make the most of your EXPOSURE METER

by Stanley Dixon

Eighth Edition

Published by Dixons in the "Aids to Better Pictures" series

No. 6

FOR QUICK REFERENCE

index

	Page
Correct Exposure	1
Read the Instructions	2
Film Speed	2
Different Systems	2
Speeds Compared	2
Comparison Table	2
Personal Tests	3
Set your own Rating	3
How Meters Work	3
Double Scale Meters	3
How to Read	4
Acceptance Angle	4
Golden Rule	4
Substitute Plan	4
Extreme Contrasts	5
Artificial Highlights	6
Incident Light	6
Low Light	7
Colour Exposure	7
Watch your Improvement	7

DIXON'S "Aids to Better Pictures" BOOKLETS

THIS booklet is one of a series of instructional manuals presented without charge by Dixons to purchasers of photographic equipment.

Our purpose is not only to supplement the sometimes inadequate information supplied by manufacturers, but to make certain that our customers have before them in easy-to-understand form all the necessary instruction to ensure first-class results at once from new equipment bought from Dixons. Many letters on our files show this unique service to be widely appreciated.

Other volumes are: No 1 "Make the Most of your Enlarger," No 5 "Make the Most of your Camera," No 7 "Guide to 8 mm. Movie Making," No. 8 "Electronic Flash Photography," No. 9 "Colour Slide Showmanship."

Dixons

DIXON HOUSE 128-136 HIGH ST EDGWARE MIDDX

MAKE THE MOST OF YOUR EXPOSURE METER

by Stanley Dixon

DON'T tell me—I know. You used to guess all your exposures. You never had any trouble. Your pictures were always pretty good, wonderful in fact. The family and the girl next door often said so.

Then one day you shot those once-in-a-lifetime wedding photos and blandly promised lots of big, lovely enlargements. What went wrong? It was inexplicable, unaccountable, humiliating. Half the negatives were too thin to print, others too dense. You retired for the day to your dark-room before you could face your family again, and the girl next door, too.

So then you decided to buy a first-class exposure meter from Dixons.

And that, if the secret truth were known, is exactly why most other photographers bought an exposure meter.

HERE'S something cute I must tell you at once about photo-electric exposure meters. They have large, very sensitive eyes—but no brains. No brains at all. You have to teach 'em exactly what to look for. I'm writing this booklet to show you how.

CORRECT EXPOSURE depends upon two things (1) the speed or sensitivity of your film and (2) accurate measurement of the light reflected from your subject. The speed of films varies considerably; perhaps you don't know that the slowest ones often require as much as 32 times more exposure *for the same subject in the same light* than the latest super-fast films.

So your first job is to set your new exposure meter to give correct readings for the particular film you intend using. Choose a good film and stick to it. If you can't make up your mind take my advice and settle for Kodak Verichrome Pan. or Ilford FP3.

On the Weston Master-IV there is a tiny window showing the film speed: after pressing a catch you rotate the dial until the required speed appears in the window, and readings will then be right for films

YOU couldn't take a direct meter reading of this "fast" young lady! But the "substitution" plan on page 5 will give the correct exposure. Kodak picture.

of the speed shown. Other meters are adjusted for film speed by setting an outer ring dial opposite the selected figure, or by rotating a flattened roller engraved on its facets with scales for different film speeds. Each meter is different in this respect; but how to set your particular instrument for film speed is described fully in the manufacturer's instruction sheet. Study it carefully.

FILM SPEED. The speed of most films is printed boldly on the cartons. Some well-known manufacturers, however, give no data on the carton, but it will be found either on the small adhesive paper fastener which must be broken before the film can be inserted in the camera, or on the instruction leaflet inside the carton.

Usually both film and meter will be marked in ASA ratings but unfortunately, there is no universal method of assessing film speed. German film makers use the DIN method; speeds are expressed, as one eminent photographer said, in very vulgar fractions, the denominator always being 10, the numerator indicating the speed, e.g., Agfa Isopan ISS is 21/10 DIN. Other European countries measure speeds in degrees Scheiner; here, when you double the speed the rating jumps in threes. Ilford film speeds are designated by the letters B, C, D, E, F, G, H.

