

H A S S E L B L A D

THEME
CLOSE-UP





Heather Angel

CLOSE-UP PHOTOGRAPHY

For more than a decade, British photographer Heather Angel has travelled to remote locations — including the Galapagos, Uganda, Kashmir, New Zealand, Japan and China — to photograph wildlife. She has always been fascinated by the close-up world and, indeed, one of the 35 books she has written is devoted to close-up photography. Heather Angel regularly broadcasts about photography on radio and television. Kodak have staged two major exhibitions of her work in Britain. She was President of The Royal Photographic Society from 1984—86. Through her photography she aims to make more people aware of the fragility of life on earth. She is married to an oceanographer and they have one son.

What is a close-up?

Taking close-ups is both an exciting and a challenging aspect of photography. Some of the most striking and memorable close-ups are simple images with uncluttered backgrounds, which concentrate attention on a small otherwise insignificant subject, or a small area of a familiar subject. Effective close-ups arrest attention and impel the viewer to take a second look.

Although most people recognise one when they see it, there is no exact definition of a close-up photograph. A useful guideline for the upper limit is when some accessory such as a close-up lens, an extension tube or bellows, has to be used before a non-macro lens can be focused at close range. If the image of the subject is reproduced one-tenth life size or more on the film, it is a close-up. The results of photographing at such relatively small magnifications are not particularly spectacular, but

most people start to experiment in taking close-ups by using extension tubes. It is at magnifications greater than life-size that structures invisible to the naked eye begin to become apparent and then close-up photography has a special magic of its own. General photography using either standard or wide angle lenses can be approached in a scientific or a pictorial way, working with or without a tripod, with the lens aperture stopped down or fully open. When taking any close-ups however, precise focusing and a steady camera are essential, while lighting becomes even more critical for good results.

The 80mm and 150mm lenses are most commonly used for taking close-ups with the Hasselblad system; but close-ups can also be taken using even longer focal length lenses. Such lenses provide an increased working distance which is particularly useful when taking timid subjects such as insects and

birds. They also give a different perspective, because the angle of view decreases with an increasing focal length.

As well as describing the different Hasselblad close-up accessories available, this booklet provides some tips for imaginative lighting for taking close-ups.

Close-up subjects

Possible subjects for close-up photography abound. Even though one of the advantages of taking close-ups is the limitless scope; each photographer will tend to develop a personal interest in a particular subject. This may arise from combining photography with another pastime

Marine tropical fish make colourful and challenging close-up subjects. High definition pictures are achieved with slow speed film and electronic flash. Hasselblad 500 C/M, 80mm lens with 32mm extension.





or purely by chance as a collection of close-up photographs gradually accumulates. One of the most popular arenas is the world of nature, encompassing flowers, fruits, insects, fungi, mosses, ferns, leaves, bark, shells and fossils. The home presents endless opportunities for taking creative close-ups of food, jewellery or ornaments; while precise record close-ups can provide permanent evidence for the scientist. The ability to see and to isolate close-ups among the plethora of shapes, colours and patterns which surround our every day lives comes with practice. Using a magnifying hand lens helps to develop a more acute eye for detail and generally to become more observant of surroundings which can so often be taken for granted.

Getting in close

The closest range a standard 80mm lens can be sharply focused is 3 feet (0.9 metre). Moving the camera in closer simply results in a defocused and unsharp image which can clearly be seen on the viewfinder. However, the Hasselblad close-up accessories enable a sharp image to be achieved at close range. The single lens reflex system with the large screen allows for precise focusing and framing of close-up pictures. The adaptable Hasselblad system, notably the interchangeable film magazines, enables the effects of a new lighting set-up to be checked with a Polaroid print beforehand. Also, the same subject can be taken on both colour and black and white film simply by changing the film magazines.

Close-up lenses

The simplest way of getting in close is to attach a close-up lens to the front of the prime camera lens, so that the

focal length of the lens is reduced. The main advantages of close-up lenses are their small size, light weight and the fact that they do not reduce the amount of light passing to the film plane. However, they provide the opportunity for taking only moderate close-ups.

The Hasselblad system offers close-up lenses or Proxars in three different focal lengths—0.5m, 1.0m and 2.0m. The 60 series Proxars can be used with any CF lens with 60mm accessory mounts:

- 80mm Planar CF
- 100mm Planar CF
- 150mm Sonnar CF
- 250mm Sonnar CF
- 120mm Makro-Planar CF
- 135mm Makro-Planar CF

Proxars are also available for use with C lenses with 50mm accessory mounts.

A Proxar can be used individually or in combination with any other Proxar. The shorter the focal length, the greater the magnification, thus a 0.5m lens will provide a greater magnification than a 2.0m lens. If all three Proxar lenses are used with the 80mm Planar, the lens-to-subject distance (with the lens focused at 3 feet or 0.9m) is 88mm giving a reproduction ratio of 1:2.5. This magnification can also be achieved by using extension tubes.

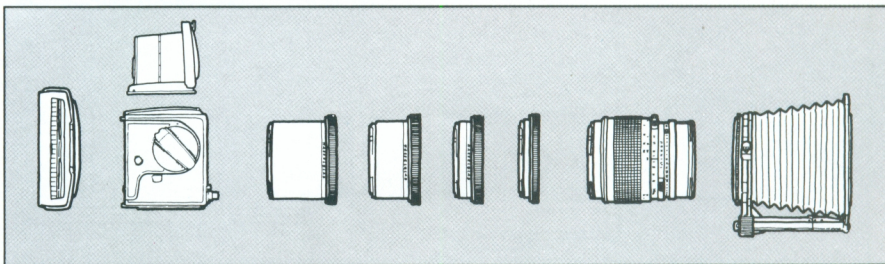
Extension tubes

The most popular close-up accessories are extension tubes, which



Proxar lenses allow close-ups to be taken of larger subjects. Here, the golden reflection of direct sunlight on an ornamental cherry tree trunk highlights the shiny surface. Hasselblad 500 C/M, 80mm lens with 1.0m Proxar lens.

Studio photographs right such as this underside of pearl-bordered fritillary wings taken with bellows can reveal detail invisible to the naked eye. Hasselblad 500 C/M, 80mm lens on a full bellows extension.



allow for greater magnification than with close-up lenses. They are fitted (individually or in any combination) between the camera body and the lens and they enable all the automatic functions of the camera to be utilised. The automatic diaphragm remains open—providing maximum illumination for focusing on the viewing screen—up until the shutter is released. It then automatically stops down to the preselected aperture. Fixed length extension tubes are available in four different sizes—8mm, 16mm, 32mm and 56mm. The greater the extension, the larger the magnification, but since any extension tube extends the lens-to-film distance it also reduces the amount of light reaching the film.

Extension tubes can be used with any of the CF, F or C series Hasselblad lenses, including wide angle and tele lenses, although the 8mm extension tube cannot be directly connected to the 2000FCW or 2000FC/M camera bodies. The nomograms at the rear of this booklet clearly show the magnification when a given extension is used with each lens. Thus, a life size magnification can be achieved using 56+16mm extension and a 80mm lens; whereas a magnification of 0.5 is gained using the same extension with a 150mm lens.

The variable extension tube 64—85 provides a continuous variable extension from 63.5—85mm. It can be used on its own, with other extension tubes or with bellows. The advantage of this tube is that it saves time having to adjust the combination of extension tubes to ensure the subject fills the frame. It can also be used to focus the camera. When used with the 135mm Makro-Planar CF lens it

provides a continuous focusing range from infinity to 1.15m.

Bellows

Like the extension tubes, the automatic bellows extension is inserted between the camera body and the lens. It provides a continuous variable extension from 63.5—200mm, thereby giving a greater magnification than any fixed length extension tube and considerably more than the maximum extension of the variable extension tube. Greater magnifications can be gained by increasing the extension still further by adding one or more extension tubes to the bellows.

When the bellows is used with the 135mm Makro-Planar CF lens it is possible to focus the lens anywhere between infinity down to life size (1:1). When coupled to the 80mm Planar CF lens and fully extended, the bellows gives a magnification of $\times 2$.

A bellows unit is essential for the enthusiastic close-up photographer wanting to record subjects at greater than life size. Since the fabric bellows has two rack and pinion systems. The upper one alters the amount of extension by extending or contracting the bellows, so that each particular subject can be precisely framed. The lower one is used to move the entire camera towards or away from the subject after the magnification has been predetermined. This is particularly useful if a series of photographs are required all of the same magnification.

