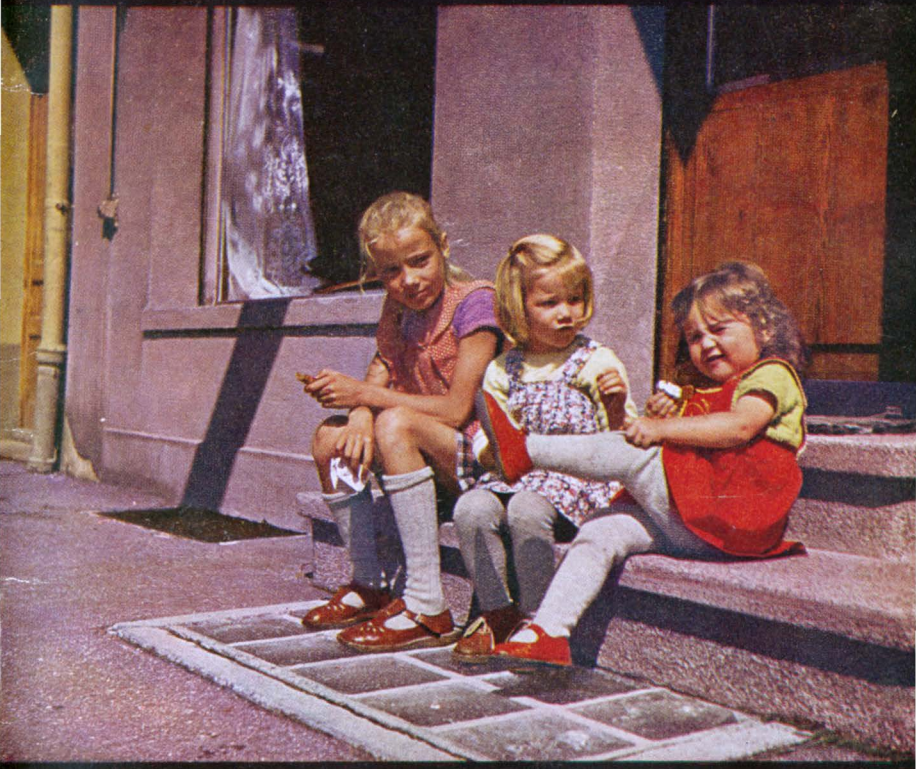


THE JOHNSON WAY TO BETTER PHOTOGRAPHY



DURBIN'S

PHOTOGRAPHIC SPECIALISTS

12 THE BROADWAY, WIMBLEDON, S.W.19

The JOHNSON way to BETTER PHOTOGRAPHY

A PHOTOGRAPHIC accessory that no one seems to have invented that would, nevertheless, command a ready sale everywhere is a device which when pointed in the same direction as the camera would indicate "NOW" when the moment is right or "DON'T TAKE IT" when there is no worth while picture about. These are just about the only decisions the camera user has to make for himself, everything else can be readily measured or calculated.

There is no such thing as a 'bad' camera today, their widely varying prices depend entirely on the range of adjustments and the quality of lenses with which they are equipped. Simple cameras can be obtained for two or three pounds, ten to twelve pounds spent will give you a camera with a limited but useful range of adjustments, in the twenty to thirty pound class is a very wide selection of excellent cameras capable of tackling practically any subject. High precision cameras costing a hundred pounds and more may have such refinements as interchangeable lenses and facilities for using several different kinds of negative material.

SIMPLE CAMERAS TAKE GOOD PICTURES

You can produce first-class pictures of a very wide range of subjects with the ordinary box camera if you recognise its limitations. This is a camera for the person who does not wish to concern himself with such matters as focusing, apertures and shutter speeds. As long as the nearest subject is at least 10 to 12 feet away and the day is bright and sunny you will get a picture in which everything is clear and sharp.

Even so there are a few points to remember if the photographs are to be worthwhile. You usually have only one shutter speed and this is about $1/25$ th of a second. Press the shutter release slowly and firmly when taking the picture, camera shake spoils more snapshots than any other cause. $1/25$ th of a second does not seem a very long period of time but even a heart beat can jerk the camera in that brief moment. If you can rest the camera on a wall or some other convenient





support when taking your pictures, they will be noticeably sharper.

Watch the light. Do not allow the direct rays of the sun to shine into the lens. Pictures taken against the light are often most effective, but should not be attempted unless a lens hood is used. Side lighting gives good modelling but beware of heavy shadows on the unlit side. Keeping the sun directly behind you is apt to make the pictures, particularly portraits, look rather 'flat.'

It follows then, that, for a start, it is a good rule to keep the sun slightly to the left or right behind you when working out of doors.

Some of the inexpensive cameras have a 'portrait lens' built in or the lens can be pulled forward a little for 'close-ups.' The correct camera-to-subject distance with these attachments is usually marked on the lens or is in the instruction with the camera.

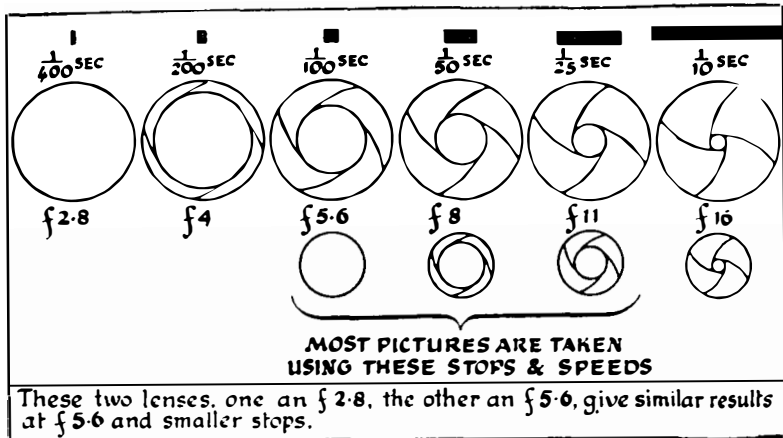
Measure this distance carefully and your subject will be sharply defined against an out-of-focus background.

A BIGGER LENS WIDENS YOUR SCOPE

The cost of a camera is usually decided by the aperture of the lens and the range of shutter speeds available. The aperture is usually expressed by a symbol such as $f/4.5$. This simply means that the diameter of the lens fully open could be divided into its focal length (that is the lens-to-film distance) four and a half times. Thus a lens marked $f3/6$ in. would be approximately 2 in. in diameter. But the aperture can be reduced by a variable diaphragm (or 'stop') and this is marked $f5.6$, $f8$, $f11$, $f16$, etc., each of these apertures allowing just half the light of the previous one to enter the camera, thus $f11$ passes only half as much light as $f8$. The variable shutter speeds control the time for which the light is allowed to enter.

Small stops are used when the light is very bright or when it is desired to obtain great depth of focus. Slow shutter speeds are useful in poor light or with small stops, high speeds come in handy when you are photographing moving objects.

If you are considering buying a camera, think of the uses to which you will put it. Will you be photographing racing cars or the family in the garden at home? Most pictures are taken at speeds of $1/50$ th or $1/100$ th of a second and at stops of $f8$ or $f11$. In the chart overleaf each of the 'exposures' (shutter speed and lens aperture combined) allows the same amount of light to reach the film.



If you own a camera already, get it out and start making an illustrated record of your family life—at home. Beach and holiday snaps are all very well, but they form only a very small section of the events that happen.

If you do not already possess a camera, go and see a photographic dealer. Ask him to select for you a moderately-priced model and then, with the aid of this little book, you can start out on a great adventure which will bring an entirely new and fascinating interest into your life.

NEGATIVE SIZE

If you wish to keep your photographs in albums you will probably be satisfied with contact prints, in which case the negatives should not be smaller than $2\frac{1}{4} \times 2\frac{1}{4}$ in. (12 on size 120 film). But if you are going to enlarge all your pictures any size of film down to 35 mm. will do.

The best all-round sizes for the beginner are $2\frac{1}{4}$ in. square or $2\frac{1}{4} \times 3\frac{1}{4}$ in. A camera taking these sizes is not too big, the films are inexpensive and the negatives can be easily enlarged. At the same time they are big enough to give satisfactory contact prints.

TYPES OF FILM

Film comes in two kinds, orthochromatic and panchromatic. The latter is sensitive to light of any colour, but the former is not affected by red light.

Consequently, a red dress photographed on ortho film appears black: lips and complexions also appear dark.

This insensitivity to red, however, is an advantage when developing, as a red safelight gives enough light for you to see what you are doing.

You are usually offered the choice of high or medium speed films. The high-speed film needs less light to produce a result than the medium-speed one, that is, you can use a higher shutter speed or a smaller stop. On the other hand, it is not always so suitable for enlarging as the slower film.

“Dull days need fast film.”

EXPOSURE

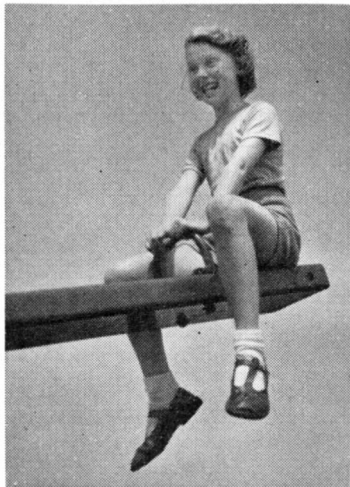
Accurate exposure is one of the essentials of good photography. Apart from composing the picture it is the first step in making a photograph. Serious errors will mean that your negatives cannot possibly yield anything but very disappointing prints so, if you want to obtain pictures which you will be proud to show to your friends, get your exposures right. Study this exposure business carefully. It is the key to success.

In order to get a good negative a certain definite amount of light must fall on the film. This means that if you cut down the brilliance of the light entering the camera by using a small stop, you must compensate for it by keeping the shutter open for a longer time. If on the other hand you use a high shutter speed, you must use a larger stop to increase the brightness.

Of course, if the light on the subject is very bright to start with, you can use both a high shutter speed and a small stop. If the light is very dull you need a low shutter speed and a large stop.

Shutter speeds are usually arranged so that the exposure is halved as you move on to the next highest number (1/25, 1/50, 1/100, etc.). In the same way, each stop passes double, or half, the amount of light passed by the one next to it—f8 allows in half the amount of light that f5.6 does, but twice that passed by f11 (the smaller the f number, the larger the aperture).

This means that if, when taking a picture, 1/25 sec. at f11 gives you the



You do not need a high shutter speed for a subject like this. 1/50th sec. will be ample if you catch the movement at the top of the swing.

correct exposure, you can obtain the same result by opening up the stop two marks, i.e., to f5.6 and increasing the shutter speed to 1/100 sec. Although the shutter is open for only a quarter of the previous time, the lens now lets in light four times as bright and the total exposure remains unchanged.

Here are some typical exposures, using medium speed panchromatic film, in bright summer sunshine about the middle of the day :

Beach scenes 1/200th f11.

Open landscapes 1/100th f11.

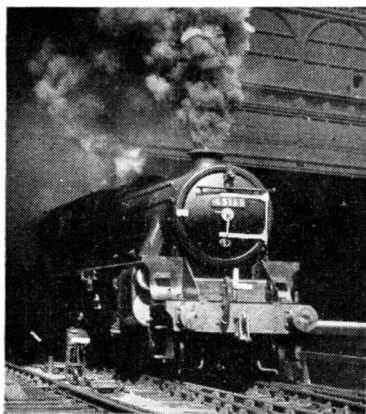
Groups in the open, buildings and wide streets 1/50th f11.

Subjects with heavy foregrounds, close-up portraits 1/50th f5.6.

DOUBLE your exposure : when using medium speed film : in spring and autumn ; when the sun is weak or hazy.

Give **FOUR TIMES** the exposure : in winter ; early morning and late afternoon ; in dull weather.

Accurate exposures for all types of subject under all conditions are given by the Johnson Exposure Calculator and in the Johnson Photographic Year Book.



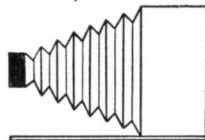
When the subject is moving rapidly *across* the field of view (top, right) a shutter speed of at least 1/250 sec. is needed, unless the camera is swung. If the subject is moving *towards* the camera, however, 1/100 sec. will give a sharp result (bottom, left).

A very important point can be mentioned here. Beware of "Camera-shake"! This is caused by jerking the camera during exposure ; the cure is to hold it firmly and squeeze the release gently. It occurs most often at low speeds, so use a rigid tripod or some other firm support for speeds of 1/10th, 1/5th, $\frac{1}{2}$ sec. or longer exposures. Even at higher shutter speeds it is an advantage if the camera can be steadied against some solid object when making the exposure.

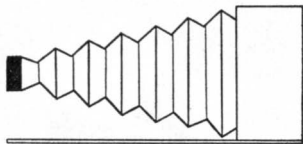
FOCUSING

You have all used a lens to focus the sun's rays on a piece of paper, and will remember there was just one position in which you got a sharp image of the sun. If you had taken the same lens and focused the flame of a candle in the same way, you would have found that the distance from the lens to the paper had increased. Further tests would have shown you that the nearer you moved to the light, the more the lens would have to be moved away from the paper.

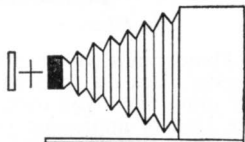
Your camera lens behaves in just the same way—the nearer you get to your subject the further out from the film you have to move the lens. This focusing mechanism, as it is known, is incorporated in nearly all cameras with a lens of f8 or greater aperture. For distant views you set the scale to "infinity," which is generally represented by a mark, thus ∞ . For closer objects you measure or guess the distance and set the scale at the appropriate mark, i.e., if 10 feet away, the scale is set at the 10' mark.



A CAMERA LENS FOCUSED ON
A DISTANT OBJECT



MUST BE MOVED FURTHER AWAY
FROM THE FILM TO TAKE A NEAR
OBJECT



UNLESS A 'PORTRAIT' SUPPLEMENTARY
LENS IS ADDED.

A lot of practice is needed in order to judge close distances accurately, especially when using a large aperture. The most accurate method is that used in the cine studios—measure the distance from the subject to the camera lens with a tape-measure and set the focusing scale accordingly.

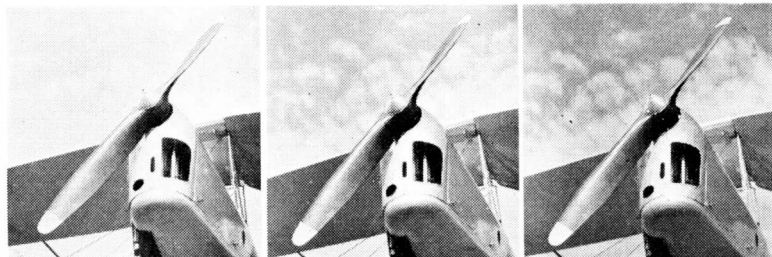
With a reflex camera, the subject is focused on the ground glass. When it appears sharp, the negative will be equally sharp.

In the case of a coupled rangefinder camera, two images of the object are seen when looking through the rangefinder window. The focusing mechanism is turned until they merge into one. The object is then in sharp focus. Of course, the expense of a coupled-rangefinder camera can be avoided by mounting a separate rangefinder on your ordinary "guess-focus" camera. This does the same job, but is slower to operate.