The Prinz exposure meter—exclusive to Dixons—features a large calculator which has merely to be lined up with the meter needle. Readings can be made for all types of camera.

SPEEDS COMPARED. A few exposure meters carry an engraved table enabling you to convert one film speed system to another. If your meter is calibrated in DIN or Scheiner, you can thus use ASA or Weston ratings if you wish. Here is a similar conversion table

DIN	*Scheiner*	*ASA*	*Weston*
9/10 11/10	20	6-10	8
12/10 14/10	23	12-20	16
15/10 17/10	26	25-40	32
18/10 20/10	29	50-80	64
21/10 23/10	32	100-160	100
24/10 26/10	35	200-320	200
27/10 29/10	38	400-650	400

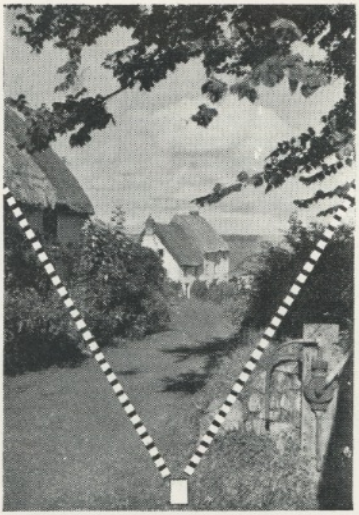
For example, Kodak Panatomic rollfilm is rated for daylight at 25 ASA, but you could set your meter at 26 Scheiner if it is calibrated in Scheiner. Remember, all these comparisons are approximate only.

DON'T OMIT THIS. The best plan is to make a personal test of your new meter with your selected film. Know for certain what it will do. You will have to use a film specially for this purpose, but the information gained will repay you handsomely.

After you have learned how to use your exposure meter, as explained hereafter, make several sets each of three exposures, one at half the indicated figure, a second at the exposure as shown by the meter, and a third at double the exposure shown. Do this on the same film for several different kinds of subjects, such as a landscape, group and close-up portrait. Mark the negatives; then make the best possible print from each on normal-grade Bromide paper.

Usually it will be evident at once that one rating in each set of three pictures is best. If it is the middle one you will know that the direct meter reading will always give you correct exposure. If one of the others is best you will know that the exposure indicated needs halving or doubling, as the case may be. Alternatively you can re-rate your film to correspond. *It may seem like a lot of bother, but this indispensable preliminary needs doing only once, and then you know for certain and for all time that your particular film/meter combination is correctly assessed.*

HOW METERS WORK. The light-sensitive cell in nearly all meters depends upon the rare element selenium which, under the influence of light has the remarkable property of creating an electric current. The strength of this current is measured by a small milliammeter and indicated by the movement of a needle over a scale. The greater the amount of light



READING taken from camera position would include far too much sky and give under-exposure of foreground. Kodak picture.

"seen" by the meter, the higher the needle reads. Some exposure meters are sensitive even to the light of a match.

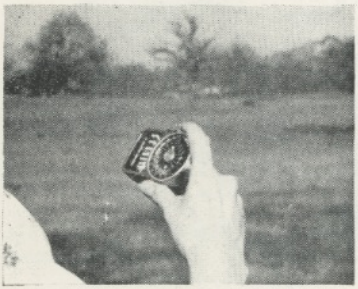
Many meters have two scales, one for ordinary light, the other for very poor lighting conditions. The cell of the Weston Master-IV for instance, is normally covered by a grille. This is swung open when the light is poor, thus allowing more light to affect the meter's eye, and at the same time a different scale is brought into position so that the needle readings are adjusted. Some other meters incorporate amplifiers.