Exposure increase

When extension tubes or bellows are used, light passing through the lens has to cover a larger distance to reach

the film plane. Since light intensity decreases with the square of the distance an increase in the exposure is necessary. The correct exposure when using extension tubes or bellows can be metered through the camera using the meter prism. Without the meter prism, the exposure increase will have to be calculated using the amount of extension in mm and the focal length of the lens in the following formula:

$f/\text{number to be used} =$

$\frac{\text{aperture taken from light meter reading} \times$

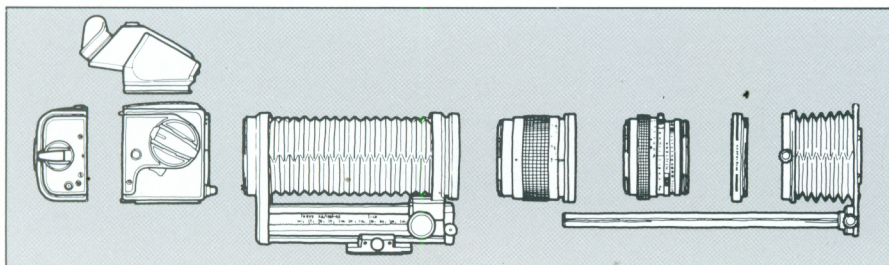
$\frac{\text{focal length of lens}}{\text{focal length of lens} + \text{extension}}$

For example, if 56mm+32mm (88mm) extension is used with a 80mm lens, and the light meter gives a reading of 1/60 second f/11, either the iris diaphragm needs to be opened up by two stops (to f/5.6) or the shutter speed lengthened by two stops (1/15 second.)

$$(f = 11 \times \frac{80}{80 + 88} = f/5.2 \text{ (approx } f/5.6))$$

Depth of field

When a lens set at the maximum aperture is focused, the image becomes sharply defined in a single plane of focus. As the lens is stopped down to successively smaller apertures, the image becomes sharply defined both behind and in front of the original plane of focus. This can be seen by direct viewing through the camera when the depth-of-field preview catch at the side of the lens is depressed, and the aperture ring is quickly moved backwards and forwards. Once the correct exposure has been set, the depth-of-field can always be checked by depressing the



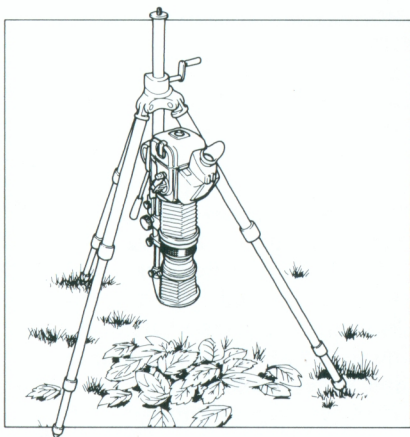
A tightly cropped head-on close-up of a pearl-bordered fritillary shows the compound eyes and coiled proboscis. Hasselblad 500 C/M, 80mm lens with bellows extension.





When a long lens is used with extension tubes the working distance is greater than with a standard 80mm lens. This allows a better chance of stalking insects. Here a bumblebee forages on a poppy flower early in the morning. Hasselblad 500 C/M, 150mm lens with 32mm and 8mm extension.

The camera mounting on the tripod was reversed so the film plane was parallel with the ground for this overhead view of fallen maple leaves taken in New England. Hasselblad 500 C/M, 80mm lens with 16mm extension.



preview catch before the exposure is made and, if necessary, changed simply by moving the coupled aperture and shutter speed rings.

In general photography, the depth of field extends twice as much behind the plane of focus as in front, but in close-up photography the depth of field is almost equal on either side of the plane of focus.

Understanding and knowing how to increase depth-of-field is essential for achieving high definition close-ups, since the depth-of-field is considerably reduced as the magnification is increased. This is clearly shown in the nomograms at the back of this booklet, where the depth-of-field is given for each lens set at an aperture of $f/11$.

When photographing a subject lying in a single plane, the depth-of-field problem will be eased by ensuring the film plane is parallel with the subject.

For example, when taking a view of fallen leaves or mosses on the ground, the whole frame can be brought into focus by mounting the camera directly overhead on a tripod instead of at an oblique angle to the ground, and by stopping down the lens to a small aperture.

Differential focus is an effective way of concentrating attention on one particular part of the picture, by deliberately throwing all other parts in front of and behind the focused area, out of focus. This technique is achieved by means of critical focusing as well as careful selection of the aperture.

Backgrounds

The tone, colour or shape of the background should enhance rather than compete with a foreground close-up. Confused backgrounds tend to distract the eye away from the

subject and lessen the impact of a close-up. Depressing the depth-of-field preview catch is an easy way to check how the background will look in the final photograph. Providing the front of the subject is kept sharply defined, the background can be defocused by opening up the lens aperture a stop or two.

If the background appears distracting it can often be changed simply by using a higher or lower camera viewpoint. For example, a tall flower can be taken against the sky by using a low camera angle. A polarizing filter will help to increase the intensity of a blue sky on colour film and of the tone on monochrome film.

Waterside plants can often be taken against a watery backdrop by using a high viewpoint.

A shaft of sunlight backlighting a flower or leaves can highlight the subject against an unlit background.



The type of lighting can alter the mood of close-up pictures. These water lilies were taken within a few minutes of each other. Above lit by diffuse light as a cloud covered the sun, and below by direct back lighting. Hasselblad 500 C/M, 150mm lens and 32mm extension.



Lighting

The mood of a close-up can change quite dramatically with the direction and type of lighting, as can be seen with the pair of water lily pictures. A low angled back light shining through the petals casts a long shadow in front of the flower; while the indirect soft light produced by a passing cloud gives a more even light to both the petals and the stamens as well as creating a silvery sheen to the water surface.

Available light will provide the most natural lighting to an outdoor subject; but on an overcast day it can prove impractical to take an active insect with a slow speed film.

Direct sunlight shining very early or late in the day not only produces long shadows but also an unnatural colour cast which is not suitable for lighting close-ups. Otherwise, available light can be used at any time—including the middle of the day—when the lighting is not ideal for taking landscape photographs. Side lighting gives a better depth and modelling to a subject than is possible with frontal lighting. An extreme kind of side lighting—known as grazed lighting—is useful for enhancing the textured surface of stonework, basketwork, bark or encrusting lichens, by highlighting the raised parts and casting shadows in the sunken pits and cracks. If the sun is not at a suitable angle, flash can be substituted by holding it on a level with the subject so that it shines across the surface.

Any plant with a hairy or spiny stem or leaves, fluffy seeds or translucent petals or leaves can be dramatically lit if it is photographed against the light. Such backlit pictures are often very striking, but care must be taken to make sure that the sun does not shine directly into the lens, thereby causing flare. The professional lens shade is particularly useful for taking backlit pictures.

If the available lighting is not doing justice to the subject an inexpensive accessory may solve the problem. For example, conspicuous shadows can be eased by using a reflector to bounce some light back onto the

unlit side of a static subject. White card, aluminium cooking foil—or even a fairly new Hasselblad dark slide—can be used as a miniature reflector. A small handbag mirror or a dentist's circular handled mirror can be useful for directing light into the centre of a deep-throated flower. When working in a forest, shafts of light pierce the overhead canopy to reach the forest floor. These shafts move with the sun, but a large reflector can help to boost the light under these conditions by as much as one stop.

Mobile close-up subjects generally require a good level of light so that the action can be frozen with a fast shutter speed coupled with a relatively small aperture for reasonable depth of field.

Flashlight

When using fine grain, slow speed films the available light may not always be sufficient for stopping down the lens when taking close-ups. The light intensity can then be boosted—and the depth of field increased—by using flashlight. Flash can also be used to freeze movement, to photograph nocturnal animals or to light dark locations such as a cave. All the series C and CF lenses can be synchronised with flash at any shutter speed. This is particularly useful when flash is balanced with sunlight (instead of being the prime light source) to take a moving subject; for if a slow shutter speed is used on a bright sunny day, a ghost image can appear as the subject continues moving after the flash is fired.