Most cameras focus down to about 3 feet. If you wish to work at closer distances, a "portrait" supplementary lens must be placed over the lens of the camera, which can then be used close to the subject.

FILTERS

Frequently a view including a beautifully clouded sky is photographed but only a blank white sky shows on the print. If the blue sky could have been made to appear darker in the print the white clouds would have stood out as they appeared when taken.



No Filter.

Yellow.

Orange.

Photographs with perfectly blank white skies and green grass lawns that are almost black do not seem very realistic but defects like this can be corrected. By using filters you overcome such faults and so gain results much nearer to the kind of impression your eyes recorded at the time you took the picture.

You can do this by placing a filter over your lens—contrast between the sky

“ Landscapes demand a filter.”

and the clouds increases as you use yellow, orange and red filters with your panchromatic film. Be sure you buy optically flat ones, such as the Johnson Precision series, or the sharpness of your lens will be spoiled.

LIGHTING

Beginners are often advised to "keep the sun behind the camera." Generally speaking, this is good advice, but it does not mean that the sun should be glaring directly into the subject's eyes. Try keeping the sun to one side—modelling as well as expression will be improved. A cloud obscuring the sun gives a soft light, kind to wrinkles, but lacking in "snap."

After a little practice, take some shots with the sun behind the subject ("back-lighting"). A lens hood is essential and exposure will have to be increased, but the results are delightful, with a soft light on the shaded parts and a rim of sunlight round the outline (see picture). This type of picture is admirable for portraits as the model does not tend to screw up his or her eyes at the bright light of the sun. Try, however, to reflect back a certain amount of light into the shadow with a sheet of white card or by placing the subject near a light-coloured wall.

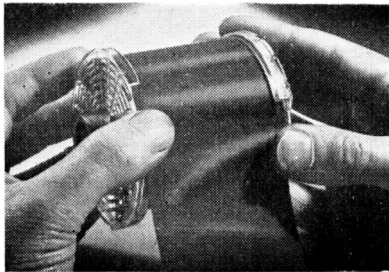
On the whole, outdoor pictures, both landscapes and portraits, are best taken with the sun low in the sky, in the morning or evening. Shadows then become longer and help to make the subject stand out from the background.



LENS HOODS

Lens hoods cut out unwanted light, outside the picture area, which might otherwise cause an all-over dullness. This effect is especially noticeable in back-lighting, but a lens hood improves *any* picture.

Unwanted light, unless cut out by a lens hood, scatters about inside the camera, most of it being absorbed by the black lining of the camera body but some will fall on the film and cause slight fog.



DEVELOPING THE NEGATIVE

The first step is—invest in a tank ! The amount of time and trouble it will save makes it well worth while, apart from the improvement in results. A concentrated negative developer will prove economical—the most popular being Johnson UNITOL. One ounce of the concentrated solution is diluted with enough water to fill the tank and it produces negatives of excellent quality.

The fixing solution can be quickly prepared with Johnson Acid Hypo Fixing powder or with Johnson Fix-Sol, a concentrated liquid which is diluted with three parts of water. Fix-Sol contains a hardener which renders the surface of the film less liable to scratching.

To develop your film it is first loaded into the tank in total darkness—a little practice in the light soon gives one the knack (*see picture above*). The developer is prepared and the temperature of the solution taken. It should be adjusted, if necessary, to between 65-70°F. Then look up the correct development time for the film at the temperature you are using.

The developer is poured straight into the tank and the time noted (*left-hand picture*). The developer is agitated every minute or so by means of the stirring rod (*lower picture*) and, after the correct length of time (usually about 12 to 15 minutes), the developer is poured out, the tank filled and emptied with water to rinse the film and then filled with the fixing solution.

Fixing solutions can always be used more than once if you store them carefully. Twenty ounces of working-strength solution will fix five No. 20 films. Store the fixer in a well-stoppered bottle and make sure you label it. Make a mark on the label each time the solution is used so that you will know when to make up some more. After handling fixer, wash your hands thoroughly, and use running water when you do it.





Keep the temperature of the rinse water and fixer within 5°F. of the developer.

After ten minutes the fixer is poured out (it can be used several times) and the tank placed under a tap for 30 minutes. Alternatively the spiral film holder can be taken from the tank and placed in a bowl under a running tap (*left*). A few drops of 326 (Wetting Agent) are added to the final wash water to help it run freely off the film, which is hung up to dry in a warm, dust-free place by means of a film-clip (another clip at the bottom prevents curling). When quite dry it is ready to print.

“ Remember—check the temperature ! ”

PRINTING YOUR NEGATIVES

Unless your negatives are correctly developed you will never get satisfactory prints.

There are two main types of printing paper. Contact paper is the slowest and can be used in subdued artificial light. Bromide paper is much faster and

	<p>← Under-exposed Over-exposed → Normal ↓</p>		<p>Under-exposure gives empty shadows.</p>
			<p>Over-exposure gives full shadow detail and clogged high-lights.</p>
<p>← Under-developed Over-developed →</p>		<p>The normal negative has detail in the shadows without the high-lights being too dense.</p>	<p>Under-development gives thin high-lights. Shadow detail is present, but faint.</p>
		<p>Over development gives dense high-lights but no extra shadow detail.</p>	

is therefore suitable for enlargements. It must be used with a yellow safelight.

These papers come in several "grades"—soft, normal, hard, extra hard, etc. Choosing the correct grade requires a certain amount of practice, but if your negative has had the correct development time and exposure, it will print on normal paper. Under development gives a flat (soft) negative, which must be printed on a hard paper. Over development gives a hard (contrasty) negative which calls for a soft paper.

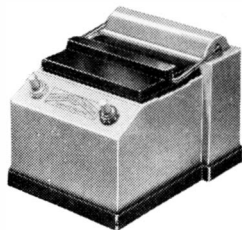
Negatives which have had extreme under- or over-exposure will be flat and need a hard paper.

CONTACT PRINTING



The above illustration shows the minimum apparatus needed to make contact prints. The safelight is a lamp with an orange filter over the bulb, the cheapest and simplest type being the Johnson Plastic Portable Safelight. The Johnson Plastic printing frame presses the negative and contact paper firmly together and, after exposure to light, the developer forms the image on the printing paper and the hypo makes it permanent.

Having taken the back off the printing frame we place the negative on the glass, dull side up. Next, in suitable light, we place a sheet of contact paper on top of the negative with the shiny (emulsion) side down, put the back on the frame and press home the springs.



A more efficient printer is shown at bottom of previous page—the Johnson Battery Printer with built-in safelight. Exposing is just a matter of pressing a button. This type of printer is a great help if you have many prints to make. There is also a model which works directly off the mains.

ENLARGING

Enlarging does not merely give one bigger prints—it gives *control*. The full fun of photography is never experienced until your first big print starts to come up in the developer. It is then that you begin to make real pictures.

Procedure is very similar to contact printing, with the printing frame changed for an enlarger. The enlarger itself is not a complicated instrument, being very similar to a lantern slide projector. It consists of a negative holder, a source of light to illuminate it and a movable lens and bellows to project the image of the negative on to the base-board. The whole thing must be light-tight, to prevent stray light fogging the sensitive paper.

Either a diffusion screen (ground or opal glass) or a condenser is placed between the bulb and the negative to illuminate it evenly. The diffusion screen has the defect of cutting down the light a great deal, resulting in long exposures and consequently greater heat. In addition, it softens the negative contrast. The condenser system concentrates the whole of the light on the negative and makes the exposure time much shorter. It tends, however, to make negative scratches and defects show up on the print unless it is used in



Cutting out all unnecessary background concentrates attention on to the subject.



The simplest enlarging instrument is the Johnson Postcard Enlarger (see p. 40). With this, however, it is not possible to select parts of the negative or to exercise local control as described in the accompanying article

conjunction with an opal or sprayed bulb, as in the Johnson Enlargers. This system combines the best points of both and cannot be improved on for small negatives—printing speeds are short and spots and scratches are minimised without losing contrast.

In the darkroom, place the negative in the carrier, shiny side towards the light, and switch on the enlarger, thereby projecting the image on to the baseboard. (A sheet of white paper makes it easier to see). The lens is opened to full aperture and the enlarger head moved up and down the column until the correct size of picture is obtained. It is not necessary to print the whole of the negative—do not hesitate to cut out any part that does not help the picture.

Focus until the image is sharp, reduce the lens aperture by one or two stops and turn off the enlarger light, or, if the lens is fitted with a red filter, swing this in front of the lens instead.

MAKING THE TEST STRIP

By the light of the safelight open a packet of bromide paper (contact paper is too slow for enlarging) and take out a sheet. Cut it lengthwise into four strips (these will be used for making tests). Pin a strip across the baseboard, or better still use a masking frame, and turn on the enlarger (or swing the filter away from the lens).

After 5 seconds, cover a quarter of the strip with a piece of card. After 10 seconds cover half, after 20 seconds three-quarters and after 40 seconds turn off the enlarger.

DEVELOPING ENLARGEMENTS

Develop the strip in bromide paper developer, at 65°-70°, for a full two minutes, rocking the dish gently throughout. Rinse and place in the hypo. Rock the hypo dish and after a minute turn on the light. Examining the test strip, we will be able to see if one of the steps is satisfactory or if the correct exposure lies somewhere in between. Having decided on the correct exposure we next take a whole sheet of paper and make a full-sized print.

If the exposure was correct you will not have anything to worry about—except uneven development. Quickly slide the exposed sheet of paper under

the surface of the developer in one even movement so that the paper is wetted, all over, as speedily as possible. Next rock the dish gently so that smooth waves of developer keep passing across the surface of your print. This even flooding is most important if you make sure that the whole print is submerged there will be no dry "islands" left on the surface. A few drops of wetting agent added to the developer makes the liquid flow very evenly. When the print is fully developed remove it from the developing dish. Hold it up by one edge for a few seconds to drain. Then pass the print through a dish of water, to rinse it, and, after a few seconds, slip the print into the fixing bath and rock gently to cover surface.

Examine the print carefully. It may be that part of the photograph, perhaps the background, appears too light. If you make a second print, giving more exposure, the background may appear to be correct but the foreground will appear too dark.

It is here that the extra control given by enlarging becomes apparent. Make a test-strip of the background and find the correct exposure, say, 20 seconds. The correct exposure for the foreground was, say, 10 seconds. The problem is to combine the two.

If you turn on the enlarger and put your hands or a piece of cardboard under the lens a shadow is cast on the baseboard. By careful positioning you can make the shadow cover the foreground and leave the background unobscured. Next, make a print in the normal way, but after ten seconds' exposure cover the foreground with the shadow of your hands, or the card, and expose for another ten. You will now have a print on which one part has had ten seconds' exposure and the other has had twenty. After development both foreground and background should appear correctly exposed.

A little practice is needed to avoid a light or dark streak along the horizon, caused by incorrect placing of the card. Try to avoid casting a shadow with a hard edge—move the hands a little during exposure and do not keep the card too close to the baseboard.

This method of shading certain parts of the print is called Local Control. By doing it carefully you can improve the appearance of your picture considerably and you will realise the advantage of making your prints with an enlarger instead of using a printing frame.

Slight additional exposure to the sky portion of this print has produced a well balanced picture.





INDOOR SNAPSHOTS AT NIGHT

Anyone can take good flashlight photographs. Most modern cameras have a connection for a flashgun which causes the bulb to fire at the moment the shutter is open. Even if your camera is not 'synchronised' in this way you can still take flash pictures. Setting the camera on a firm support (a tripod, a table or a pile of books) the shutter (having been set to 'Time' or 'Brief Time') is opened, the flashbulb fired and the shutter closed all in quick succession. The high speed of the flash (about 1/50th of a second) will prevent any slight movement of the subject producing a 'blurred' picture. Hold the flashgun above and to one side of the camera.

Pictures taken with the flashgun attached to the camera sometimes have a rather 'flat' effect and better results can often be obtained by 'bouncing' the light from a light-coloured wall, the ceiling or a suitably placed white sheet of cardboard.

If the flashgun has an extra long lead the light can be directed towards the sitter from a point well away from and from a higher level than the camera giving greatly improved 'modelling,' particularly in portraiture.

PHOTOGRAPHY WITH PHOTOFLOODS

A Photoflood bulb, though the size of a normal 60-watt, has a light output equal to that of a 750-watt bulb and actually consumes about 250 watts of current. This means you can use several bulbs on an ordinary domestic circuit and obtain a great deal of light without danger of blowing a fuse. Because they are "over-run" Photofloods may be operated continuously for only an hour or two, but normally they are turned on only for a few minutes at a time.

The picture on the following page was taken by merely replacing the normal ceiling bulb by a single Photoflood. In an ordinary room this would have produced a harsh, contrasty result, but the white cloth has reflected light into the shadows to give a softly lit picture, the exposure needed being 1/25th sec. at f3.5 on fast pan film developed in Johnson's Fine Grain.

For the majority of your pictures, however, two or more Photofloods in efficient reflectors mounted on adjustable stands will be needed, such as the Johnson Multiflood Outfits, a firm tripod, preferably with a Rototilt Head and a good lens hood.

The camera will often be used at a distance of between 3 and 6 feet. If your camera will not focus as close as this, you will need a supplementary portrait lens.

Most beginners fall down on their choice of background. This should be quite smooth and plain—a distempered wall is ideal, but wallpaper can be used provided the pattern is small and unobtrusive. The model should be placed a good distance away from the background, seated on a stool or low-backed chair.

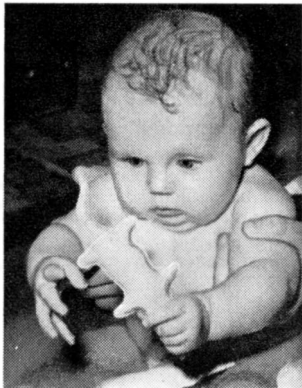
When choosing the angle of the lights and camera, the main thing to remember is that the part of the face nearest to the camera will appear larger than it is in reality, especially if the camera is very close. The part farthest away will appear small. In the same way, brightly lit parts attract more attention than those in shadow.

A person with a small chin, therefore, is best taken with lights and camera low. One with a large chin should be taken with lights and camera high.

You will be able to pick up many tips about lighting for portraiture by reading photographic magazines or by comparing notes with other amateur photographers. If you are really enthusiastic you should join a photographic society. There are hundreds of these and many have classes for beginners. You will find, too, that members will always be glad to give you help and advice.

COLOUR PHOTOGRAPHY

More and more photographs in natural colour are being taken by amateurs every year. There are two main types of colour film, "reversal" materials which, when processed, result in colour transparencies that can be examined in a hand viewer or projected on to a screen, and "colour negative" films from which either colour prints or black and white prints can be made.



It is essential to realise that all colour films are much 'slower' than black and white films but they can be used in any camera with a good quality anastigmatic lens having an aperture of at least $f/6.3$.

Unlike black and white photography, the contrast in your pictures is provided by the different colours and not by light and shade so that a 'flatter' form of lighting is desirable. Keep the sun behind you. Do not leave a colour film undeveloped after exposure for more than two or three weeks or some of the colours may reproduce incorrectly. One of the easiest colour films to use is Ferrania-color and you can develop this film at home in under two hours to yield brilliant colour transparencies (see page 63).

WHEN THINGS GO WRONG

The first step is to examine the negative. From it you can usually discover the cause of the trouble.