IN BLINKERS. The eye of your meter, however, does not have such a wide field of view as the human eye. The meter's eye is in blinkers, recessed and baffled so that it takes

in only a cone of light covering about the same angle as a normal camera lens. This is called the acceptance angle and, because of this it will be obvious to you that if an exposure meter is pointed straight forward at a landscape, a large proportion of the light affecting the meter will come from the sky and much less from any darker objects in the foreground. The reading will average the light from all directions within the acceptance angle. You will get a near-correct exposure reading for the sky, but prominent foreground objects may be seriously under-exposed.

It must be understood that the meter measures the light *reflected* by objects. A white cloud or white cottage reflects much more light than a dark green hillside or a dark brick building. The clouds or cottage give a higher reading on the meter, which will tell you that less exposure is required.

GOLDEN RULE. The clever way to use a meter, therefore, is never to take a general reading but always to obtain your exposure from the principal object before the camera. Thus, if your picture has buildings in the foreground, your exposure must be based on the light reflected from these buildings, not from the scene generally. In taking a portrait, the reading should be taken from the face, because it is the flesh tones of the face which it is most important to reproduce faithfully, not the back ground which may be light or very dark. A glance at the illustrations will make this important matter clear.



Make sure that you do not get an exaggerated reading by including too much sky. Tilt the meter down slightly as shown.

IN portraiture a close-up reading should be taken of the face, but make sure that meter is held in such a way that no shadow of it, or your hands, is cast on the subject's face. Zeiss Ikoflex picture.

"SUBSTITUTE" PLAN. How perfectly ridiculous, I can hear you saying. When taking a snap, am I expected to leave my camera on its tripod while I dash across country like a Marathon runner to get a meter reading from a farmhouse somewhere in the foreground?

Of course not!

The way to use your meter in these circumstances is to obtain a

reading of some nearby object of *similar reflective power.* This is called the "substitution" method.

Suppose that your picture has a large building or tree in the foreground which it isn't convenient to approach. Then take a close-up meter reading of say a stone wall, gate or tree trunk which is near and easily accessible. You do not intend to include this nearby object in your photograph, but the exposure reading you obtain from it will be roughly the same as you would get if you could approach closely to the similar object in your picture.

If there is no single object which is particularly prominent, and a landscape consists of general countryside scenery composed of trees, undulating verdure and so forth, it is a safe plan to base your meter reading upon the ground and grass immediately before you. Hold the meter pointing forwards but downwards, at an angle of about 45 degrees. In this way you exclude most of the sky.

WHY EMBARRASS HER? Another use of this "substitution method" is in portraiture. What you really want is a close-up reading of the face, but it can be a trifle disconcerting to the sweet young thing if you thrust your meter right in front of her nose. It's just as effective to take a close-up reading of the back of your own hand, holding the meter about 6 ins. away. Your hand reflects about as much light as the subject's face and, if you make the comparison, you will find the readings are practically the same.

A meter reading taken from your handkerchief can be "substituted" for a direct reading of a child's light dress.

All close-up subjects, however, reflect far less general light from the sky than more distant objects, and my personal practice is to double the meter exposure indicated for close-up portraits. *When in doubt, always prefer to err on the side of more generous exposure.*

EXTREME CONTRASTS. You may sometimes be confronted by the problem of very bright and very dark objects in the same picture, both of which it is important to record fully. These subjects, which frequently occur in indoor photography, are said to be of high contrast. If you expose for the highlights, your darker objects may not show sufficient "shadow detail" because they are under-exposed. On the other hand, if you expose for the darker objects, then your highlights may be over-exposed and become quite white or "burnt-out" in your print.

Probably the best way to use your meter in these conditions is to take one reading of the bright-

WHEN taking portraits, close-up reading of your hand is near accurate substitute for direct reading of subject's face.

est part of the scene, and a second reading of the darkest details you want in your print. Base your actual exposure upon a figure halfway between the two readings, and you won't be far wrong.

ARTIFICIAL HIGHLIGHT. Another way of using your exposure meter, which has much to recommend it, is called by the somewhat terrifying name of the "artificial highlight." Actually, it's extremely simple and can be used equally well for landscapes, groups and close-ups.