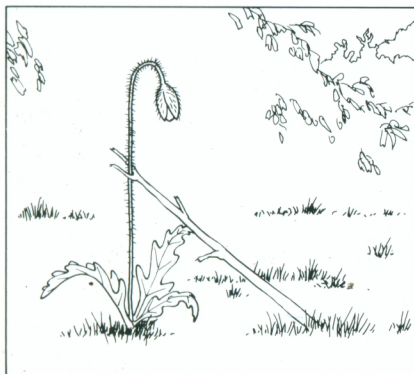
Close-ups can be frontally lit by means of a single flash head mounted beside the camera lens, but it is well worth experimenting with several flash heads to produce more imaginatively lit close-ups. The macro flash unit is particularly useful for taking close-ups of insects on flowers. When stalking insects in the field it is most convenient to

Grazed lighting — an extreme kind of side lighting — emphasises the texture of the mosses and stones in a courtyard garden. Hasselblad 500 C/M, 80mm lens and 8 mm extension.





A plant clamp or prop can be used — outside the field of view to stop a long stemmed plant blowing in the wind. Hasselblad 500 C/M, with 80mm lens and 16mm extension.



move around with the camera and flash as a single unit. This can be done by mounting the two flash heads onto a macro flash bracket attached to the front of the lens via a lens mounting ring. This bracket has three flash shoes, one on top and one on each side. If the macro flash unit is connected to the Hasselblad 500ELX motorized camera via the flash adaptor SCA390, the flash output is automatically controlled through the lens. Reflectors can be used to advantage for flashlit photographs especially to illuminate shadow areas created by using a single flash head.

Perhaps the best way of getting to know the scope and potential of using flash for close-ups is by working in a studio with static subjects. The experience gained from this exercise will prove invaluable when working in the field with mobile subjects.

Looking at nature

The natural world has for a long time attracted both still and movie cameramen. The natural annual cycle of activity and growth offers ever-changing, charming close-up cameos. The intrepid wild-life photographer will spend hours waiting for an animal to adopt an interesting behavioural stance; while shape and form or the interplay of light and shadow will inspire a pictorial approach.

Flowers

Flowers—both wild and cultivated—are undoubtedly one of the most popular close-up subjects. They occur in an infinite range of shapes, sizes and colours, and if cut flowers or pot-plants are also included, they can be taken during every month of the year. Persistent rain damages and discolours petals, so that if bad weather is forecast it is worth protecting or picking perfect garden blooms.

The greatest challenge to the plant photographer though, is to spend time and energy seeking and recording flowers *in situ* growing in remote locations such as deserts, mountains or in the heart of a

tropical rain forest. The habit of the plant itself will determine the camera angle. For instance, a prostrate ground plant covered with tiny flowers is best taken from above; while an elaborate orchid should be viewed looking into the heart of the flower. If there is an intermittent breeze it is worth setting up the camera on a tripod and waiting for a lull before exposing any film.

Tall stemmed flowers invariably move incessantly, unless a plant clamp is used to secure the stem beneath the flower head outside the field of view. A clamp can be made. Subtle texture on white or pastel coloured flowers becomes lost in direct light, so that they are better taken on a day with a light cloud cover, or by using a sheet of muslin to diffuse and soften the direct rays of the sun. Plants with small yellow or green flowers, including many grasses, are difficult to isolate from a background of mixed grasses. They can be isolated, however, by using a combination of light and shadow. If a flash is used to light the foreground plants and the background is not too close, the rapid fall off in the intensity of the flash will result in an unlit background. The same effect can be achieved by using a person or an object to cast a shadow behind a sunlit plant.

If water lilies or other aquatic plants are blooming in the centre of a pond beyond the range of a standard lens with close-up accessories, they can be taken using a long focal length lens with extension tubes. Longer lenses are also useful for taking close-up portraits of flowers at the back of a herbaceous border or of tree flowers high above the ground. Floral portraits in the studio can include impact close-ups using the bellows extension, still life arrangements of flowers or parts of flowers and time lapse studies of flowers opening. Completely translucent flowers or petals separated from a dense flower head can be

The spines of a cactus in the Galapagos dramatically lit from behind by a low-angled evening sun. close-up, 150mm lens and 8mm extension.





photographed by laying them onto a special curved opaque light table. Such a table allows light to pass through it from below without causing flare on the lens.

If a flower opens fairly quickly, a series of frames can be taken using the intervalometer III to trigger a 500EL/M camera, at intervals from 2 sec. to 14 min; but if it takes several days for the flower to open the camera will have to be manually triggered. The Hasselblad is an ideal camera for taking multiple time lapse photographs on a single frame, since by removing the film magazine, the shutter can be recocked without advancing the film. To aid composition of a multiple image close-up, the precise position of the flower at each exposure can be marked on the viewfinder screen with a Chinagraph pencil.

Leaves

For most of the year leaves pass unnoticed and it is only when deciduous trees turn attractive hues in autumn that photographers begin to consider them as potential close-ups. Yet leaves are well worth a closer look at other times of the year: in spring, new leaves unfurl from overwintering bulbs or winter buds; by summer they have opened out to form distinctive leaf mosaics against

Long focus lenses with extension tubes, bring inaccessible subjects — such as overhead branches — within the close-up realm. Hasselblad 500 C/M, 150mm lens and 32mm extension.





the sky, while a few persistent leaves can often be found etched in hoar frost in winter.

Lenses with a focal length of 150mm or 250mm used with extension tubes will help to make tree leaves more accessible for close-ups and autumnal leaves are particularly striking when they are photographed backlit by sun against a blue sky. When light shines through translucent leaves it not only highlights their colour but also defines their shape. Even when leaves have fallen to the ground they still present opportunities for close-up pictures, often contrasting well with the sombre tones of a forest floor, a lush green lawn or an urban pavement.

Textured leaves provide good close-ups for both colour and black and white films. The optimum lighting angle for emphasizing texture will depend on the orientation of the leaf itself; but light shining across the textured surface will be preferable to an overhead source. However, direct light—whether it be sun or flash—on shiny leaves will produce reflective highlights. If these prove to be rather distracting, they can be reduced by diffusing the light with a sheet of muslin between the sun (or flash) and the leaves.

Insects

Among the world of animals, insects are most popular for close-up subjects. This is not surprising, for they are the most abundant group of animals; although only a small proportion of them would be considered photogenic—notably exquisite and



* As a pickerel frog surfaces to breathe in an aquarium it demonstrates its amphibious habit. Hasselblad 500 C/M, 80mm lens and 16mm extension.

A tropical plant was used as a natural background for this colourful South American arrow poison frog. Hasselblad 500 C/M, 80mm lens, 32mm and 8mm extension.

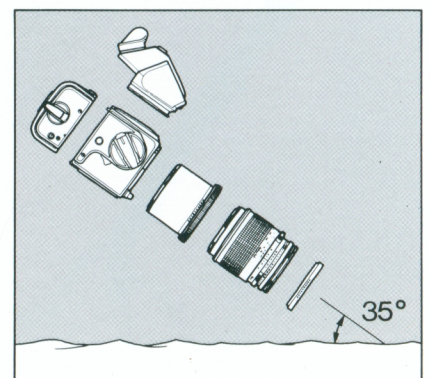
often highly coloured butterflies, moths and dragonflies, bizarre bugs and beetles. Active insects which flit from flower to flower are difficult to photograph in the field without flashlight. The twin flash set-up described on page 9 is ideal for photographing hairy subjects such as bees, flies, butterflies or moths, but the flashlight will be reflected from glossy bodied ants and termites, or beetles with shiny wing cases. Overexposed highlights can be reduced by bouncing the flash off a flash umbrella or by covering the flash windows with a diffuser. The complete life cycle of a butterfly or moth provides an interesting series of close-ups. A bellows extension will reveal the surface detail of the eggs, but by the time the caterpillars are fully grown or the adults have emerged, they can be taken with extension tubes. Dramatic close-ups of insect heads are easier to take in the studio, where the lighting and backgrounds can be controlled.