UNSHARP NEGATIVES. The most common fault is unsharpness due to camera-shake. The whole of the negative, both background and foreground, will be blurred and if you look closely you will see that the blur is caused by several images, very close together. Remember, the shutter release must be squeezed, not jerked, and a tripod is essential for exposures longer than 1/25th sec.

Another cause of all-over lack of sharpness is a dirty or steamed-up lens. In this case there is a single image, which is diffused.

If some part of the picture other than the principal object is sharp, the trouble may be due to incorrect focusing. The cure is to pace out the distance or, in the case of close-ups, use a tape measure.

Photographing a moving object with too low a shutter speed (or forgetting to swing the camera) will also result in a blurred picture.

TWO EXPOSURES ON ONE NEGATIVE. Forgetting to wind on the film between exposures.

COMPLETELY BLANK NEGATIVE. Winding on two exposures instead of one; forgetting to set the shutter; faulty shutter; covering lens with hand or sleeve.

FOGGED NEGATIVES. If the fog is only at the edges of the film it was probably caused by the film being too loose on the spool. The camera should never be unloaded or loaded in direct sunlight and the backing paper must always be wound as tightly as possible. A more uncommon cause of edge-fog is a badly fitting camera back.

An all-over veiling can be caused by a camera with a hole in the bellows or a faulty shutter, but the edges of the negative will be clear. If they, too, are veiled, the trouble may have been caused by light entering the darkroom while processing; an incorrect or faulty safelight; an out-of-date film or incorrectly mixed developer.

THIN NEGATIVES. These give flat or dark prints and are caused by under-exposure or under-development. The difference can be detected by examining the shadows (thinnest parts). If detail is present, your negative was under-developed; if absent, under-exposed (see page 9).

Remember, under-development can be caused by exhausted developer or low temperatures as well as too short a time.

DENSE NEGATIVES. Cause—over-exposure or over-development. In the latter case the contrast (difference between darkest and lightest parts) will be very great. The probable cause was development at too high a temperature or for too long a time.

CAMERA ACCESSORIES

EXPOSURE CALCULATORS

One of the first things the photographer needs to know before taking his picture is the correct exposure to give. This is decided by a combination of different factors such as the light, the subject, type of film, etc., all of which have to be taken into consideration.

Johnson waistcoat pocket calculators provide a simple means of arriving at correct exposures quickly and easily under all lighting conditions. They are strongly constructed in ivoryine and all the information is boldly printed.

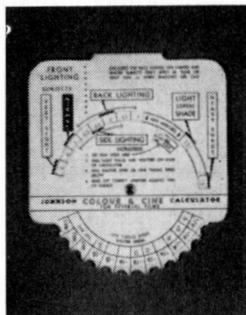


STANDARD DAYLIGHT. Provides a simple method of arriving at correct exposures for all lighting conditions. By simply 'dialling' subject, time, weather and film speed, the correct exposure can at once be read off from the clearly printed scales **3s. 0d.**

ARTIFICIAL LIGHT. Similar to the 'Standard,' enables the user rapidly to ascertain the correct exposure necessary under widely varying artificial lighting conditions. Dial the type of subject, power and distance of the lamps, their angle and the film speed to obtain the right exposure. .. **3s. 0d.**

COMBINED CALCULATOR OUTFIT. Includes the calculators described above in neat plastic purse specially made to hold the two. Outfit complete with full instructions **8s. 1d.**

FLASH CALCULATOR. Operates as 'Standard,' model and indicates 'stop' required at various distances with all types of flashbulb .. **3s. 0d.**



COLOUR AND CINE CALCULATOR

A new addition to the range of Johnson Calculators specially calibrated in accordance with the British Standard Exposure Tables B.S.935 : 1957. For use with all types of colour reversal film (yielding positive colour transparencies) in still or cine cameras and also suitable for calculating exposure with black and white reversal film. Gives correct exposure under all daylight weather conditions at any time of the year **4s. 6d.**

JOHNSON PRECISION COLOUR FILTERS

Made from CHANCE OPTICAL glass

By choosing a suitable colour filter you can avoid those dull, blank sky areas which spoil so many otherwise excellent snapshots. The appropriate filter will enhance the quality of your photographs and help you to get results of real pictorial merit. Johnson Optical Colour Filters are made from specially prepared Chance glass, polished to a specific

degree of optical flatness. Being dyed in the mass they are colour permanent.



Colour	No.	Factor	Used for	Diameter in mm.				
				21	23, 25, 28, 31	33, 35	38	42
Yellow	2XY	2	Slight correction.	4/11	6/3	7/3	8/4	10/9
Yellow	3XY	3	Average correction.					
Yellow/ Green	2YG	2	Precise correction, Pan film.					
Green	3XG	3	Male portraits and landscapes.					
Orange	5XO	5	Darkens sky with Pan film.					
Blue	2XB	2	Portraits on Pan film by artificial light.					
Red	0XR	—	To blacken skies—Pan film.					
Ultra- Violet	0XV	—	Snow—high altitudes.					

Infra-Red and Graduated Sky available in 31 and 38 mm. only.

FILTER INDICATORS

The Master Indicator tells you which filter to use to obtain a certain effect. The Individual Indicators (supplied for 2XY, 3XY, the 3XG and 5XO) give the effect with a particular filter.

PRICE, each, 1s. 0d. Set of 4 with Master in Wallet 7s. 1d.

JOHNSON FILTER HOLDERS AND SKY SHADE

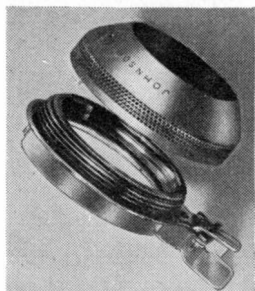


“ PUSH-ON.” Made for a variety of lens diameters. The front section unscrews to accommodate the filter. Made for the following size filters : 21/24, 23/25, 25/27, 25/29, 28/30, 28/32, 31/33, 33/36, 35/37, 38/42, 42/45 mm.

PRICE .. 8s. 4d.



LENS HOODS to fit push-on filter holders. Light alloy, flock sprayed inside.
24, 25, 27, 29, 30, 32, 33, 35, 37, 42, 45 mm. PRICE .. 5s. 7d.



JOHNSON-PECKHAM ADJUSTABLE FILTER HOLDER with PECKHAM SKY SHADE

The advantage of this type of filter mount is that it fits a variety of different lens cells enabling one set of filters to be used on several cameras. The clip quickly and firmly attaches to the front lens cell by special grips.

For lens cells 32-46 mm. Takes 38 mm. filters.

PRICES

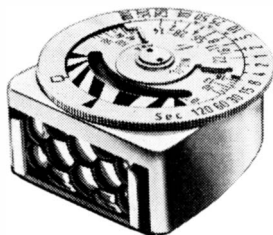
Filter Holder 7s. 0d.
Filter Holder with sky shade 10s. 4d.

TRANSPARENT FILTER CONTAINERS

No. 1 for 21-31, No. 2 for 33-38 each 6d.

EXPOSURE METERS

Where complete accuracy in exposure is essential, it is advisable to use a photo-electric exposure meter. For example, errors in exposure on colour film cannot be corrected during development, so obviously, guessing the exposure is a risk. The 'Metrawatt' exposure meters illustrated below are covered by a two-year guarantee, and complete accuracy both for black and white and colour exposures is assured. Sprung, jewelled bearings render them completely shockproof.

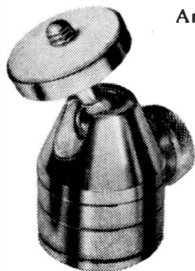


METRAPHOT III. The smallest Exposure Meter in the world. Will fit standard camera accessory shoe. It has a measuring range of between 1/1,000th second to 4 seconds and can be fitted with a unique amplifier cell which increases sensitivity 5 times. Direct and incident light readings can be taken. Each instrument is numbered, tested and guaranteed for 2 years. Manufactured by "METRAWATT," makers of the exposure meter for the Leica M.3.

	PRICE	..	£9 14 7	
Leather Case	..	..	..	16 0
Amplifier, including case	..	..	£3 6 9	

HORVEX III. An ultra-sensitive shockproof Exposure Meter, made by Metrawatt. Measuring range is from 1/1,000th to 8 seconds, or 45 seconds with amplifier. Scaled for still and cine camera, and direct and indirect light readings. Unique plug-in amplifier cell increases sensitivity five times. Scaled in 'light-values' and normal readings. One-hand operation. Two-year guarantee.

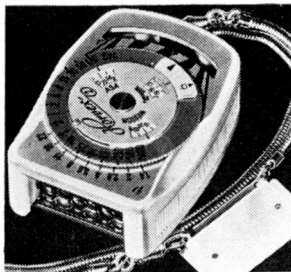
PRICE, complete with snake chain, incident light attachment	..	£7 19 10
Leather Case	..	18 1
Amplifier, in case		3 6 9

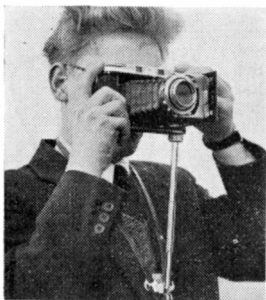


BALL & SOCKET HEAD No. 1

An ideal accessory for any tripod. Light yet rigid when locked. Enables the camera to be turned or tilted in any direction. Cast alloy construction. Standard 1/4 in. Whitworth bush and camera screw.

PRICE	..	9s. 9d.
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JOHNSON TRIPOD ACCESSORIES

CHESTPOD. Enables the photographer to use shutter speeds of 1/10, 1/5, or even $\frac{1}{2}$ a second without shake. Used with eye-level or reflex cameras, adjustable for individual requirements. A jointed arm provides speedy changing from direct to reflex viewing or vice versa. Screws into the camera socket. Can be carried in a coat pocket or handbag £1 9 2

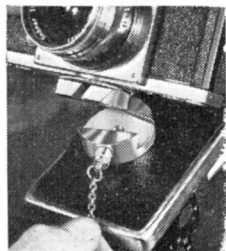
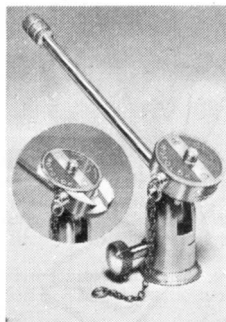
ROTOLOK—rotating, elevating and quick lock. Combines all the advantages of the Rototilt Tripod Head with those of the popular Kamlok. One half remains screwed to the tripod while the other is fitted to the camera so that the whole can be brought together in an instant £2 1 8

ROTOTILT—rotating and elevating. For still and small cine cameras. Satin finished alloy castings. Camera can be rotated through a full 360° and tilted through 160°. Either movement can be locked securely independently of the other. Useful for supporting the camera in a vertical position for photographing small objects and for copying. Available with short or long handle.

PRICES

Short handle	£1 4 4
Long handle	1 5 8

KAMLOK—quick lock attachment. Secures your camera to the tripod in a second. One half of the KAMLOK remains permanently screwed to the tripod top, the other is fitted to the camera. When the tripod is required the two halves of the KAMLOK slide smoothly together and lock solidly. A pull on the catch and they come apart again .. 17s. 5d.



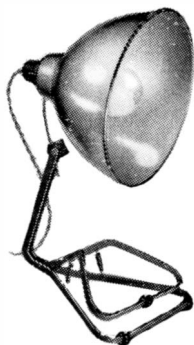
JOHNSON KLIP-LITE

A new and versatile photographic lamp with a multitude of uses. It can be stood on any flat surface, clipped on to doors or furniture without fear of damage to paintwork or polished surfaces, or hooked on to a picture rail or similar projection. The reflector can be turned or tilted in any direction. The stand for the Klip-lite also acts as a spring-loaded clamp with self-aligning rubber-faced jaws. The reflector is spun from heavy gauge aluminium and is provided with bayonet socket for No. 1 Photoflood lamps. Complete with reflector, flex and plug.

PRICE .. £2 15 0



JOHNSON GRIPPA-LITE



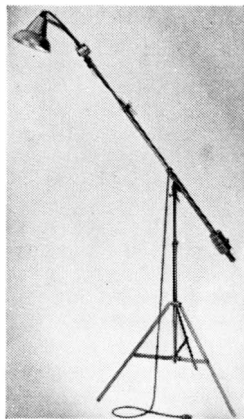
A new and very reasonably priced photographic lamp for amateur use. The base on which it stands also acts as a powerful spring-loaded clamp which will hold light securely to any shelf, door, chair or other furniture. The anodised, correctly shaped reflector may be turned in any direction. Rubber rings on the stand prevent damage to polished surfaces. Designed for use with ordinary No. 1 Photoflood lamps and supplied with 6 ft. of flex. With two Grippa-lite lamps the owner of a comparatively simple camera could undertake a wide variety of indoor portraits and other home subjects.

PRICE .. 22s. 6d.

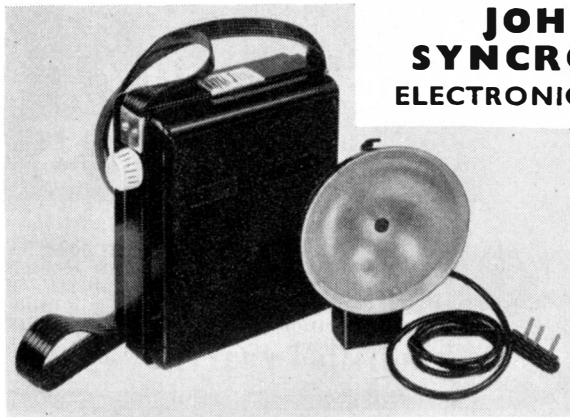
AMATEUR BOOMFLOOD

The Boomlite fills the need for a method of providing head-lighting adjustable to any particular position and is so universal in its movements that it can also be adjusted for use as a floor-light. Portable and practical. No. 1 Outfit. One Johnson MULTIFLOOD reflector with bayonet fitting lampholder. Stand extending to 8 ft. Boomlite attachment with telescopic arms and movable counter weight. Adjustable bracket and stem.

PRICE .. £8 8 0



JOHNSON SYNCROLITE 65 ELECTRONIC FLASHGUN



A new, British made electronic flash outfit rated at 65 joules, operated by 3 standard 90 v. batteries (Ever-Ready B.126), capable of producing over 1,000 flashes and weighing, complete with batteries, only 5 lb. 6 oz. Half or full power may be used at the turn of a switch.

Flash Factor : (full power) with fast pan film. 200. Colour. 35.

Recharge Time : 7 secs.

Flash Head : One piece, 'high-impact' polystyrene. Aluminium vacuum coated reflector. Xenon filled tube giving daylight colour quality flash. Neon indicator, open flash button. Plug-in synchro lead. Accessory extension lead available. Standard camera shoe. Camera bar available. Protective diffusion screen. An extension head is available as an extra. Power is equally divided between them when two heads are in use.

Power Pack : Handsome plastic moulding with sockets for two flash heads, straps to hold one flash head, control knob for half or full power and 'off'. Ribbed plastic strap. Hingeless case opens in two halves for battery fitting.

Flash Duration : 1/500 sec.

PRICE, with one flash-head, less batteries .. £14 17 1

Batteries : 90 v. Ever-Ready B.126, each, 10s. 0d.

