shutters. The Synchro-Compur with light value scale has 1/125, 1/60, 1/30, and 1/15 sec. instead of 1/100, 1/50, 1/25, and 1/10 sec. respectively (page 17).

The Correct Aperture

Here are the apertures to use for some of the more common flash bulbs if used in an efficient reflector, in a room of average brightness and with shutter speeds up to 1/25 sec. They are correct for a film of 30°–32° BS.

APERTURES WITH FLASH BULBS

Distance	*Mazda, G.E., G.E.C. No 1 Philips: PF 1 Sylvania: SF*	*Mazda, G.E., G.E.C.: No. 5. Philips: PF5 Sylvania: Press 25*	*Philips: PF 38 Sylvania: Press 40 G.E.: No. 11*	*Philips: PF 60 G.E., No. 22 Sylvan2 ia: No.*
6 ft. (2 m.)	16	—	—	—
8 ft. (2.5 m.)	12.5	—	—	—
10 ft. (3 m.)	10	16	—	—
12 ft. (3.6 m.)	8	16	16	—
15 ft. (4.5 m.)	6.3	11	12.5	16
20 ft. (6 m.)	4.5	8	10	12.5
25 ft. (7.5 m.)	4	6.3	8	11
30 ft. (9 m.)	3.5	5.6	6.3	9

In bright rooms (kitchen, bathroom) or with films faster than 32° B.S., use next smaller aperture. In very large rooms, at night outdoors, or with slow 27°–29° B.S. film use next larger aperture.

The *Focal Flash Disc* (a celluloid disc to fit the pocket) is a simple and convenient ready means of reading off the correct aperture to use for any flash bulb at any distance, shutter setting and film speed.

The *Focal Flash Chart* gives exposures for all types of flash as well as for flash combined with daylight. It further contains a list of all flash bulbs with their use and performance, also information on "colour and flash" and much additional flash data.

CONVERSION OF FEET AND INCHES INTO METRIC UNITS

British to metric.		Metric to British.	
$\frac{1}{8}$ in.	0.32 cm.	0.5 cm.	$\frac{3}{16}$ in.
$\frac{1}{4}$ in.	0.64 m.	1 cm.	$\frac{3}{8}$ in.
$\frac{1}{2}$ in.	1.27 cm.	2 cm.	$\frac{13}{16}$ in.
1 in.	2.54 cm.	3 cm.	$1\frac{3}{16}$ in.
2 in.	5.08 cm.	4 cm.	$1\frac{9}{16}$ in.
3 in.	7.62 cm.	5 cm.	$1\frac{15}{16}$ in.
4 in.	10.2 cm.	6 cm.	$2\frac{3}{8}$ in.
5 in.	12.7 cm.	7 cm.	$2\frac{3}{4}$ in.
6 in.	15.2 cm.	8 cm.	$3\frac{1}{8}$ in.
7 in.	17.8 cm.	9 cm.	$3\frac{1}{2}$ in.
8 in.	20.3 cm.	10 cm.	$3\frac{15}{16}$ in.
9 in.	22.9 cm.	12 cm.	$4\frac{3}{4}$ in.
10 in.	25.4 cm.	15 cm.	$5\frac{7}{8}$ in.
11 in.	27.9 cm.	20 cm.	$7\frac{7}{8}$ in.
1 ft.	30.5 cm.	25 cm.	$9\frac{13}{16}$ in.
2 ft.	61.0 cm.	30 cm.	$11\frac{3}{4}$ in.
3 ft.	91.4 cm.	40 cm.	$15\frac{3}{4}$ in.
4 ft.	1.22 m.	50 cm.	$19\frac{3}{4}$ in.
5 ft.	1.52 m.	60 cm.	$23\frac{5}{8}$ in.
6 ft.	1.83 m.	80 cm.	$31\frac{1}{2}$ in.
7 ft.	2.13 m.	100 cm.	$39\frac{1}{2}$ in.
8 ft.	2.44 m.	1.5 m.	4 ft. 11 in.
9 ft.	2.74 m.	2 m.	6 ft. 7 in.
10 ft.	3.05 m.	2.5 m.	8 ft. 3 in.
15 ft.	4.57 m.	3 m.	9 ft. 10 in.
20 ft.	6.10 m.	4 m.	13 ft. 2 in.
30 ft.	9.14 m.	5 m.	16 ft. 5 in.
40 ft.	12.20 m.	10 m.	33 ft. 0 in.
50 ft.	15.24 m.	15 m.	49 ft. 2 in.
100 ft.	30.48 m.	20 m.	66 ft. 0 in.

Many cameras are marked only in either the metric or British system, while most of the tables in this book are also given in only one system. The above table shows at a glance equivalent lengths.