Amphibians

Frogs and toads are larger than most insects and so require less extension to fill the frame. Since amphibians tend to congregate at water to breed, this is a particularly convenient time to find and photograph them. Head-on portraits emphasizing the bulbous eyes are especially appealing. Many frogs and toads are nocturnal and so have to be stalked at night using a torchlight to focus the camera and flash to light the picture. If the surface of a calm pond is photographed against the light so that the skylight is reflected as a silver sheet, it obscures everything beneath the surface to form a simple natural background to an emerging frog or toad. However, frogs, toads or fish beneath the surface, will not be clearly visible unless the surface reflections can be eliminated. This can be done by placing a polarizing filter on front of the camera lens and rotating it until the reflections disappear from the viewfinder. This

results in a darkening of the water and also an increase in the colour intensity of shiny floating leaves. A polarizing filter is most effective when the camera is held at an angle of approximately 35° to the water.

Diagram showing correct camera angle for through-water photography with a polarizing filter.





Birds and mammals

Small birds and mammals need to be photographed with some close-up accessory, if they are to fill the frame. If small nesting birds are photographed from within a hide, a long focal length lens can be coupled with some extension. Birds' nests are also suitable for close-up subjects. Small mammals can either be taken in the wild by using bait to attract them to an area where a broken light beam or a mechanical trip automatically triggers the camera; or in a vivarium indoors.

Studio close-ups

The simplest way of taking close-ups indoors is by working in a conservatory or a sun-room where the natural light can be used. Pot plants—or any flowers—are often easier to take in these wind free conditions. Fruit and shells can also be taken using natural light indoors, although spotlights or narrow-beamed flashlights can provide more dramatic lighting for still-life close-ups. Flash is ideal lighting for taking fish swimming in aquaria and for arresting any action close-up.

Aquaria

Successful close-ups of life in an aquarium can be achieved only if the front glass of the aquarium has no algal growths or scratches. For this reason, glass tanks are preferable to Perspex ones which easily scratch. A tropical freshwater aquarium attractively planted with water weeds provides a perfect setting for taking close-ups of freshwater tropicals. If there are distracting objects outside the aquarium visible through the rear glass, weeds can be used to provide a naturalistic background, otherwise a uni-toned board can be inserted. When a cold water aquarium is first set up in a warm room, condensation will develop on the outside glass walls, making photography impossible until the water warms up. Similarly, if a cold camera is brought into a public tropical aquarium, condensation develops on the lens and the viewfinder. A steamed-up lens functions like a soft focus filter and

Considerable patience is required before several large fish swim into an harmonious composition. Hasselblad 500 C/M, 80mm lens and 32mm extension.

can produce creative but unrealistic images. To prevent condensation on a lens, the camera either needs to be warmed up beforehand or else kept in the aquarium room for half an hour.

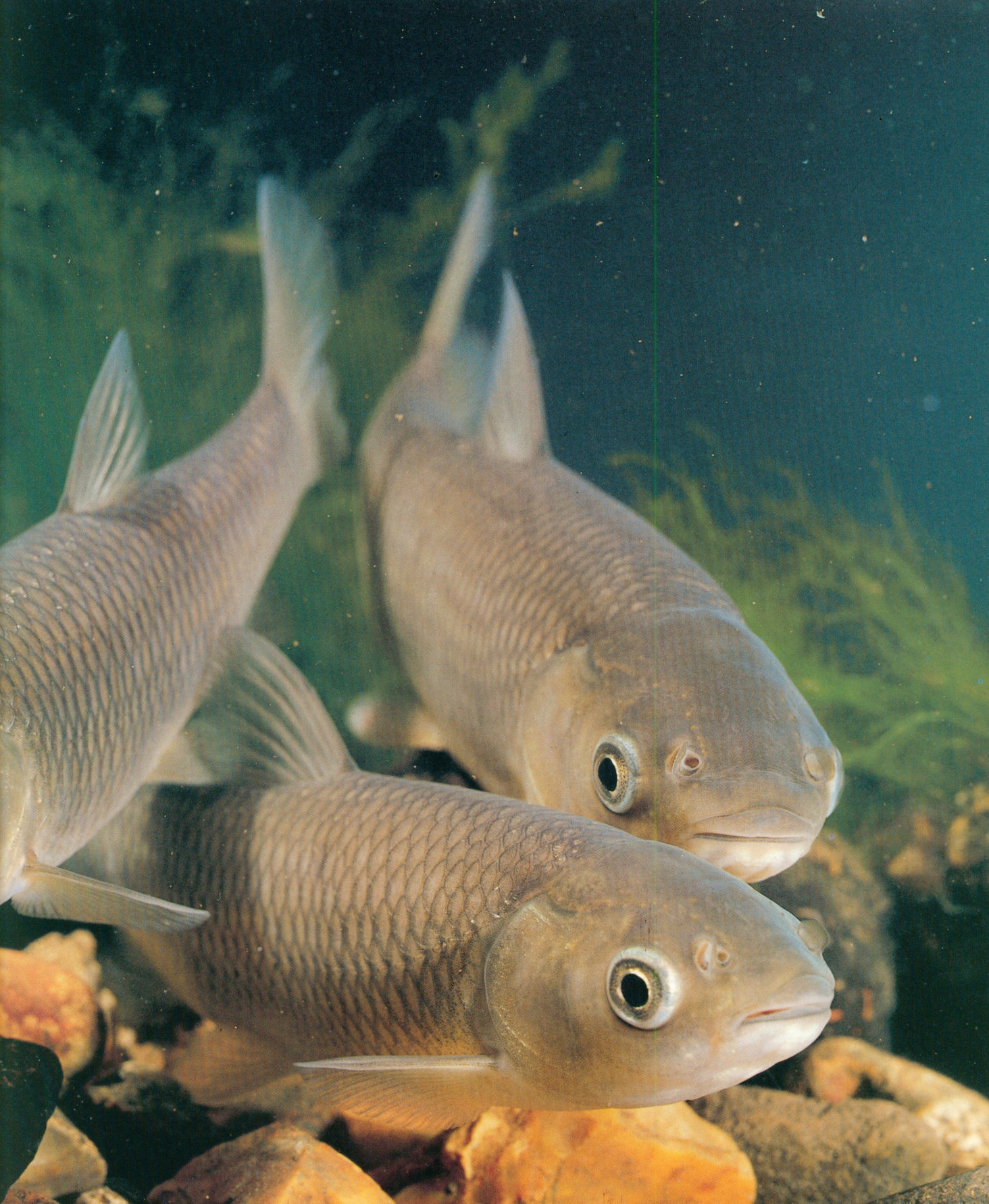
Photoflood lights are not suitable for photographing cold water aquatic life since they generate too much heat. The most convenient light source is electronic flash which emits heat for a very short duration yet arrests aquatic life in motion. If a flash is positioned above the aquarium it most closely simulates natural sunlight, but two flash heads offer greater flexibility. For example, one can be directed in through each side wall; or one through a wall and the other through the front glass. Providing the background area behind the aquarium is not illuminated and there is no solid background, a flash can be directed through the back glass to backlight fish.

When photographing through the front glass, the angle of the flash heads is quite critical; for reflections of the lights will appear in the front glass unless the lights are positioned well to either side of the camera at an angle of about 45° to the glass.

Reflections of the camera, tripod or hands in the front glass can be eliminated by attaching a 20cm square matt black board, with a central hole cut out for the lens, to the front of the camera.

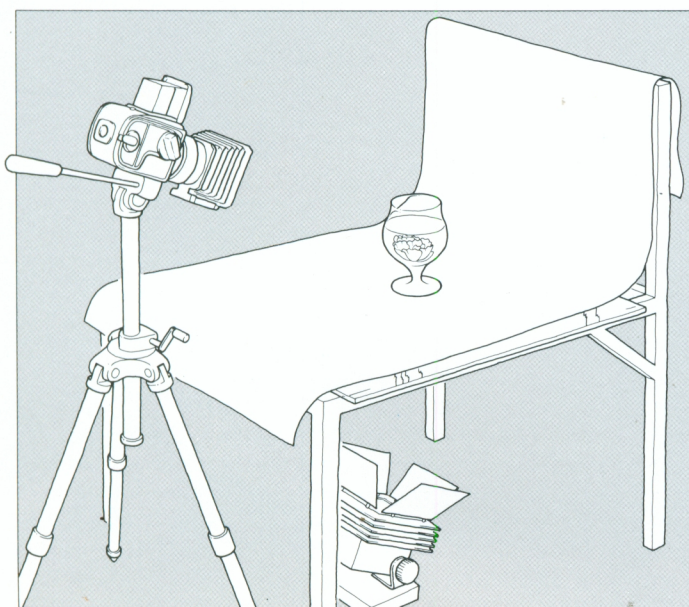
The correct exposure for aquarium photography with flash will have to be determined by taking a range of bracketed exposures and keeping notes. The variables which affect the exposure include film speed, flash guide number, magnification, flash-to-subject distance, size of the aquarium and tone of both subject and background.