CAPLESS FLASH BULBS

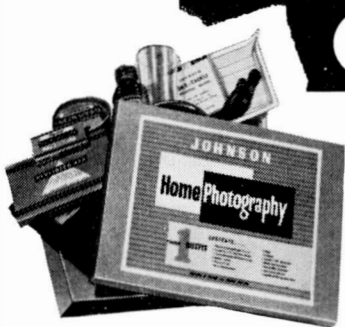
The Phillips "Photoflux" Capless PF1 and PF5 flashbulbs are the lowest-priced on the market. Giving a total light output of 6,500 and 18,000 lumen/seconds respectively, the short flash duration produces effective exposure in less than 1/100th second. They can be used on the instantaneous setting with a snapshot camera or at higher speeds with a fully synchronised 'M' type shutter. The BLUE safety spot on the head under the filament gives immediate warning should damage have allowed air to enter, by turning PINK.

PRICES .. PF1 8d. each PF5 1s. 0d. each



JOHNSON

HOME PHOTOGRAPHY OUTFITS



JUNIOR PRINTING PACK

This set contains a Johnson plastic printing frame for $2\frac{1}{2} \times 3\frac{1}{2}$ in. paper, two 5×4 in. dishes, one black and one orange, two plastic print forceps, a set of printing masks for $2\frac{1}{2} \times 3\frac{1}{2}$ in., $2\frac{1}{2} \times 2\frac{1}{2}$ in., and 24×36 mm. negatives, and 25 sheets of Contact printing paper. Two separate packets of M-Q developer (468 formula) and two packets of fixing powder are included.



PRICE .. 13s. 3d.

EXACTUM DISH PACK

Here's a useful set of dishes for someone just starting to do his own photographic processing. The pack contains three specially designed $3\frac{1}{2} \times 4\frac{1}{2}$ in. rocking dishes, deep enough to use without spilling and coloured white, orange and grey. Two plastic forceps for handling wet prints, a clear plastic measure marked $\frac{1}{4}$ oz. (7 cc.), $\frac{1}{2}$ oz. (14 cc.) and 1 oz. (28 cc.) and a 16-page booklet of instructions.

PRICE .. 7s. 6d.



PRINTING OUTFIT No. 1

An inexpensive outfit containing everything necessary for making $2\frac{1}{2} \times 2\frac{1}{2}$ in. and $2\frac{1}{2} \times 3\frac{1}{2}$ in. prints. Can also be used for dish development of roll films.

Contents—1 $3\frac{1}{2} \times 2\frac{1}{2}$ in. Plastic Printing Frame, 1 Packet of See-Thru Masks, 1 Portable Darkroom Lamp, 1 100-cc. ($3\frac{1}{2}$ -oz.) Size Azol, 1 M-Q Developer Packet, 1 250-grm. Acid Hypo, 2 $\frac{1}{2}$ -plate Dishes, 2 Plastic Forceps, 1 Instruction Book, 1 4-oz. Measure, 1 Thermometer, 2 Clips, 1 40-80 oz. Size Pack '468' Developer.



PRICE .. £1 17 6

BATTERY PRINTER OUTFIT No. 21



A complete set of everything necessary for making prints at home, incorporating the new Johnson Battery Printer. Developer, Fixing Powder, Measure, Dishes, Forceps, Thermometer and a 100-page book on photography are included.

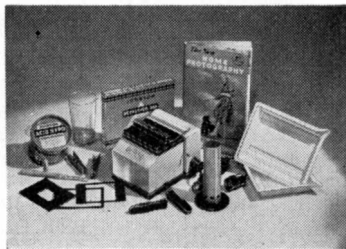
PRICE .. £2 11 6
Battery extra .. 2 9

(The battery—Ever-Ready 126 or similar—is not supplied, but your dealer will have fresh batteries in stock). For first-class prints with this Outfit ask for Johnson Contact Paper.

PRINTING OUTFIT No. 22

This outfit contains the new Johnson Mains Printer, a water circulator that turns any sink into an efficient washing tank and everything else required to turn out first-class contact prints. A copy of "The New Home Photography" (104 pages) is included and is packed with information.

PRICE .. £3 4 6





DEVELOPING OUTFIT No. 3

For the popular size 20 films. Included is a Johnson developing tank with a booklet giving simple detailed instructions. Enough Unitex Fine Grain developer is supplied to develop 4 or 5 films.

Contents—1 Tank, 1 Thermometer, 2 film Clips, 1 10-oz. Graduated Measure, 1 Glass Stirring Rod, 1 Stirring Rod and Crusher, 1 Carton Unitex Developer, 1 250-grm. Acid Hypo.

PRICE .. £2 10 0



The No. 44 Outfit contains the complete equipment for the beginner's dark-room. The tank takes all 120 and 620 roll films and the printer makes prints in all sizes up to $2\frac{1}{4} \times 3\frac{1}{4}$ in. An instruction book of over 100 pages written in clear and easily understood language is included.

PRICE .. £5 12 6

PRINT DRYING AND GLAZING OUTFIT No. 5

The Amateur Electric Print Dryer included in this outfit will dry one 10×8 in., 4 postcards or eight 2½×3½ in. prints in 4 to 8 minutes, according to the thickness of the paper. Consumption is only 120 watts. Included are one 10×8 in. chromium glazing plate, 4½ in. roller squeegee, drying book, 1 pkt. cotton wool and 1 bottle of Johnson Glazing Solution.

PRICE .. £4 15 0

PHOTO FRAMING OUTFIT

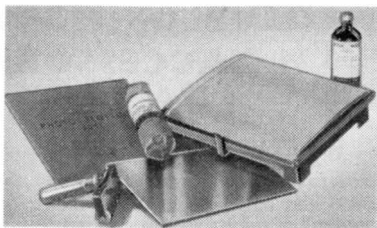
Mount your best snapshots under glass with the Johnson Photo Framing Outfit. Complete set comprises glass for six frames, card masks, backing card, struts, passe-partout binding, hangers, mounting stamps (gummed both sides) and special, sponge-tipped plastic damper.

PRICE .. 15s. 0d.

ENLARGING OUTFIT No. 6

Contains Exactum Postcard Enlarger for making postcard size prints from 2¼×3¼ in. negatives. As easy to use as a printing frame. All the necessary accessories are included: orange darkroom lamp, 2 10 oz. plastic measures, 2 postcard size dishes, 2 large celluloid forceps, thermometer, 2 hanging clips, stirring rods, M-Q Developer and Acid Hypo Fixing Powder.

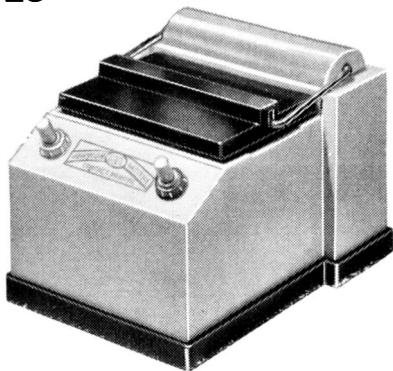
PRICE .. £4 12 6



DEVELOPING AND PRINTING ACCESSORIES

JOHNSON BATTERY PRINTER

With this all-plastic contact printer, prints can be made anywhere independent of mains electricity supply or darkroom. Two bulbs under a diffusing screen give even light for exposing and a third bulb, housed in the front compartment, remains on all the time the printer is in use. This bulb shines through the yellow translucent body of the printer providing ample safelight for handling and developing the printing paper. A heavy-duty battery housed within the body of the printer supplies the power, and can be used to make hundreds of prints. Battery Printer complete with 3 bulbs and set of 3 printing masks, and full instructions.



PRICE .. £1 8 6
Battery (Ever-Ready 126 or similar) 2s. 6d. Extra bulbs 5d. each.

JOHNSON MAINS CONTACT PRINTER

No darkroom required. This compact and strongly built all-plastic contact printer, styled on similar lines to the Battery Printer, can be operated from any light socket and consumes only 15 watts. Exposure is made by means of a shutter which is operated by a large plastic crossbar. Easy to operate, safe to use. Mains Printer, complete with instructions, lamp socket, ample flex and bayonet plug.

PRICE .. £1 8 6
(Lamp, 15 w. S.B.C. pygmy extra).

JOHNSON CONTACT PRINTING PAPER

This is a high-quality normal, single weight, glossy paper, producing a rich blue-black image, clear highlights and a full range of tones. Very well suited for use with the Mains and Battery Printers. Two sizes are available and are supplied in 25-sheet packets.

PRICES
2½ × 2½ in. .. 2s. 1d. packet 2½ × 3½ in. .. 2s. 9d. packet

THE JOHNSON PRINT-A-SNAP PACK



Everyone starts practical photography by making prints and here, in the most convenient and economical pack, is everything needed to make a start.

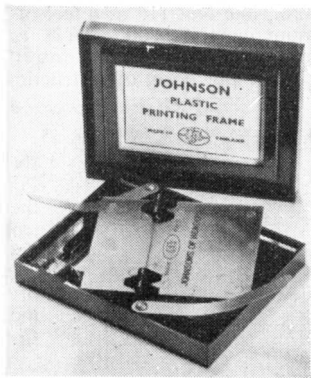
In a strong wallet (which can also be used for your prints when you have made them) is a packet of developer, a packet of acid fixing powder, a simple cardboard printing frame and a packet of the new Johnson Contact Paper. Packs containing either 16 sheets of $2\frac{1}{2} \times 3\frac{1}{2}$ in. paper or 24 sheets of $2\frac{1}{2} \times 2\frac{1}{2}$ in. paper are available, and an 8-page instruction leaflet is included. Ideal for the beginner, the Johnson Print-A-Snap pack is a most economical buy at . . . 3s. 6d.

PLASTIC PRINTING FRAMES

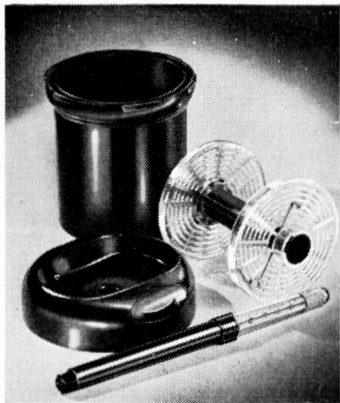
A plastic printing frame for all sizes of negative up to $2\frac{1}{4} \times 3\frac{1}{4}$ in. (6×9 cm.). Squared-up sides and ends. One-piece, moulded frame, hinged plastic back secured by strong steel springs. Glazed. Made in one size only. PRICE .. 4s. 6d.

SEE-THRU PRINTING MASKS

Suitable for use with the plastic printing frame. Transparent orange celluloid masks for producing prints with clean white borders. Per packet of 4 assorted openings for $2\frac{1}{4} \times 3\frac{1}{4}$ in., $2\frac{1}{4} \times 2\frac{1}{2}$ in., $2\frac{1}{4} \times 1\frac{3}{8}$ in., and 35 mm. prints. PRICE .. 1s. 3d.



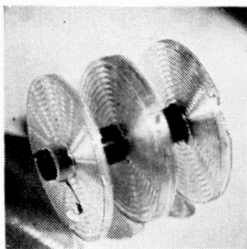
JOHNSON DEVELOPING TANKS



POLLY-MIN. An all polystyrene, adjustable developing tank, light in weight, extremely tough and highly resistant to all photographic chemicals. It is adjustable to take 120 and 127 roll films, 35 mm. (20-exposure) and No. 88 films. Transparent flanges enable the 'second exposure' in colour processing to be made without removing the film from the spiral. Other features include: automatic cam-action two-way agitation, positive lock-on lid, hollow stirring rod with clear plastic top to take a thermometer, 'Roto-Feed' easy loading device, 24-page instruction book. Capacity: 10½ oz. for 120 films, 6½ oz. for 35 mm. PRICE .. £1 5 0

POLLY-MAX. Similar in construction to the Polly-Min (above) the Polly-Max can be adjusted for different film sizes quickly and easily and there is a positive lock. Simple 'Roto-Feed' loading device. Two 20-exposure 35 mm. films, two No. 120 or two No. 127 films may be processed together in the Polly-Max. The tank will also take one 36-exposure 35 mm., one No. 116 or 6 feet of 16 mm. film. Maximum capacity 600 cc. (21 oz.). Complete with hollow stirring rod (for insertion of thermometer) and 24 pp. book of instructions.

PRICE .. £1 12 6

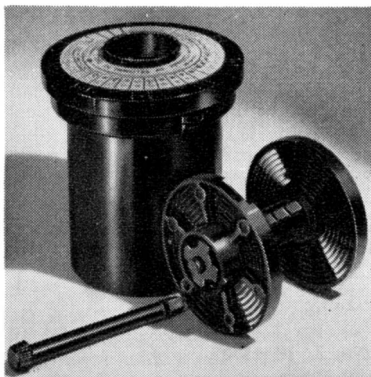


INTERMEDIATE SPIRAL. The capacity of the Polly-Max can be still further increased by the use of the Intermediate Film Spiral which enables two full-length 35 mm. films or four 20-exposure films to be developed at one time. The second exposure of colour film can be carried out without removing any of the films from the carrier. 'Roto-Feed' easy loading. A good investment for the Polly-Max owner. Complete with spacers.

PRICE .. 12s. 6d.

UNIVERSAL ADJUSTABLE has a special 'Rotofeed' feature which makes the loading of the film into the spiral a matter of seconds. The addition of 'Two-way Agitation' makes this the finest tank of its type on the market. It will take Nos. 16, 20 and 27 roll films, a full-length 36-exposure 35 mm. film or 5 ft. of 16 mm. film. The deeper body prevents spilling and a deep, moulded lip makes emptying easy. Complete with instruction book and calculator disc.

PRICE .. £1 12 6

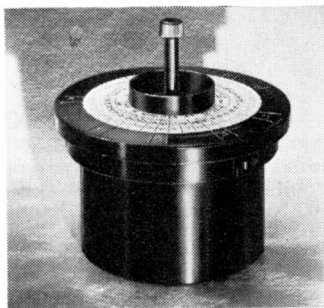


J.20. An economical daylight developing tank for users of 120 and 620 film. (2½ in. or 6 cm. in width). Only 300 cc. (10½ oz.) of developing solution required. Easy loading with semi-automatic 'Rotofeed' device. One-piece spring-loaded spiral has an unobstructed central tube for insertion of thermometer and agitation rod. 'Two-way Agitation' ensures even development. Extra deep recess in lid for quick filling. Moulded pouring lip makes emptying easy and clean. Illustrated instruction booklet with every tank giving step-by-step directions.

PRICE .. £1 5 0

35 mm. This entirely re-designed tank takes a full-length 36-exposure 35 mm. film. Loading is simplified by the semi-automatic 'Rotofeed' feature and the spring-loaded spiral (as fitted to the J.20 and Universal tanks) ensures even development. The top section of the spiral film-holder is located by a stainless steel spring and cannot slip out of position during loading or in use. Time and temperature calculator on lid gives correct developing time for most popular makes of film. Complete with 16-page instruction book.

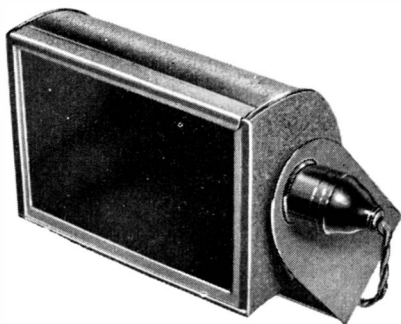
PRICE .. £1 12 6



JOHNSON ALWAYS SAFELIGHT LAMP

Can be fixed to the wall, ceiling or bench. Direct or reflected light can be used. Strongly made of sheet steel the lamp is finished inside white enamel, outside with grey polychrome enamel. The well-made angle bracket, with key holes for fixing, allows the lamp to pivot in all directions. A suitable length of flex and bayonet plug is provided. 15 or 25-watt lamps should be used. Safelight filters extra.