All you need is a piece of cardboard, not less than about 9 ins. square. Don't use shiny cardboard, but preferably a piece with a rough, white, matt surface similar to white blotting paper.

This card is held up vertically so that the prevailing light falls upon it from the same direction as upon the subject to be photographed. Then take a meter reading of the card, holding the meter about 6 ins. away. *Care must be taken to ensure that no shadow of the meter itself falls on to the card, and the latter should be moved up and down a little until a maximum reading is obtained.*

This procedure is followed whatever may be the subject matter to be photographed, even if it does not contain any items as white as the card. The exposure thus obtained has to be multiplied by a "factor" which remains the same after you have found out by test what it should be in order to produce negatives of the kind you prefer. As a basis for experiment, I suggest you multiply the exposure as indicated by the "artificial highlight" by 4. If this gives over or under-exposed negatives, amend the "factor" accordingly.

When you have ascertained the correct "factor" to use for your particular film/meter combination, this method yields very consistent results.

INCIDENT LIGHT. Yet another plan of action which avoids all the difficulties due to objects of different brightness, is to take a reading of the light-source itself. Usually you measure the light reflected from objects to be photographed, but in this method you stand near the subject and *point the meter at the camera.* Because the direct source of light which you thus measure is so much stronger than the same light reflected by your subject, the electric cell of your meter must be shielded by a semi-transparent cover which in effect makes the reading equivalent to a reflected light reading. With the Weston Master-IV meter, this special cover is called an Invercone: it is circular and fits over the cell. The Sixon meter has a sliding translucent cover similar to a Venetian blind, which can be moved over the electric cell window. Other meters have similar arrangements which are fully de-

TAKING artificial highlight reading with white card as described on this page.

scribed in the manufacturer's instruction leaflet.

IN THE GLOAMIN'. In spite of the great sensitivity of modern photo-electric meters, occasions arise when the light is so poor that practically no deflection of the needle is produced by reflected light or the usual incident light method described above. These conditions occur, for instance, when making interior pictures of buildings in twilight, or when taking "candid" shots in poor artificial light. Your meter can still be used, and quite accurately, too.

The method is to take a reading of the light source from the position of the subject, exactly as in the "incident light" procedure, but no translucent cover or blind is used over the sensitive cell.

If, for example, you want to photograph the font in a church and the only light comes from a fairly distant stained-glass window, you would stand near the font and *point your meter straight at the window*. Reflected light from the font might not be sufficient to move the needle at all, but a direct reading of the window probably will register.

Translation of the reading thus obtained to the actual exposure required is based upon the fact that an average subject reflects about 1/30th of the light falling upon it. Thus, if the exposure indicated by pointing the meter directly at the window is 1/10 sec. at f/5.6, the subject requires 30 times more, or 3 secs. at f/5.6. As a smaller stop would no doubt be better for such a time exposure, this could be 24 secs. at f/16.

COLOUR EXPOSURE. The human eye is remarkably accommodating to slight variations in the density of tones in black and white photography, but it is far more sensitive to slight changes in colour. Colour films have very

THE trick I use for "contre jour" or against the light pictures, such as this, is to turn my back to the sun and take reading of immediate foreground, then multiply exposure by three. Zeiss picture.

thin emulsions, and any considerable deviation from the correct exposure required is revealed at once by quite fantastic changes in the colour rendering. Accurate exposure in colour photography, therefore, is essential.

Usually, if contrasty subjects are avoided, it is safe enough to take a reading of the highlight area, leaving the shadows to look after themselves.

Some colour workers, however, prefer the "artificial highlight" method mentioned above, the exposure thus determined being multiplied by 3 for mainly light-coloured subjects, but by 4 if darker colours predominate. Very consistent results can be obtained by this method, but there is such a great variation between colour films as well as between exposure meters, that it is necessary, first of all to devote one film to a series of test exposures on normal subjects, in order to find out exactly what the numerical factors should

be with the particular film/meter combination you use.