Wine glass containing water and an artificial flower, photographed by indirect lighting using a light table. Hasselblad 500 C/M, 150mm lens and 16mm extension.



Jewellery

There is no standard type of lighting which is adequate for photographing all kinds of jewellery; each piece must be carefully appraised before the lighting is selected. If a brooch is rotated beneath continuous light sources, the highlights and shadows can be seen. Faceted gem stones have to be lit with great care, otherwise some light will be reflected back towards the camera. This can be overcome by using indirect bounced lighting, by shining lights through a white translucent light tent or by enclosing the light source in a light box so as to produce a soft light effect, but all these techniques will also tend to reduce the natural sparkle of the gemstones.

Jewellery can either be photographed on a person, on a fabric or any background which complements it. Bare skin sets off necklaces and rings well; whereas brooches have to be pinned to fabrics—which can be especially effective if they are loosely folded. If a coloured background is used for photographing transparent gemstones, it will be visible through the stones unless a small piece of white paper is fixed to the back of each gemstone.

Glassware

Transparent glassware both reflects and refracts light. Any shiny rounded parts therefore act like mirrors bouncing any direct light straight back towards the camera. The best way to light glassware is therefore by indirect means.

If clear glass is arranged against a white background, the outline can be defined as a silhouette; alternatively if it is taken against a dark background the glass profile can be lit so it is outlined in white. A light background can be created by lighting white seamless paper placed behind the glassware. A curved opaque table makes a convenient method of lighting glass indirectly against a pale background, for the glassware is arranged on the table which is lit from below. A cheaper substitute is a piece of translucent acetate sheeting curved up behind



A cut red cabbage provides an intriguing pattern picture of food preparation. Hasselblad 500 C/M, 80mm lens, 56mm and 8mm extension.

the glassware supported on a sheet of glass.

High quality uncrushed black velvet makes a good dark backcloth for the studio, since it reflects no light. When used for glassware the lights are directed in at an angle between the glass and the background. The white outline of the glass can be enhanced by placing a piece of white card in front of the glass outside the field of view.

Additional colour can be added to clear glass simply by pouring coloured liquids into the glasses.

Food

Close-ups of food range from freshly picked fruit or nuts to sectioned fruit, drinks and carefully prepared dishes. However simple or complex the subject, the essential criteria are to make cold food look deliciously cool and hot foods piping hot. This means that many prepared dishes have to be photographed very quickly so that the lighting needs to be set up and checked beforehand.

Direct lighting is also unsuitable for lighting cutlery or silverware. A studio flash light fitted with a large light box produces a soft diffuse light and if it is positioned overhead it can light the food from directly above. The large area of light then gives good even illumination of both the subject and the background, which can be checked using the modelling light built into the flash head.

When water is sprayed onto fruit to make it appear fresh, it quickly evaporates under the studio lights. But if it is mixed with glycerine the water drops will last longer.



Creative close-ups

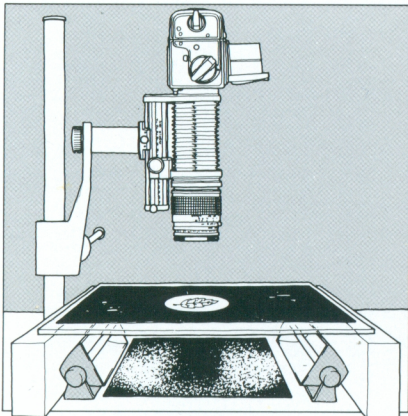
The studio also offers great potential for taking more creative close-ups either by getting in so close to a subject that the original form is lost so that it becomes an abstract; or the precise form or colour becomes altered.

Patterns and designs

Regular natural patterns based on the circle or the polygon abound in the natural world. Radially symmetrical flowers include daisies and dahlias, while the tentacles of sea anemones and the arms of a starfish radiate out from a central mouth. The square format of the Hasselblad is particularly well suited for filling with any radially symmetrical object, including wheels, plates and glasses. Honeycomb repeats a regular polygonal pattern, which also occurs in the seeds of corn-on-the-cob. When identically sized and shaped objects are grouped tightly together they naturally form their own packing pattern. Abstract designs are perhaps not so readily seen as potential close-ups and their success—like all pattern and design pictures—depends so much on the magnification and framing selected.

To take this view of a dahlia sea anemone left with outstretched tentacles, the camera had to be mounted directly over the aquarium. Hasselblad 500 C/M, 80mm lens and 56mm extension.

The delicate tracery of veins in a leaf skeleton are revealed when lit from below by dark field illumination. Hasselblad 500 C/M, 80mm lens with bellows extension.



Long exposures

If a coloured spinning disc or child's top is photographed using a slow shutter speed the separate blocks of colour blend into one another. Moving water can be most effective when it is photographed using a long exposure of at least 1/2 second, so that it appears as soft blurred lines instead of as a sharply defined frozen moment of time. If fireworks or sparklers are photographed using a long exposure, they appear as coloured radiating lines.

Adding colour

The colour of the light source can be changed by taping a coloured gelatin filter over the window of a small flash gun or by inserting a coloured glass filter in front of a continuous light source which emits heat. Coloured lights can be used to alter the colour of a unitoned subject, or to add colour to a white background. Solid subjects with an irregular outline take on a new dimension when they are rimlit with coloured light. Similarly, lights of two different colours from different angles can be used to highlight texture, especially if each surface reflects only one of the lights.

Dark field illumination

Dark field illumination is a technique used to illuminate studio subjects from below, so that they are brilliantly lit against a dark background. In this way, every detail of hairy or spiny-edged subjects is revealed, and the internal structure of translucent subjects becomes apparent. Static subjects can be lit with tungsten halogen miniature spot lamps; whereas moving subjects will need to be lit with electronic flash. A piece of clean glass, large enough to cover the lights beneath it, is raised about 6 inches above a black velvet background.

A dry subject can then be laid directly onto the glass, or small aquatic organisms placed into a shallow glass dish on the glass sheet. Two or more lights are placed beneath the glass so that they are angled up towards the subject—outside the field of view. A mask of matt black paper, with a central hole slightly larger than the field of view, needs to be placed on top of the glass so that all direct light rays are screened from the camera lens, yet the subject is lit by rays refracted by it.