No. 1. 7×5 in. .. £1 10 0
 No. 2. 10×8 in. .. 2 10 0



JOHNSON SAFELIGHT FILTERS

No. J2/0B Lime Green, No. J4/1 Light Red,
 No. J8/3 Dark Green, No. J6/2 Dark Red,
 No. J7/5 Green.

Size 7×5 in. 7s. 0d. Size 10×8 in. 11s. 6d.



JOHNSON DUO DARKROOM LAMP

Intended for use in a hanging position, plugs into usual lampholder. In three parts—red top section with lampholder, black and orange lower sections. For ortho films black section is screwed on and only reflected red light is provided ; for printing papers the orange lower section is used giving adequate safe light for handling contact and bromide papers. Takes a 15-watt bulb.

PRICE, complete
 15s. 0d.

PORTABLE DARKROOM LAMP

Battery operated. Black plastic base with luminous switch. Orange or red plastic screw-on filter. Can be stood on bench or hung on wall. Takes Ever-Ready 800 battery (or equivalent).

PRICES

Complete with bulb and red or orange filter 11s. 6d.
 Battery extra 1s. 4d.



DEVELOPING DISHES

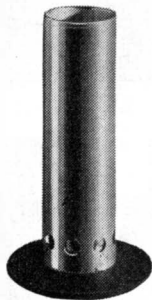
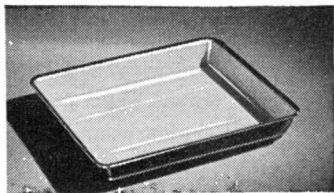
JOHNSON STYRENE DISHES

Specially made for the amateur photographer in a new 'high-impact' material resistant to a marked degree to all commonly used photographic chemicals. The small size is available in white, orange and grey, larger sizes white only.

4½ × 3½ in.	Orange, grey or white	..	..	..	..	each	1s. 6d.
5 × 7 in.	White only	..	..	..	..	..	3s. 3d.
7 × 9 in.	..	..	..	..	..	..	4s. 6d.

ENAMELLED STEEL

				s.	d.
4½ × 3½ in.	1¼ in. deep	..		7	0
6½ × 4¾ in.	1¼ in. ..	..		11	0
8½ × 6½ in.	1¼ in. ..	..		14	3
10 × 8 in.	1½ in. ..	..		17	6



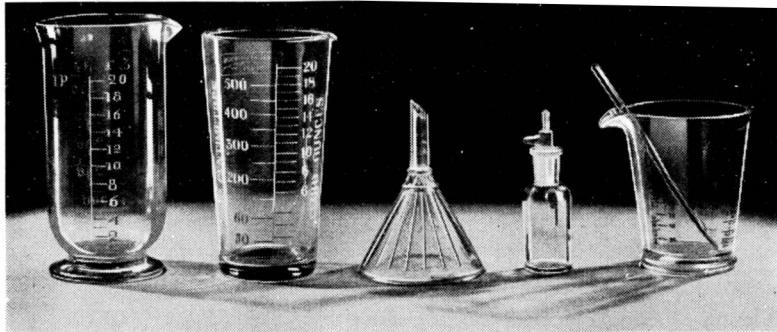
JOHNSON WATER CIRCULATOR

Turns any sink or washbasin into a highly efficient print-washer. Place over waste outlet and adjust tap to a suitable rate. Maintains water to a constant depth of 3½ in., all surplus being drawn off from the bottom of the basin. All aluminium, 2½ in. rubber washer.

PRICE .. 10s. 6d.

JOHNSON THERMOMETERS

STIRRING ROD Thermometer.	Checks the temperature while	..	..	..	..	s. d.
	agitating. Unscrews for cleaning	..	..	..	..	10 6
No. 5.	Complete with plastic protective case	..	..	..	..	4 0
'POLLY' Thermometer	for use with 'Polly' Tanks	..	..	..	..	5 0



MEASURES

(all marked in oz. and c.c.)

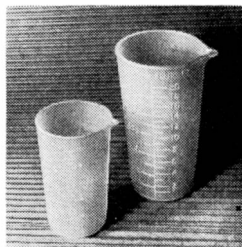
TUMBLER—white enamelled graduations.

	s.	d.		s.	d.
2 oz. ..	2	0	10 oz. ..	3	6
4 oz. ..	2	6	20 oz. ..	6	6

CLEAR PLASTIC—to measure 2 oz. .. 1 3

UNIVERSAL—measures solids or liquids 8 6

POLYTHENE—unbreakable 10 oz. .. 3 3
20 oz. .. 4 0



FUNNELS

	s.	d.		s.	d.
ALKATHENE , unbreakable 3 in.	5	2	5 in.	7	5
EBONITE STIRRING ROD with crusher ..	..	..		1	9



HOOK CLIPS

A useful clip with one hand-grip extended in the form of a hook, and plated to prevent rust.

PRICE, each 8d.

PLASTIC CLIPS

Clear plastic clips with one arm extended to form a hook. Handles serrated to prevent slipping.

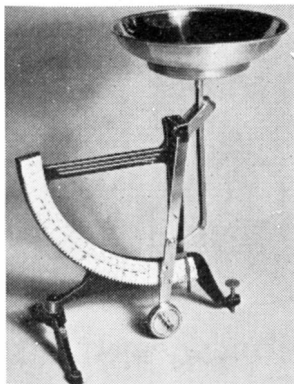
PRICE, per doz.
4s. 3d.



JOHNSON BALANCE No. 18

A simple and accurate balance for weighing chemicals. With the balance weight in the lower position quantities up to 18 oz. may be weighed. Turning it to an upright position permits more accurate weighing of small quantities up to 4 oz.

PRICE .. £1 13 6



WATERPROOF APRON

Waterproof, with tie strings.

PRICE .. 11s. 4d.

JOHNSON CHANGING BAG

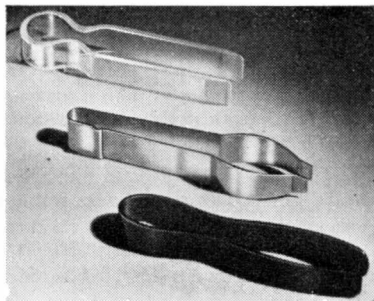
For loading developing tanks, dark slides, etc., when no darkroom is available. Perfectly light-tight. 18 x 18 in. Close-mesh zip fitting with 3 in. overlap. Sleeves have elastic bands which fit wrists and forearm snugly.

PRICE .. £1 17 6

PRINT LIFTERS

Print lifters are invaluable for turning prints over in the hypo bath, ensuring thorough fixing.

	s. d.		s. d.
Black celluloid	3 9	Stainless steel	4 6

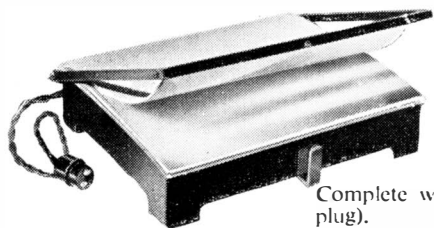


PRINT FORCEPS

The use of these print forceps keeps the hands dry and saves them from contamination by chemicals.

		s. d.
Perspex	Small	1 6
„	Large	2 6
Acetate	Small	9
Celluloid	Large	1 3

JOHNSON AMATEUR PRINT DRYER



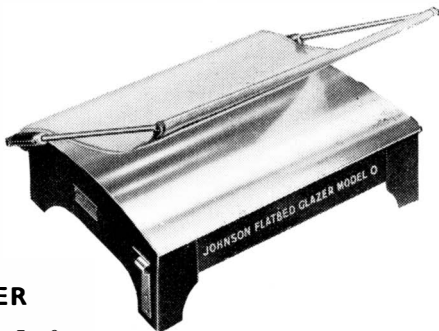
A small, efficient electric print dryer that can be worked off an ordinary lighting circuit (consumes only 120 watts). One 10×8 in. print, 4 postcards or 8 2½×3½ in. prints can be dried in 4 to 8 min. according to thickness of paper. Plated top, sheet iron body. Specially woven apron.

Complete with heating element, and flex (no plug).

PRICE .. £3 5 0

MODEL 0 PRINT DRYER

A strongly made single-sided glazing press. 14×10 in. heated surface. Prints can be dried in 4 to 8 min. Adjustable apron. For all voltages from 200 to 250 A.C. or D.C. PRICE .. £6 5 0



GLAZING PLATES

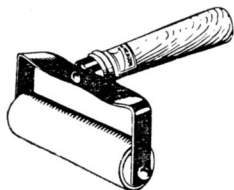
10×8 in. ..	14 6
14×10 in. ..	£1 4 0

POSTLIP PHOTO PAPER

80 lb. .. Per quire £1 5 0

PHOTO DRYING BOOK,
11×9 in. 5 0

JOHNSON ROLLER SQUEEGEES



Type A. Plated steel frame with polished hardwood handle. Rubber-covered roller.

Prices: 4 in. .. 6s. 3d. 5½ in. .. 7s. 3d.

Type B. Wire handle model with strong wire frame and handle.

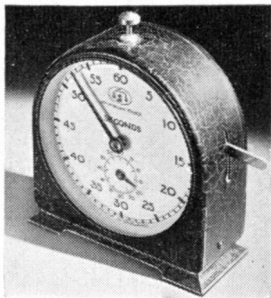
Prices: 4 in. .. 4s. 0d. 6 in. .. 5s. 0d.

Type D. Polished bracket, rubber roller .. 12s. 6d.

JOHNSON LUMINOUS SECONDS TIMER

A reliable darkroom timer finished in grey poly-chrome enamel. 4 in. luminous dial with easily read figures. Large seconds hand revolves once a minute, small hand once in an hour. Resets to zero. Side lever starts and stops the movement. Made by Smiths English Clocks Ltd.

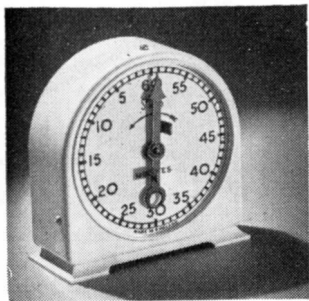
PRICE .. £3 8 6
With plain dial £2 15 0



SMITH'S MINUTE TIMER

A very useful timer for enlarging and printing. Runs for one hour and rings a bell when time is elapsed. Wound by setting hand to the required time. 4 in. white dial with large and easily read figures. (This is not a seconds timer).

PRICE .. £2 15 0

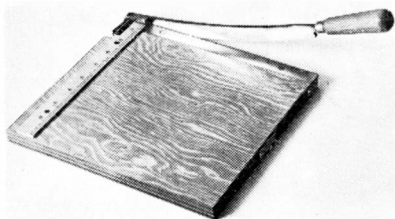


SMITH'S INTERVAL TIMER

A fine precision instrument that will give lasting service. Can be simply and accurately set for any interval between a quarter of a minute and one hour, fifty-nine minutes. The timer is set to the period desired to be timed, and the levers are sharply closed, scissors fashion. This energises the alarm mechanism and starts the clock. At the end of the pre-set period a clear signal of 10 seconds duration is given. A separate key winds the clock mechanism which will run all day in constant use.

PRICE .. £2 17 6





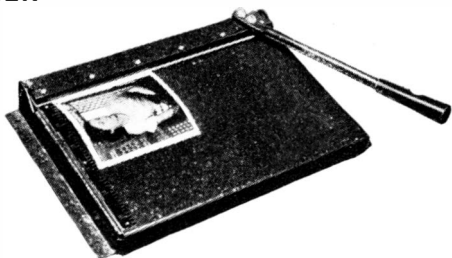
JOHNSON DECKLE EDGE TRIMMER

Pressed steel construction, hardened and precision ground blade. The print is in full view all the time. Baseboard fitted with squaring rule. Grey Polychrome finish with plastic handle.

9 in. cut .. £2 2 6
12 in. cut .. 3 3 0

STRAIGHT EDGE TRIMMER

Similar design. 9 in. cut
£2 5 6



JOHNSON PRINT TRIMMER

Hollow ground, tempered steel blades. Powerful coil spring keeps both blades in contact from end to end. Non-warping baseboard. Graduated rule set exactly at right angles to the blades.

Size 7 in. £1 9 0
Size 9 in. 1 15 0
Size 11 in. 2 10 0
Size 13 in. 3 7 6

DARKROOM PINS

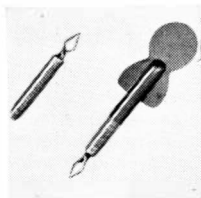
Plastic, unbreakable, assorted colours. Invaluable in the darkroom for holding notes, formulæ or enlarging paper.

Per box of 12 1s. 9d.

PEN NIB TRIMMERS

For trimming or retouching. These trimmer blades can be used with an ordinary pen-holder or in the metal holder supplied with every package. Boxes of 20 blades and one holder.

Price per box 4s. 9d.



JOHNSON PHOTOGRAPHIC SPONGE

Viscose, soft and absorbent 2s. 8d.

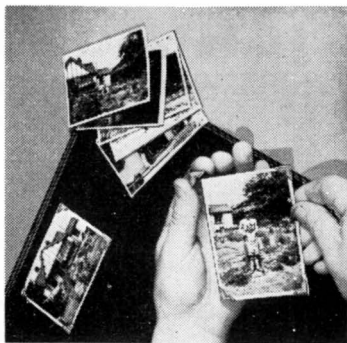
NUAGE

MOUNTING CORNERS

Made in America with the most modern machinery specially designed for the purpose, and imported solely by Johnsons. NuAce-mounting corners are universally acknowledged to be the finest article of their kind : a special formula used for the mucilage ensures that these corners will never stick together in the packet whatever the climatic conditions, and yet will adhere strongly and permanently to all paper surfaces after damping and applying in the usual manner.

The corner tabs may be turned up and stuck to the back of the print if desired. Supplied in packets of approximately 100 corners in black, grey, or sepia.

PRICE .. 7d. per packet (incl. 1d. P. Tax).

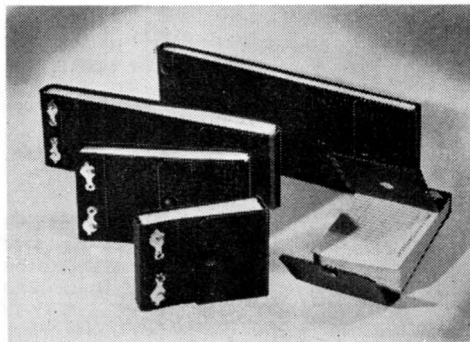


JOHNSON FILM STORAGE ALBUMS

No. 20. For $2\frac{1}{2} \times 3\frac{1}{4}$ in. (6×9 cm.) and smaller negatives. 100 numbered transparent envelopes and index, stout art linen covers 5s. 9d.

No. 16. As above, for $4\frac{1}{2} \times 2\frac{1}{2}$ in. and smaller negatives 7s. 6d.

No. 35. For Miniature Negatives. 100 numbered transparent envelopes each taking a strip of 6 35 mm. film negatives. Complete with index and stiff black leather cloth covers, with snap-button fastener 7s. 0d.