A DEVIL WAS HE. When taking close-up colour portraits by artificial light I have found it best to disregard the recommendation, invariably made by portrait pundits to beginners in black and white photography, of having one main modelling light at one side of the subject and a fill-in light to reduce the shadows. Club lecturers and judges are appalled if you even whisper of double front cross-lighting.

Take my private tip, be a devil and break all the rules. Light your subject evenly with two photofloods, one at 30 degrees on each side of the camera, and you'll find that this flat, almost shadowless lighting is ideal for colour photography. As a matter of fact, the Zeiss people make a lighting unit called the Movilum which works on exactly these lines.

FLASH. Meters cannot be employed to tell you the correct exposures for flash photography, whether you use expendable bulbs or electronic flash. Exposure is governed entirely by a "flash factor" which is peculiar to the particular outfit and film used.

These flash factors are given, together with full instructions, in the leaflet acompanying all flash bulbs and electronic flash equipment. Flash work of all kinds is explained in another of my booklets in this series entitled "Electronic Flash Photography", which is presented free with all flash apparatus bought from Dixons.

ALL BY KINDNESS. Finally, let me urge you to look after your exposure meter, and to treat it with care. It is a robust yet delicate instrument; many meters have jewelled bearings like a fine watch. A good leather case for it is a worthwhile investment. Do not leave your meter in a damp, humid atmosphere; and on no account allow it to be exposed for any long periods to strong sunlight. With care it will give you a lifetime's service.

WATCH IMPROVEMENT. In the foregoing notes I have not mentioned film development, although this is closely related to exposure, especially in conditions of poor light. When under-exposure has been unavoidable, extra development within limits may often yield a passable negative. Experiments on these lines can be absorbing; but I strongly advise you, to begin with, to stick to just one film and one developer, and to standardise your developing technique with the object of producing negatives which yield the best possible prints on normal-grade Bromide paper.

If your exposures, as determined by your new meter, are keyed to this standardised technique, you may be certain that you will get the very best from your equipment, and a great improvement in the quality of your pictures inevitably will follow.

Printed by Faksim Printers at Watford

Britain's Photo Mail Order Centre

DIXON HOUSE 128-136 HIGH STREET
EDGWARE MIDDX *Tel: EDGware 7011*

DIXON HOUSE is devoted exclusively to the needs of buyers by post. That is why you receive quicker replies and really helpful, knowledgeable service.

The finest technical advice — yours for the asking.

WE supply all types of still and cine cameras, enlargers, flash outfits, tape recorders and every variety of accessories and materials and every purchaser receives the unique benefits of our famous Service.

VISIT OUR SHOWROOMS *

BIRMINGHAM	11-12 UNION STREET	*CENtral 8511*
BRIGHTON	THE CLOCK TOWER	*Brighton 25622*
BRISTOL	72 PARK STREET	*Bristol 22511*
CLAPHAM JCT.	93-95 ST. JOHN'S ROAD	*BATtersea 6611*
CROYDON	12 LONDON ROAD	*CROydon 9511*
EAST HAM	3 STATION PARADE	*GRAngewood 9511*
EDGWARE	185 STATION ROAD	*EDGware 7011*
KILBURN	145 HIGH ROAD	*MAIda Vale 2211*
LEEDS	89 BRIGGATE	*Leeds 23211*
LEICESTER	32 GALLOWTREE GATE	*Leicester 58511*
LIVERPOOL	83 LORD STREET	*CENtral 5011*
MANCHESTER	20 OLDHAM STREET	*CENtral 1411*
NOTTINGHAM	7 KING STREET	*Nottingham 46811*
READING	70-71 BROAD STREET	*Reading 50911*
SLOUGH	273 HIGH STREET	*SLough 23211*
SOUTHEND	32 HIGH STREET	*Southend 65611*

Open 9–6 including Saturdays

* *All Dixon services are available at centres and our "On the Spot" H.P. can be arranged.*