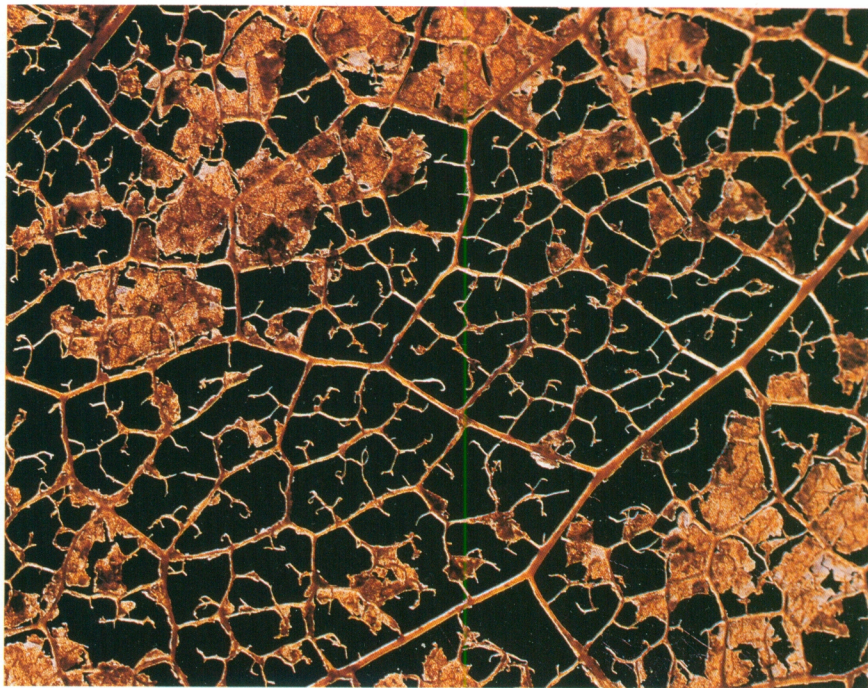
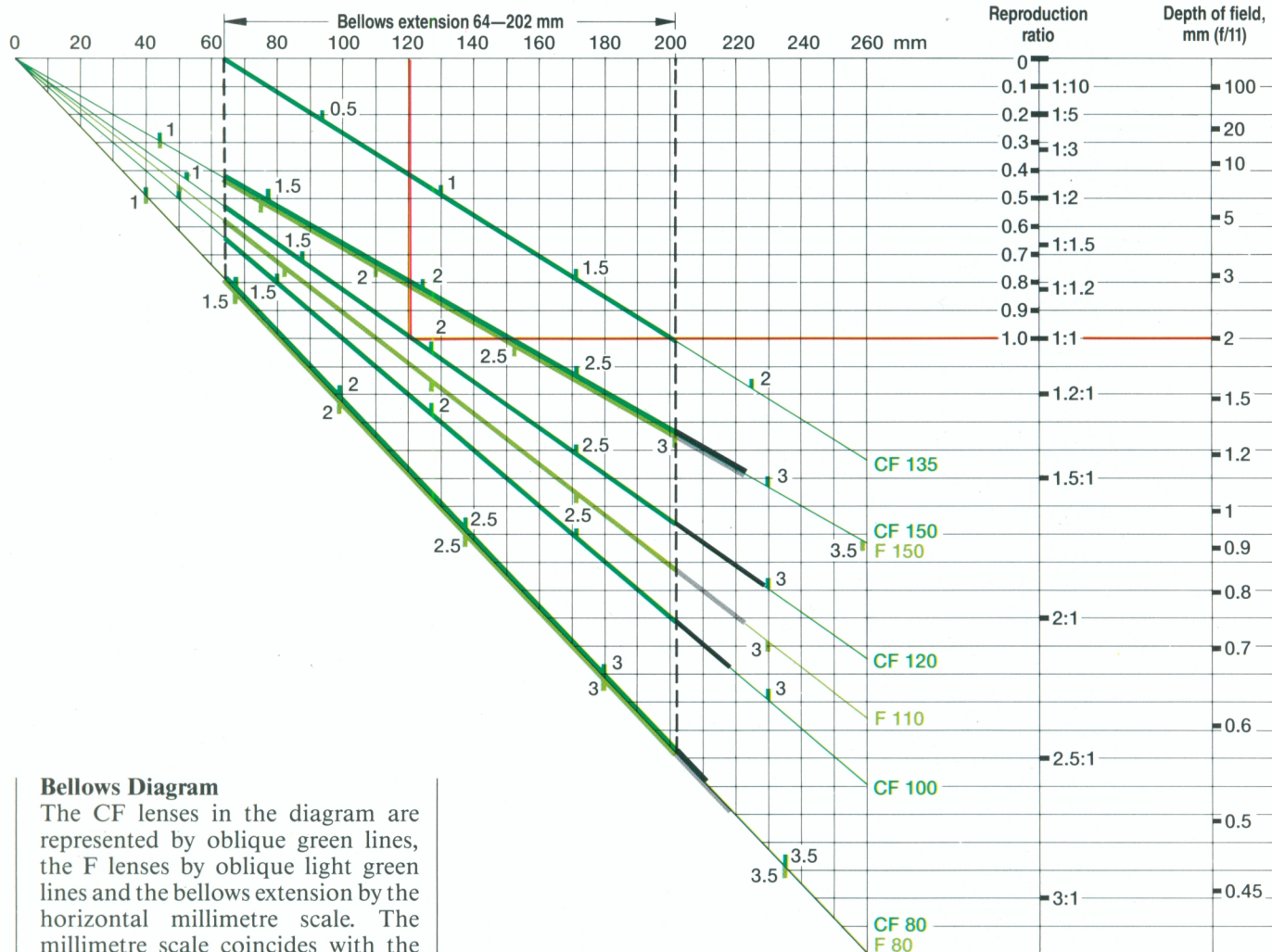


Diagram for bellows extension

Exposure value
reduction in stops

2.5

B + CF
B + F



Bellows Diagram

The CF lenses in the diagram are represented by oblique green lines, the F lenses by oblique light green lines and the bellows extension by the horizontal millimetre scale. The millimetre scale coincides with the bellows only when the lens is focused at ∞ . The lens's own extensions can be used in addition to those of the bellows. These are indicated in the diagram by black and grey dashes of the slanting lines respectively. Light value reduction in stops is noted with green and light green markings and numerals.

Example: The example is designated by a bold red line in the diagram and assumes the use of a 120mm f/5.6 S-Planar CF lens and 120 mm (4 3/4 in) of extension.

Follow the vertical black line down to the green CF 120 line and then across to the right. This leads you to the following values: light value reduction 2 stops, reproduction ratio 1:1,

depth of field at f/11 approx. 2 mm (0.080 in).

Close-up Nomograms

The Hasselblad nomograms are an excellent aid to making a rapid assessment of which close-up accessory, or combination of accessories, can be used with which Hasselblad lens.

In the nomograms the applications for each accessory are indicated by colored horizontal lines with a different color for each accessory.

The lens' own extension is indicated by a solid black line. For CF and F lens focal lengths the lines have dif-

ferent shades of color depending on the lens used.

(See legend at the top of the nomogram!)

At the top and bottom of the nomograms are scales showing the maximum size of the subject, extension, depth of field at f/11, exposure value reduction and degree of magnification.

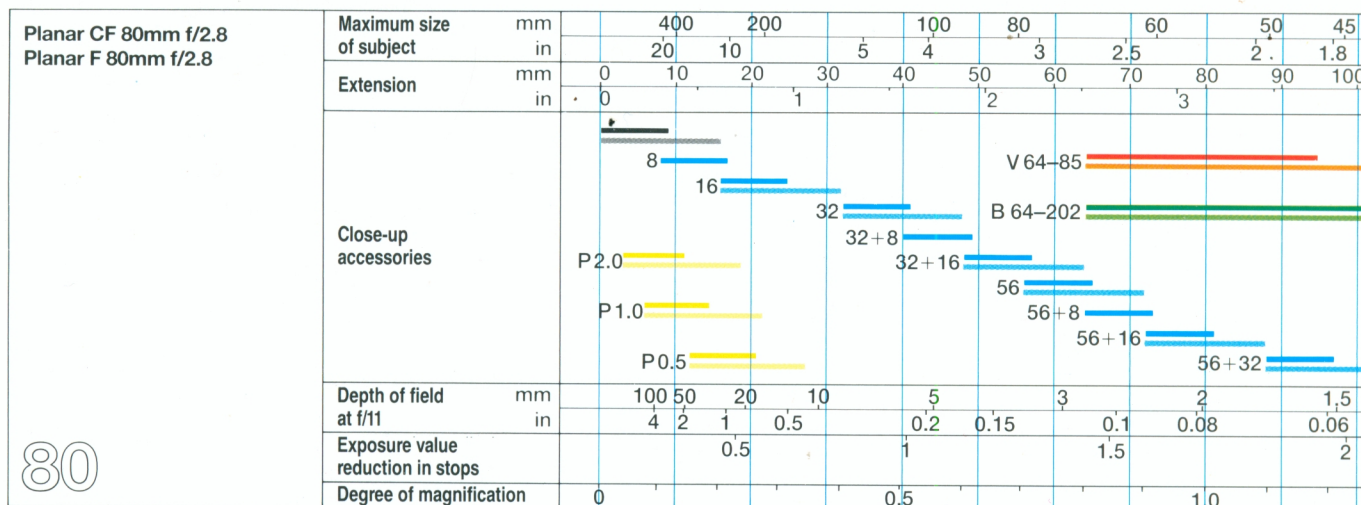
The nomogram should be read vertically, up and down.