No. 17/1. For $2\frac{1}{2} \times 2\frac{1}{4}$ in. negatives. 100 transparent envelopes each taking a single negative. With index 5s. 9d.

No. 17/3. Also for $2\frac{1}{2} \times 2\frac{1}{4}$ in. negatives. 100 transparent envelopes each taking a strip of three (3) negatives. Index and covers as above 7s. 6d.

PASSE PARTOUT. Binding, all colours, per roll 1s. 3d.

POCKET ART CORNERS.
Black, brown, red, green, gold,
per 100 7d.
Transparent 1s. 0d.

JOHNSON ENLARGERS

EXACTUM POSTCARD ENLARGER

If you can make contact prints with a printing frame you can make enlargements with the new Johnson Exactum Postcard Enlarger. Hitherto this has depended on an expensive enlarger and more than average skill. The Johnson Exactum Postcard Enlarger is as easy to use as a printing frame. For an average negative, exposure is only about 30 seconds under an ordinary 100-watt lamp. There is nothing complicated to adjust and nothing new to learn. Full instructions are included.

No. 1 for $2\frac{1}{4} \times 3\frac{1}{4}$ in. negatives.

No. 2 for 35 mm. negatives.

PRICE £2 13 6



(For complete Enlarging Outfit see Page 27).

JOHNSON FV/7 & FV/8 ENLARGERS



TWO
HIGH
QUALITY
ENLARGERS
CAPABLE OF
THE FINEST WORK
AT PRICES THAT
EVERYONE CAN AFFORD

These popular general - purpose Enlargers are designed and made on first-class lines and are capable of producing work of the highest quality.

The Enlarger head is mounted on a sturdy bracket which moves smoothly on the 1½ in. diameter column and is locked by a quick-release spring-loaded clamp at any desired point.

The spun aluminium lamphouse is well ventilated and takes a triple-sprayed or High Intensity lamp.

The spring-loaded negative stage takes a carrier in which single or strip films can be carried either between glass or between masks without glass.

The Enlargers are normally supplied with diffusion screens, but provision is also made for double optical condensers, obtainable at a moderate extra cost and strongly recommended. (FV/7 3½ in. dia., FV/8 4½ in. dia.) Wray f/6.3 or Dallmeyer f/4.5 lenses are normally fitted and give approximately six magnifications on the baseboard.

The Enlarger head can be turned on the column and the image projected on to the floor.

Focusing is smooth and free from back-

lash. Special Foc-o-line split-

image device simplifies focusing.

Baseboard is mounted on steel chassis,

size FV/7—17 × 16 in., FV/8—20 × 20 in.

Wired with first quality flex with switch in line. Finish is silver-grey polychrome and nickel plate.

PRICES without lens:

FV/7 for 2½ × 2½ in. and smaller negatives	.. .. .	£15 19 8
FV/8 for 2½ × 3½ in. and smaller negatives	.. .. .	18 15 4
CONDENSERS with spacer	.. .. . Pair 3½ in.	£1 15 0
		4½ in. 2 10 0
LAMPS: High Intensity, 150-watt (V8)	4s. 7d.	Triple Sprayed, 60-watt 2 6
LENSES:		FV/7 FV/8
Wray f/6.3	.. .. .	3½ in. £3 16 5 4 in. £5 4 3
Dallmeyer f/4.5	.. .. .	3½ in. 9 11 2 4 in. 10 1 6

JOHNSON V-28 ENLARGER

for $2\frac{1}{4} \times 3\frac{1}{4}$ in. (6 x 9 cm.)
and all smaller negatives

A high-class model constructed on sound lines.

The counterbalanced enlarging head moves smoothly on a $1\frac{1}{2}$ in. column 32 in. high, and is held securely in the desired position by quick-release clamp. The well-ventilated lamphouse can be turned into the horizontal position for large magnifications.

$4\frac{1}{2}$ in. dia. double condenser covers $2\frac{1}{4} \times 3\frac{1}{4}$ in. negatives fully. Dallmeyer 4 in. or Wray $4\frac{1}{4}$ in. f/4.5 lenses are normally supplied. Also accommodates 3 in. and 2 in. lenses and thus gives maximum magnifications for all negatives down to 35 mm. size. 4 in., 7 mags. 3 in., 12 mags. 2 in., 16 mags.

Smooth friction drive focusing operated by large knobs.

Spring - loaded carrier stage operated by neat stirrup lever.

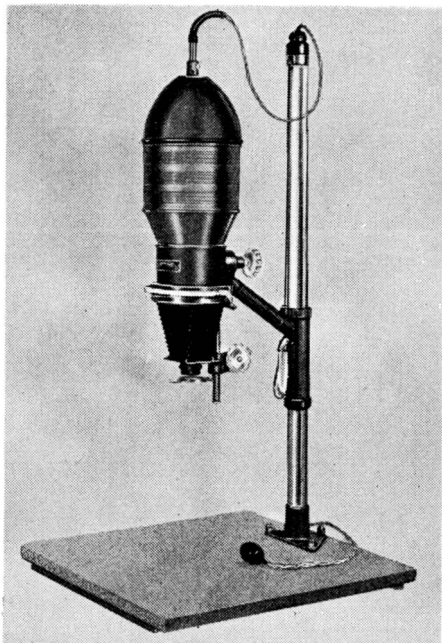
Holds the negative carrier closely to the condenser.

Extraneous light is trapped.

The carrier stage takes the Johnson Universal Carrier which enables all films up to size 120 to be held satisfactorily in either single or strip form, and with or without glass.

The baseboard, 20 x 20 in., mounted on steel section chassis to prevent warping. Lead from the lamphouse plugs into top of column, runs through the column to the mains and independent pear type switch.

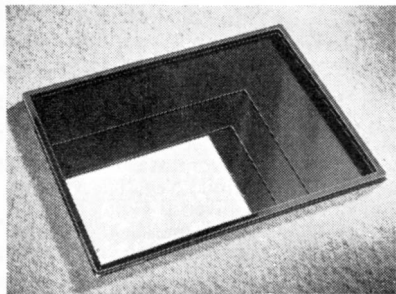
Silver-grey polychrome enamel and chromium finish.



PRICE without lens :

V/28 for $2\frac{1}{4} \times 3\frac{1}{4}$ in. and all smaller negatives	..	..	..	..	£39 12 4
Lenses. Dallmeyer Anastigmat f/4.5 4 in. focus	..	..	..	..	10 1 6
Wray Supar ,, f/4.5 $4\frac{1}{4}$ in. ,,	..	..	..	..	9 18 1

JOHNSON MASKING FRAMES



UNIT. An effective, inexpensive way of giving white margins and holding the paper flat. Tray with frame and a series of interchangeable masks for up to $6\frac{1}{2} \times 8\frac{1}{2}$ in. Square Masks are available for direct enlargement from square negatives.

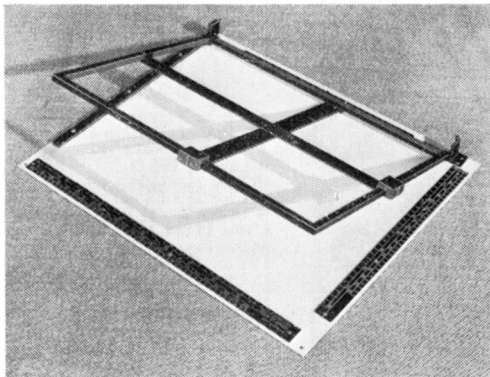
Complete Set for 4 sizes :

$6\frac{1}{2} \times 8\frac{1}{2}$ in., $4\frac{3}{4} \times 6\frac{1}{2}$ in., $3\frac{1}{2} \times 5\frac{1}{2}$ in.,
 $3\frac{1}{4} \times 4\frac{1}{4}$ in. £1 9 2

MASKS

B, $4\frac{3}{4} \times 6\frac{1}{2}$ in. ; C, $3\frac{1}{2} \times 5\frac{1}{2}$ in. ; D, $3\frac{1}{4} \times 4\frac{1}{4}$ in. ; E, $2\frac{1}{4} \times 3\frac{1}{4}$ in. ; F, 4 x 4 in. ;
 G, 3 x 3 in. 3s. 6d.

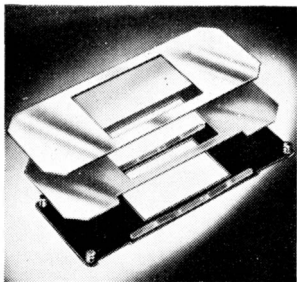
ADJUSTABLE. A well-made all-metal frame scaled in inches and centimetres, with sliding frames which can be readily adjusted to the required size. The paper is firmly held in place during exposure. Gives clean white margin. By means of special spring-loaded self-adjusting grips the masks are automatically squared. The heavy alloy base-plate stays flat and is sprayed matt white for easy focusing.



PRICES

For 10 x 8 in. £4 13 10

For 15 x 12 in. 6 8 7



JOHNSON UNIVERSAL NEGATIVE CARRIER

For use with Johnson and other makes. Takes strip or single negatives from 35 mm. to $2\frac{1}{2} \times 3\frac{1}{2}$ in. (6 x 9 cm.).

Whether the user prefers an all-glass or a completely glassless negative carrier or a compromise between the two, every requirement can be met by the Johnson Universal Unit Negative Carrier.

The basic section of the Universal Unit Carrier is a tray into which are fitted appropriate combinations of masks and glasses to form any desired type of negative carrier.

The upper and lower masks or glasses are kept slightly separated by light springs on the tray section to permit free movement of strip negatives when changing from one picture to the next. The whole assembly is slipped into position on the spring-loaded carrier stage of the Johnson Enlarger and the pressure of the carrier clamps all the components together, holding the negative securely in position.

COMPLETE SET OF COMPONENTS

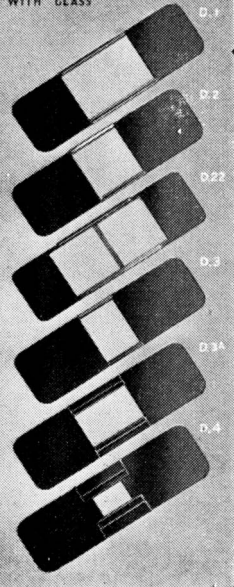
for one size, tray section, masks for glassless carrier, two glasses and mask.

No. 1 for $2\frac{1}{2} \times 3\frac{1}{2}$ in. . .	£2 8 8
No. 2 for $2\frac{1}{2} \times 2\frac{1}{2}$ in. . .	2 8 8
No. 3 for $2\frac{1}{2} \times 1\frac{1}{8}$ in. . .	2 8 8
No. 3A for $2\frac{1}{2} \times 1\frac{1}{8}$ in. . .	2 8 8
No. 4 for 35 mm. . .	3 2 6
No. 5 Complete set, all sizes . . .	6 8 6

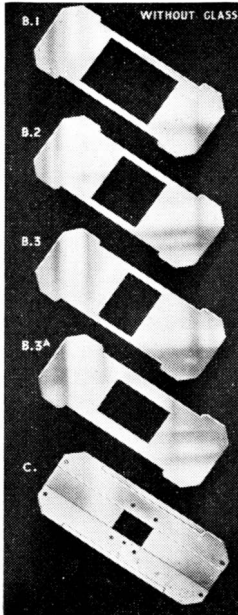
SEPARATE UNITS

A. Basic Tray section . . .	17 5
Pair of Glassless Masks :	
A/1 Sliding masks . . .	4 2
B/1 for $2\frac{1}{2} \times 3\frac{1}{2}$ in. . .	17 5
B/2 for $2\frac{1}{2} \times 2\frac{1}{2}$ in. . .	17 5
B/3 for $2\frac{1}{2} \times 1\frac{1}{8}$ in. . .	17 5
B/3A for $2\frac{1}{2} \times 1\frac{1}{8}$ in. . .	17 5
C (for 35 mm.) . . .	1 14 9
Masks for use with glass :	
D/1 for $2\frac{1}{2} \times 3\frac{1}{2}$ in. . .	4 11
D/2 for $2\frac{1}{2} \times 2\frac{1}{2}$ in. . .	4 11
D/3 for $2\frac{1}{2} \times 1\frac{1}{8}$ in. . .	4 11
D/3A for $2\frac{1}{2} \times 1\frac{1}{8}$ in. . .	4 11
D/4 for 35 mm. . .	4 11
D/22 for $2\frac{1}{2} \times 2\frac{1}{2}$ in. (twin opening) . . .	4 11
F. Glass per pair . . .	4 11

WITH GLASS



WITHOUT GLASS



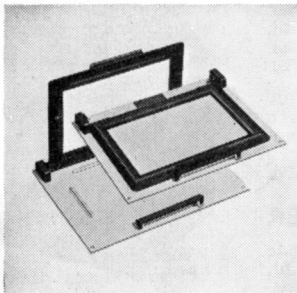
JOHNSON ENLARGER TIME SWITCH

Automatic exposure time ensures prints of uniform quality. The Johnson Enlarger Time Switch automatically turns off the enlarger lamp at the end of any predetermined exposure time from 1 second to 5 minutes. Setting the hands automatically winds the mechanism. A separate side switch enables the light to be turned on or off for focusing. With its neat, streamlined, black plastic case and easily-read dial, set at a convenient angle, the Johnson Time Switch is a most practical addition to any enlarger. Suitable for all voltages up to 250 v. A.C. Max. load, 3 amps.



PRICE .. £2 10 0

JOHNSON POSTCARD MASKING FRAME



Specially made to provide $\frac{1}{4}$ in. white margin prints on the popular $3\frac{1}{2} \times 5\frac{1}{2}$ in. (postcard) size paper. Paper is held flat during exposure, mask springs open automatically at the touch of a catch. Base sprayed matt white, mask and paper guides dead black.

PRICE .. £2 3 9



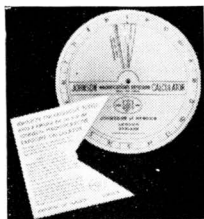
ENLARGEMENT EXPOSURE TESTER

(Prov. Pat.)

Enables test strips to be made for enlargements in the simplest and easiest manner. The strip cut to suitable size is inserted in the tester. It is then turned to four different positions giving four test exposures all from the same portion of the negative. Saves time and paper .. 3s. 6d.

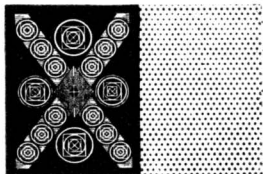
ENLARGEMENT EXPOSURE CALCULATOR

One test strip determines the correct exposure for any degree of enlargement. Complete with plastic test strip holder 2s. 6d.



ENLARGING FOCUSING

SCREENS



For critical focusing. Line pattern or half-tone screen dot type.

24 x 36 mm.	..	..	..	..	2s. 10d.
2½ x 2½ in.	..	..	..	..	3s. 10d.
2½ x 3½ in.	..	..	..	..	3s. 10d.
½-pl.	..	..	..	..	4s. 11d.

ENLARGER LAMPS

OPAL. These lamps have white 'opal' glass giving an exceptionally even distribution of light.