Using the nomograms:

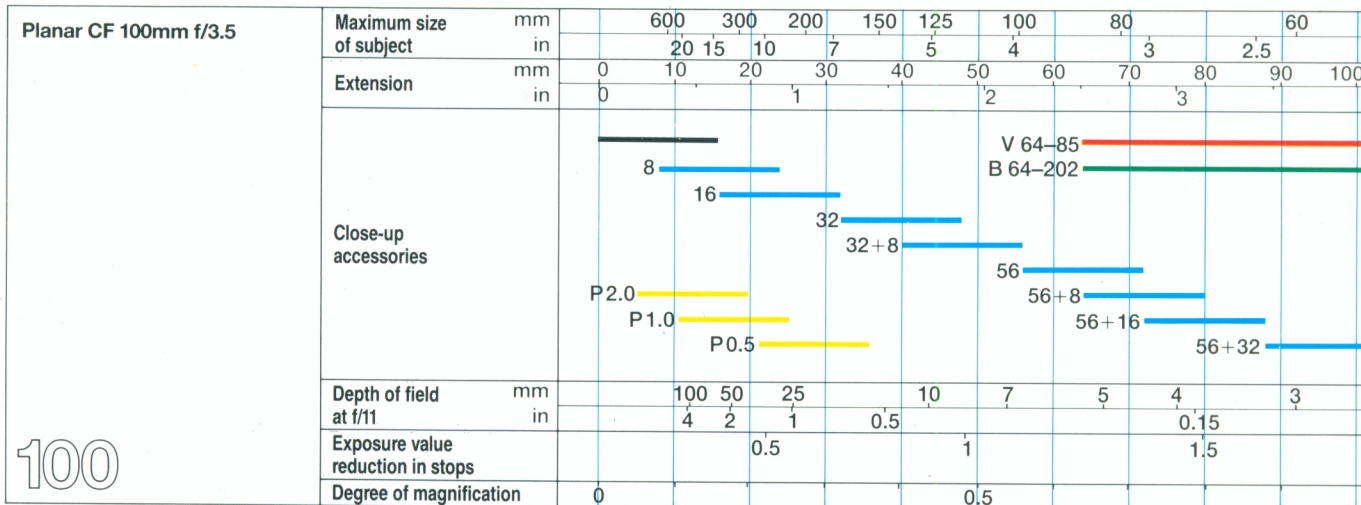
1. Measure the longest side of the subject horizontally or vertically i.e. the part of the subject which

Close-up Nomograms

CF Lens Proxars Extension tubes Variable extension tube Autom. bellows extension



80



100

will fill the area covered by the film format (55×55 mm). Example: the measurement is 200 mm.

- Select the nomogram which corresponds to the lens type to be used e.g. 120 mm Zeiss Makro-Planar, and mark the length on the "maximum size of subject" scale.
- Draw a vertical line from this position down through the nomogram.
- By reading off on the scales intersected by the line drawn, the following information is available:

Extension: 32 mm

Close-up equipment required: extension tube 32

Depth of field at f/11: 15 mm

Exposure value reduction in stops: 0.5

Degree of magnification: 0.25

- The nomograms can of course be used from other starting points than the "maximum size of subject".

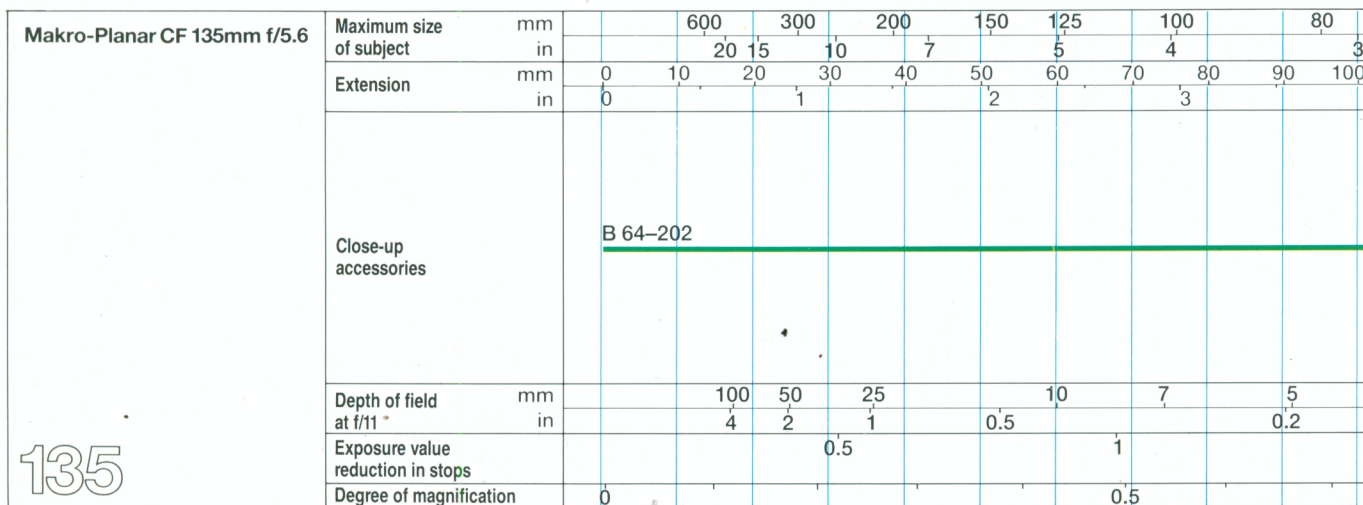
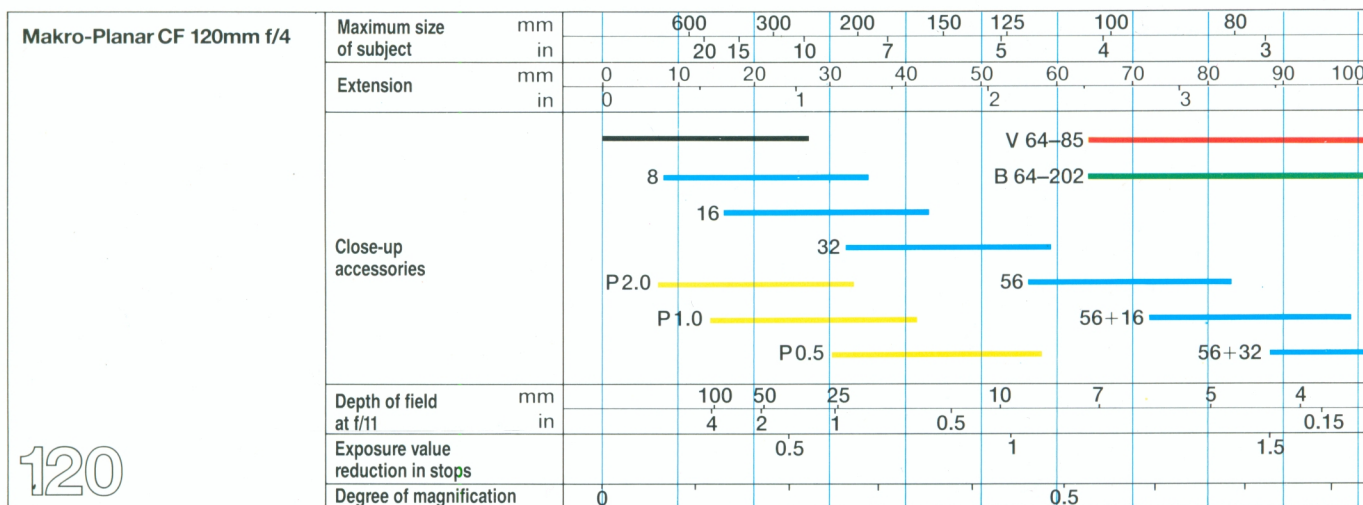
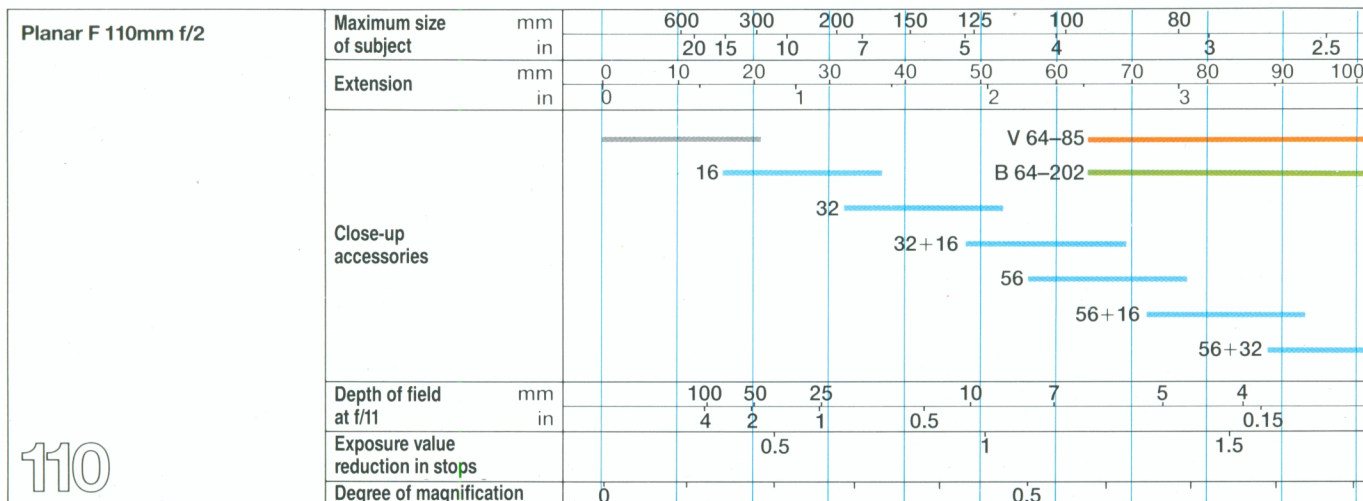
IMPORTANT!