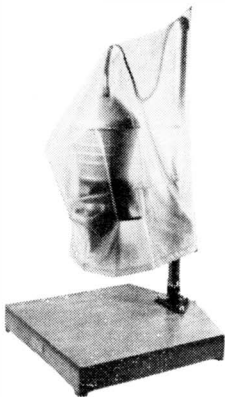
60-watt	..	..	..	..	2s. 6d.
75-watt	..	..	..	..	3s. 4d.
100-watt	..	..	..	..	3s. 4d.
150-watt	..	..	..	..	4s. 9d.

HIGH INTENSITY. The size of a normal 60-watt lamp, takes 150-watts and gives a light output equal to a 250-watt bulb. Shortens exposures and improves contrast.

150-watt (200—230—250 volts)	4s. 7d.
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PLASTIC COVER FOR ENLARGER

Protects the enlarger from dust, dirt and dampness. Made of semi-transparent plastic, all seams sewn .. 13s. 2d.



JOHNSON POPULAR VIEWER

You'll be delighted when you see your 35 mm. colour transparencies properly for the first time with the Johnson Popular Viewer. Made in ivory plastic with a hinged metal frame holding a magnifying glass, this is one of the neatest and most effective pocket viewers on the market. When the magnifier is swung into position, the viewing screen is automatically illuminated and you see colour as it should be seen—CLEAR AND BRIGHT. The Popular Viewer is for 35 mm. (2×2 in.) colour slides, takes two U.11 batteries (extra), and costs only .. 15s. 6d.

JOHNSON LIGHTWEIGHT AUTOSLIDES

2½×2½ in. Protect your colour shots by mounting them between glass in Johnson Autoslides. Light aluminium pressings easily assembled, no binding. Made in the new standard 2½ in. square size (B.S. 1917), masking either for 2¼×2¼ in. or 2¼×1½ in. Raised thumb 'spotting'. For 2¼ in. sq. or "½—20" per doz. 15s. 0d. or in boxes of 25 £1 12 6

Miniature Autoslides. 2×2 in. light - weight plastic transparency holders for 24×36 mm. Unbendable; non-warping; easy loading; almost unbreakable. Each complete with 2 glasses.



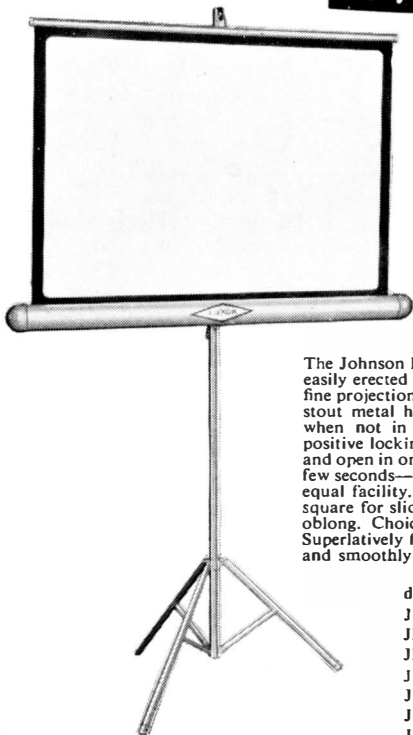
Per doz. 9s. 0d.
De luxe box of 25

19s. 6d.



Sparkling Pictures
CRYSTAL CLEAR!
 with the NEW -

JOHNSON
LUXOR
Screens



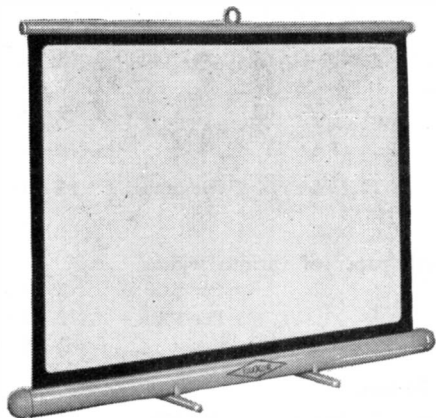
The Johnson Luxor Projection Screens are distinguished looking, easily erected units incorporating every modern refinement. The fine projection material is attached to spring-loaded rollers within stout metal housings and is thus fully protected from damage when not in use. Substantial telescopic stands with instant, positive locking adjustment for height. The tripod bases extend and open in one movement. Opened and erected ready for use in a few seconds—no loose fittings to attach. Fold for transport with equal facility. Available in oblong sizes for cine projection or square for slides. The "A" sizes may be used either square or oblong. Choice of the finest crystal-beaded surface or matt white. Superlatively finished in "grey-green" enamel on casing and legs and smoothly polished metallic finish to all working parts.

de LUXE		<i>Bead Surface</i>		<i>White Surface</i>	
JL.1	40 x 30 ..	£12	18 6	£11	13 9
JL.1A	40 x 40 ..	14	1 6	12	14 0
JL.2	50 x 40 ..	15	2 6	12	15 9
JL.2A	50 x 50 ..	17	9 6	14	17 0
JL.3	63 x 47 ..	21	14 6	19	5 0
JL.3A	63 x 63 ..	23	18 6	20	18 0
JL.4	80 x 60 ..	31	9 9	28	12 0

STANDARD

JS.8	31 x 23	..	..	..	..	8	2 6	7	0 0
JS.8A	30 x 30	..	..	..	..	8	13 6	7	11 6
JS.1	40 x 30	..	..	..	..	9	7 0	8	5 0
JS.1A	40 x 40	..	..	..	..	9	17 6	8	15 6
JS.2	50 x 40	..	..	..	..	12	2 0	10	3 6
JS.2A	50 x 50	..	..	..	..	13	9 6	11	5 6

JOHNSON LUXOR TABLE SCREENS

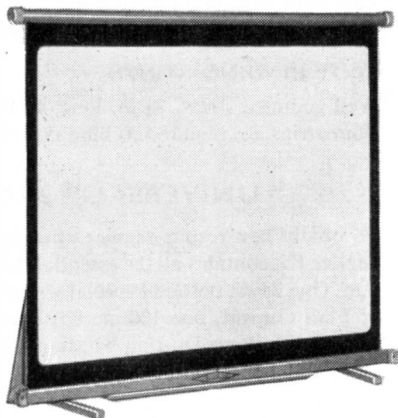


The Johnson Luxor Table Model projection screen is very compact, occupying the minimum space when not in use. A hinged steel rod supports the screen while the plastic-capped feet swivel round to give firm support on any table. All-metal construction finished in "grey-green" enamel.

"TABLE"		<i>Bead Surface</i>	<i>White Surface</i>
JT.8	31 × 23	£6 17 6	£5 15 6
JT.8A	31 × 31	7 8 6	6 6 9
JT.1	40 × 30	8 2 6	7 0 0
JT.1A	40 × 40	8 10 6	7 8 6
JT.2	50 × 40	10 14 6	8 16 0
JT.2A	50 × 50	11 16 6	9 12 6
JT.3	63 × 47	16 10 0	14 0 0

A quickly-erected one-piece screen for use on table or chair. The excellent quality projection surfaces are held drum-tight and perfectly flat. Light in weight, compact when folded. Highly seasoned wood framework finished in "grey - green" enamel. Remarkably good value.

POPULAR		<i>Bead Surface</i>	<i>White Surface</i>
JP.1	24 × 18	£2 9 6	£1 13 0
JP.2	30 × 22	3 0 0	2 4 0
JP.2A	30 × 30	3 8 9	2 9 6
JP.3	40 × 30	4 10 9	3 6 0
JP.3A	40 × 40	5 7 6	4 5 6
JP.4	50 × 40	6 12 0	4 16 6
JP.4A	50 × 50	7 8 6	5 7 6



JOHNSON LANTERN SLIDE MATERIALS

COVER GLASSES	$2\frac{3}{4} \times 2\frac{3}{4}$ in.	$3\frac{1}{4} \times 3\frac{1}{4}$ in.
No. 18. Good quality—18 to an inch	Per 24 4s. 6d.	Per 144 18 6
No. 20. Selected quality—20 to an inch	,, 5s. 0d.	,, £1 1 6
No. 26. Selected thin—26 to an inch	,, 5s. 6d.	,, 1 9 0

MINIATURE 2×2 in.

Selected thin—26 to an inch	Per gross	15 0
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LANTERN SLIDE MASKS

$3\frac{1}{4} \times 3\frac{1}{4}$ in.—Adaptable—Strips of mask paper of various widths.	Per box	2 9
$2\frac{3}{4} \times 2\frac{3}{4}$ in.— $2\frac{1}{4} \times 2\frac{1}{4}$ in. opening	Per 100	2 0
$2\frac{3}{4} \times 2\frac{3}{4}$ in.— $1\frac{1}{8} \times 2\frac{1}{4}$ in. opening	,,	2 0

MINIATURE SLIDE MASKS, 24×36 mm.

Size A. Outside size $3\frac{1}{4} \times 3\frac{1}{4}$ in. aperture, 24×36 mm.	Per 100	2 0
Size B. ,, ,, 2×2 in. ,, 24×36 mm.	,,	1 6

FULL-LENGTH BINDING STRIPS

Fine gum coating on stout paper, $13\frac{1}{2}$ in. long by $\frac{7}{16}$ in. wide. One strip binds one slide. Black only. Per box, 200 strips	2 6
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SPOT BINDING STRIPS

Well gummed strips, $3\frac{1}{4}$ in. long, with white titling space and spots. Four strips are required to bind one slide. Per box, for 100 slides	..	2 3
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“ UNIVERSAL ” PROJECTOR SERVICE KIT

To obtain best results regular attention should be given to the Projector. This Service Kit contains all the essential things to enable proper servicing to be carried out. One 25 cc. bottle of specially prepared Lubricant with applicator, one bottle of Film Cement, one 100 cc. bottle of Film Cleaner, one bottle of Humidifier, Gate Brush, Lens Dusting Brush, bottle of Lens Cleaning Solution and one each Gate and Lens Polishers.

PRICE .. **19s. 6d.**

Voigtländer

VITO 35 mm. CAMERAS

VITO IIa

A slim, pocketable, folding 35 mm. camera incorporating many of the features of the popular VITO B—lever wind, recessed re-wind knob and the famous f3.5/50 mm. COLOR SKOPAR four-element, colour-corrected anastigmat, the lens that gives enlargements of contact print quality. The 'exposure-value' PRONTOR-SVS 9-speed shutter (1 sec., $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, 1/15, 1/30, 1/60, 1/125, 1/300th sec.) has VXM synchronisation (all speeds with flashbulbs and electronic flash) and 'delayed action.' Double interlock against blanks and double exposures. PRICE £25 3 11

VITO B

The all-metal, rigid front VITO with COLOR-SKOPAR lens in PRONTOR-SVS shutter, VXM synchronised with delayed action. With the VITO B one movement of the rapid wind lever advances the film one frame, operates the counter and sets the shutter for the next shot. Double exposures are impossible. Insertion and removal of cassettes is simplified by the hinged base and back. Zone-focusing marks make operation particularly easy. PRICE £25 3 11

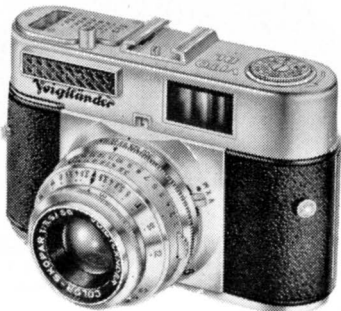
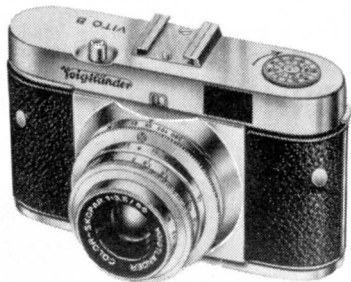
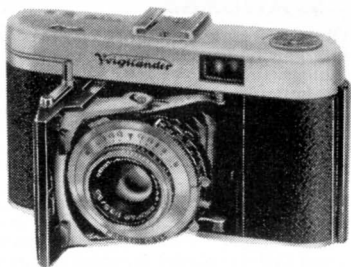
VITO BL

With the limited exposure latitude of most colour films an accurate exposure meter is essential for best results. The VITO BL has a specially designed photo-electric exposure meter built-in to the top of the camera mounted in a shock-proof spring suspension system. The spectral sensitivity of the meter is carefully balanced to give correct results with both colour and black and white films even in unusual light conditions. The meter is marked in 'light-values' which are simply read off and transferred to the PRONTOR-SVS shutter. An extra large viewfinder is fitted to the BL. Other features, including the famous COLOR-SKOPAR lens as the VITO B.

PRICE .. £36 9 10

Ever-Ready VITO cases : Hide .. £2 12 9

Voigtländer 4 3 5



BRAUN HOBBY

ELECTRONIC FLASHGUN

" STANDARD "

Output 60 joules. Flash factor 220 with fast pan film. May be operated from built-in unspillable 4 v. accumulator, dry batteries or direct from A.C. mains. 200 flashes per accumulator charge. Re-charge time 8-11 secs. Mottle-silvered reflector with perfectly even light spread, reversible for 50° or 70° beam. Flash duration 1/1,000th sec. Colour temperature 5,400°K (suitable for daylight colour film). Tube life over 50,000 flashes. Power-pack of shock-proof Cellidor plastic with high standard of insulation. Unbreakable Polyamid reflector. Long, rubber covered camera bracket, fits under power pack for transport, snap-on fitting to flash-head. Weight 4½ lb.



Accumulator £2 10 0
 PRICE .. £20 17 0
 Charger 16s. 8d.

BRAUN P.A.I AUTOMATIC PROJECTOR



Sit with your audience and enjoy the show ! The magazines of the BRAUN P.A.I AUTOMATIC 35 mm. PROJECTOR take 36 2 x 2 in. slides, card ready-mounts, glass, metal, plastic or mixed. You only have to press a button on the end of a 16-foot lead and the slide change takes place automatically. At the end of the showing all the slides are back in their original numbered slots in the magazine. An automatic shutter prevents glare from the screen during slide changes. Focus once only at the start of the performance. Self-centring slide guide makes automatic allowance for slides of varying thickness.

Optics : High quality ISCO PROJAR 100 mm/f/2.8 projection lens, aspherical condenser system with heat filters. Operation : By 4 push-buttons, ON/OFF—slide change—

magazine release (for re-selecting any desired slide) and 16 ft. remote control. Illumination : 150 watt projection lamp. Braun P.A.I Projector with one magazine .. £32 15 0
 150 w. Projection lamp £1 1 9 Spare magazine with lid 15s. 0d.



UNITOL

A new, concentrated liquid fine grain developer. One ounce develops one film. UNITOL gives grain fine enough for 12 to 14 in. diameter enlargements, excellent shadow detail without blocked-up highlights and no trace of fog.

PRICES

250 cc. size	4s. 0d.
500 cc. size	7s. 6d.

UNITOL CALCULATOR

Finds the correct developing time for any film at any dilution from 6 to 25 .. 4d.

UNITOL AND ACID FIXING MEASURE

A most convenient measure for developing. Holds one ounce of UNITOL or other liquid, or two ounces of ACID FIXING powder 9d.

CON-SOL DEVELOPER

The best print developer you have ever used. Most economical, it can be diluted to 8 times its volume for contact prints and up to 10 times for bromide papers. Con-Sol is clean working, allows unusual latitude and produces prints of a fine blue-black colour on all makes of contact paper. It is equally effective with bromide and chlorobromide papers, producing rich black tones on both.

PRICES

100 cc. size	2s. 6d.
250 cc. size	3s. 6d.
500 cc. size	5s. 6d.