The depth of field is for aperture f/11. At f/22 the depth of field is doubled and at f/5.6 it is halved.

With light values obtained using the camera's TTL system no exposure value reduction is required. The Hasselblad prism viewfinder PME, for instance, or the flash light metering circuitry in the Hasselblad 500ELX would therefore require no exposure value reduction to be made. Since Proxars give no light loss, no exposure value reduction is required when they are used by themselves. Using Proxars creates a new optical system, consequently only the depth of field and degree of magnification scales are relevant. The scale for the maximum size of the subject should be regarded as a guide.

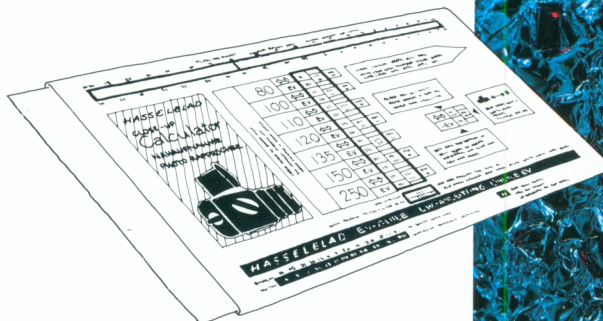
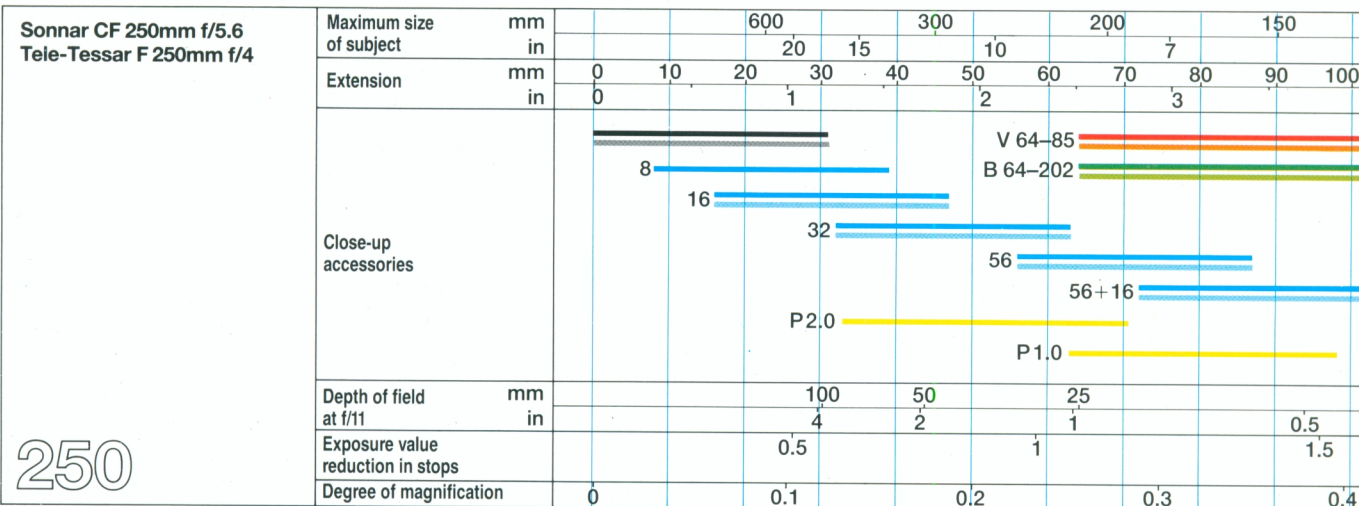
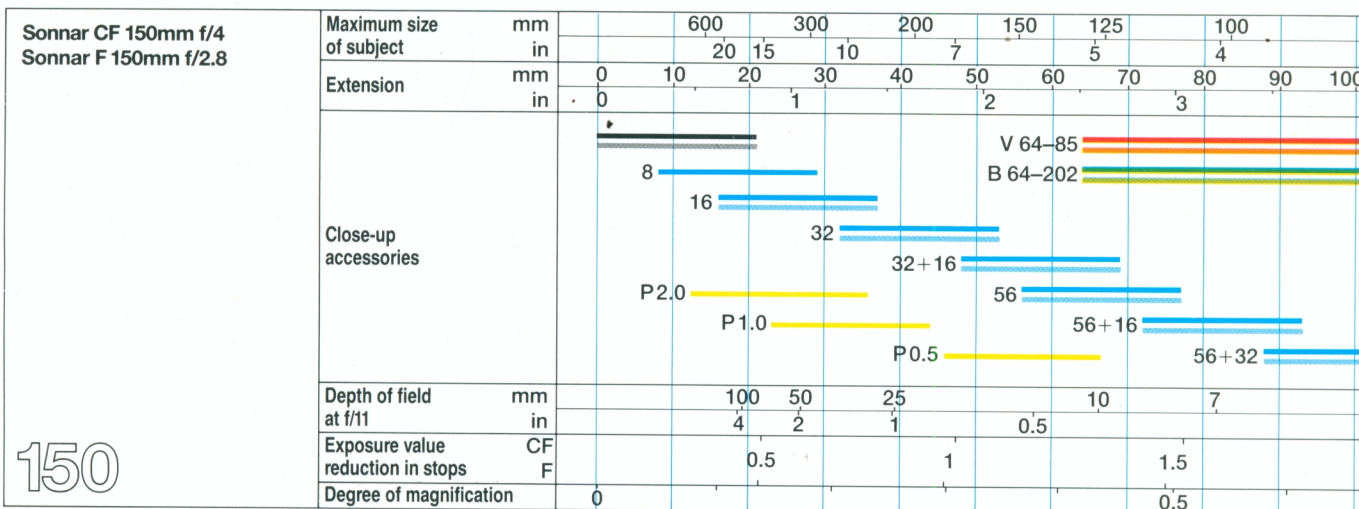
Close-up Nomograms

CF 

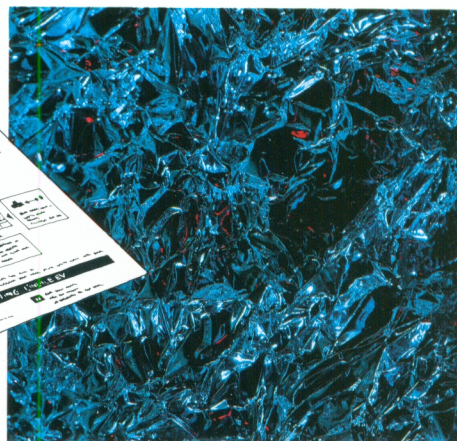


Close-up Nomograms

CF Lens Proxars Extension tubes Variable extension tube Autom. bellows extension



Hasselblad Close-up Calculator is a practical pocket-sized ready-reckoner that gives a quick guide to choosing close-up accessories etc.



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