' M-Q ' & ' M-Q PRINT ' DEVELOPERS

For maximum economy buy larger quantities ! These convenient small size tins make $\frac{1}{2}$ -gallon of stock solution for subsequent dilution. This with an equal part of water is ideal for contact papers or it can be diluted one part to three of water for bromide paper and films. Johnson M-Q is a first-class general-purpose developer. M-Q PRINT has been specially compounded to give excellent results on all makes and grades of contact and bromide papers.

Tins to make 1 gallon. PRICE, each 6s. 0d.

UNITEX

A UNIVERSAL FINE GRAIN
DEVELOPER FOR ALL
MODERN HIGH SPEED FILMS



UNITEX is an entirely new fine grain developing formula suitable for all modern negative emulsions, particularly the latest high-speed types. The 'Time and Temperature' developing tables have been carefully worked out to produce the degree of contrast most generally desired. The grain is unobtrusive even at a considerable degree of enlargement and the negatives are

noticeable for their complete freedom from dichroic fog. UNITEX is easy to prepare, makes up to a crystal-clear solution even in ordinary tap-water and has excellent keeping properties. Even when, say, one film has been developed in 20 oz., the developer, if kept in a well-stoppered bottle, will be in perfect condition for a second film a month later.

Make up as much UNITEX as you want—when you want it. In the packet are four units (each of two powders) each pair making up 300 cc. (10½ oz.) of solution, enough for a Polly-min, J-20 or similar tank. The powders are heat-sealed in laminated polythene bags, protected permanently from atmospheric conditions until you are ready to use them.

Pack to make 1,200 cc. (42 oz.) in four separate batches of 300 cc. (10½ oz.) 3s. 6d.

BROMIDE DEVELOPER

Johnson Bromide Developer has been specially prepared for use with all makes and grades of bromide paper. It works rapidly, has excellent keeping qualities and possesses a considerable degree of altitude. Bromide developer is highly concentrated and produces rich dark tones. Dilute one part to seven parts of water.

PRICES

250 cc. size .. 3s. 3d. 500 cc. size .. 5s. 0d.

CONTRAST DEVELOPER

Originally introduced to meet the demands of press photographers who require a quick-acting developer for both their negatives and prints, Contrast is now also extremely popular among amateurs. It produces brilliant sparkling prints that are particularly suitable for reproduction. A dilution of one part Contrast to ten parts water is suggested.

PRICES .. 250 cc. size .. 3s. 3d. 500 cc. size .. 5s. 0d.



AZOL DEVELOPER

Easily the most economical developer on the market. Dilute one part of AZOL with 40 parts of water and get bright, easily printed negatives of excellent tonal quality. AZOL (1 to 12) is fine for contact prints, too.

PRICES

100 cc. size,
each 3s. 6d.

250 cc. size,
each 6s. 0d.



ACID HYPO FIXING

For preventing stained negatives and prints an acid fixing bath is a necessity. The solution will remain clean and retain its activity longer than plain hypo. 4 oz. of the powder will make 30 oz. of fixing solution for films or 60 oz. for papers. The easy-pouring tins have a 2 oz. measure lid.

PRICES

250 gram tins 2s. 6d. 500 gram tins 3s. 6d.

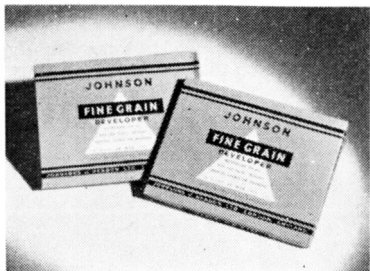
MERITOL-METOL DEVELOPER

For extremely fine grain a developer containing Meritol is to be recommended. Meritol-Metol combines the fine grain properties of Meritol with the quicker action of Metol. In 20 oz. bottles of ready-to-use solution. Full directions, with development time tables for all popular makes of film enclosed. PRICE Bottles, 500 cc. size 4s. 6d.

CAPITOL DEVELOPER

A reserve of speed is known to exist in most films. Capitol produces an effective speed increase of 200 to 500 per cent without increasing contrast. Invaluable where under exposure is unavoidable. Dilution 1+4 or 1+7. Full instructions with every bottle. PRICES 250 cc. size 3s. 6d. 500 cc. size 6s. 6d.





FINE GRAIN DEVELOPER

A developer that produces negatives capable of enlargements up to 10 or 12 diameters without noticeable grain. Easy to use, clean working and keeps well in solution. Each pack contains sufficient chemicals to make 20 oz. of developer, enough to process 5 or 6 35 mm. or 120 size films.

Pack to make 20 oz. . . 2s. 3d.

DEVELOPER 468

An M.Q. developer that will produce an intense black image on all types of contact and bromide papers, it allows great exposure latitude and complete freedom from fog. A stock solution is made up from the powder, which is diluted 1+1 for contact papers and 1+3 for bromide and chloro-bromide.

Diluted 1+15, "468" can be used as a negative developer and produces negatives of a medium to high contrast.

40-80 oz. size, making 20-oz. stock solution 2s. 9d.



"TWIN-PACTUMS"



The handy "Pactum" size of photographic chemicals makes a useful reserve supply of developer and of those items which are only occasionally required. Each pack contains chemicals for two separate batches of solution.

M-Q Developer	10 to 40 oz.	1s. 3d.
Amidol Developer	20 oz.	1s. 9d.
Print Stop Bath	40 oz.	1s. 6d.
Negative Stop Bath	40 oz.	1s. 6d.
Reducer (Farmers)	20 oz.	1s. 6d.
Blue Toner	20 oz.	1s. 9d.
Green Toner	20 oz.	1s. 9d.
Sepia Toner	20 oz.	1s. 9d.
Copper Intensifier	20 oz.	1s. 9d.
Acid Fixing	20 to 30 oz.	1s. 6d.

JOHNSON ONE-FOUR-TWO

“142” Developer Improver prevents staining and chemical fog due to prolonged development or high temperatures, increases the life and latitude of the developer and restores old and badly stored paper and film to new life.

100 cc. size bottle Price 3s. 0d.
 500 cc. size bottle- ,, 9s. 0d.

JOHNSON THREE-TWO-SIX

Johnson “326” makes water wetter. A few drops added to a developer prevents the formation of air-bells. Added to the final wash water, it speeds up drying and eliminates watermarks.

100 cc. size bottle Price 3s. 0d.
 500 cc. size bottle ,, 7s. 6d.



ULTRAFIX RAPID FIXING SOLUTION

A concentrated ultra-rapid fixing solution for plates, films and printing paper. Films and plates are fixed in 2 to 3 minutes and papers in 30-40 seconds. The capacity is greater than ordinary hypo fixing baths. Dilute 1 part Ultrafix with 3 parts of water and add $\frac{1}{2}$ oz. Ultrafix Hardener to each pint of working strength solution.

Ultrafix Rapid Fixing Solution,
 570 cc. (20 oz.) size 7s. 6d.

Ultrafix Hardener, 115 cc. (4 oz.)
 size 2s. 3d.

MOUNTANT

Specially prepared for fixing photographs on to mounts or in albums. It is smooth and easy to spread, keeps fresh indefinitely and will not injure prints.

Small Tubes .. Price 1s. 6d.

Large Tubes .. ,, 2s. 8 $\frac{1}{2}$ d.





PHOTO COLOURING OUTFIT

Colouring photographs is quite easy, no drawing skill is required. The bright blue of summer skies, coloured dresses and flowers, the mellow reds of old houses—think what you could do with your favourite holiday pictures!

The colours in this new Johnson set are all triple-strength and have been specially selected both for their suitability for use on the gelatine surface of photographs and for their ability to mix to create intermediate shades.

Outfit containing 9 screw-capped bottles of colour, brush and 8-page instruction book . . . 7s. 6d.

JOHNSON GLAZING SOLUTION

To glaze prints made on glossy paper they should be dipped, after thorough washing, in a dilute solution of the glazing solution and then squeegeed on to a glass or ferrotype plate. In a few hours they will leave the support with a splendid finish. The solution may also be used to clean the plates.

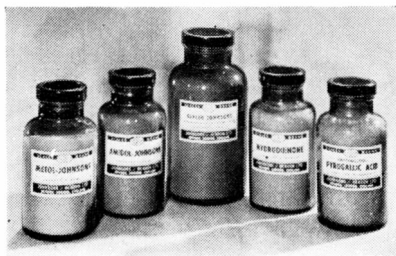
250 cc. size bottles to make 80 oz. Price 3s. 6d.

JOHNSON DEVELOPING AGENTS

The following list of chemicals will be helpful to those who make up their own solutions for black and white processing.

PRICES

Acid Pyrogallic	25 gm.	4s. 6d.
Chlorquinol	25 gm.	4s. 9d.
Glycin	25 gm.	5s. 0d.
Hydroquinone	25 gm.	3s. 0d.
Meritol	25 gm.	4s. 6d.
Metol-Johnsons	25 gm.	4s. 9d.



CHEMICALS FOR COLOUR

The following list of chemicals will be of value to those amateur photographers interested in making up their own solutions for the processing of colour films and prints.

	25 gram
ACTIVOL (Di-ethyl paraphenylene diamine Sulphite)	5s. 0d.
ACTIVOL-H (di-ethyl-p.p.d. Hydrochloride)	5s. 0d.
ACTIVOL-S (di-ethyl-p.p.d. Sulphate)	5s. 0d.
Ethyl-ethyl Hydroxyparaphenylene diamine sulphate	11s. 3d.
2-amino 5-diethyl amino toluene Hydrochloride	16s. 6d.
Amidol-Johnson	4s. 3d.
Hydroxylamine Hydrochloride	4s. 9d.
Sequestrol Iron Complex C.P.2	4s. 6d.
Tinopal B.V. (Photographic)	12s. 0d.
Ethylene diamine tetra-acetic acid (di-sodium salt)	3s. 9d.
Magnesium sulphate B.P.	1s. 9d.
Potassium di-hydrogen phosphate	1s. 9d.
Di-sodium hydrogen phosphate	1s. 9d.

ferraniacolor PROCESSING OUTFITS

Processing Ferraniacolor at home is quick and easy. With this Johnson developing outfit you can produce your own colour transparencies in a couple of hours. It's so simple—all you need, apart from the developers, is a developing tank, a thermometer and running water; follow the simple directions—and you can't go wrong.

Part 1. Colour developer sufficient for 3 35 mm. 20-exposure, or 2 F20 roll films
each 5s. 6d.

Part 2. Hardener, Bleach, Fixer, etc.,
sufficient for 9 35 mm. 20-exposure or 6
F20 roll films each 5s. 6d.





CHEMICAL SUNDRIES

LIQUID OPAQUE

For spotting and blocking out backgrounds on negatives.

25 cc. 2s. 6d.

NEGATIVE DYE

For adding density to thin parts of negatives.

25 cc. 2s. 0d.

BLACK SPOTTING MEDIUM

Specially made for spotting contact and bromide prints, this neutral black medium is in a convenient liquid form. Can be thinned with water to match any shade of grey.

25 cc. bottle 2s. 3d.

form. Can be thinned with water to match

25 cc. bottle

JOHNSON UNIVERSAL FILM CEMENT

is a reliable film cement for splicing both non-flamm. and ordinary cine films. Sold in handy size bottles (and larger sizes if required) fitted with polythene cap and applicator.

25 cc. bottle 2s. 3d.

JOHNSON LUBRICANT

is a specially refined, non-clogging oil for cine-projectors and other precision apparatus.

25 cc. bottle 2s. 0d.

IVOREX

A quick-drying retouching varnish for covering the whole of film and plate negatives. Gives an excellent surface for pencil retouching, numbering, etc.

25 cc. 2s. 0d.

LUSTREX

An economical liquid print finishing medium. Increases the brilliance of prints, particularly those on matt paper, and adds luminosity to the shadows. Protects prints from the atmosphere, makes hand-work less obvious and improves the appearance of hand colouring.

25 cc. 2s. 3d.

WHITE INK

An efficient white ink for titling prints, mounts or lantern slides. Can be applied by pen or brush

. 2s. 0d.

MATT BLACK

A new cellulose preparation for application to metal, wood, etc. Excellent for worn camera parts, lens hoods, darkslides, etc. Dries quickly, covers well and gives a hard, lasting, matt black surface which does not chip.

25 cc. 2s. 6d.

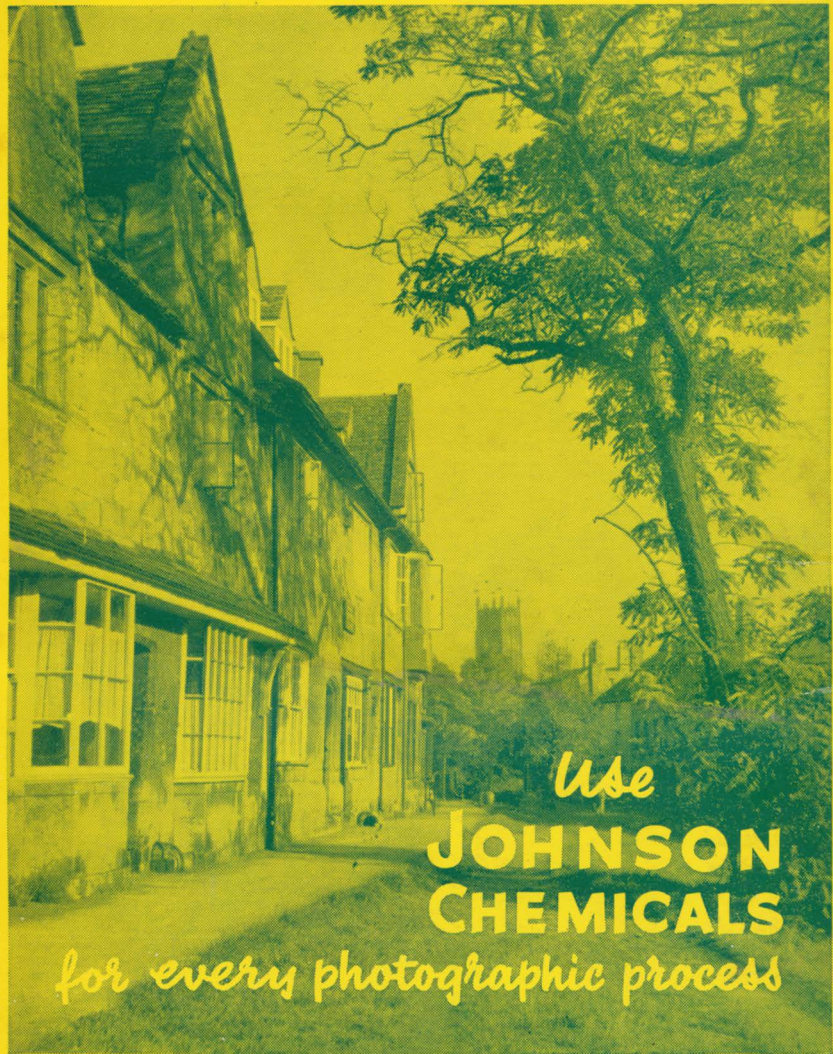
RETOUCHING MEDIUM

For local application to film and plate negatives, back or front. Gives a good tooth for pencil retouching.

25 cc. 2s. 6d.

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Use
**JOHNSON
CHEMICALS**

for every photographic process