

The Forester Takes Up His Camera

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THERE is no excuse for making poor photographic exposures in the woods, if a few simple tips are kept in mind. The forester is often anxious to get pictures of objects in the woods which ordinary cameras cannot take by snapshot methods.

A little study and a few suggestions may serve as a guide in making satisfactory pictures with ordinary equipment.

Since our eyes, without effort on our part, make adjustments to light changes, it is hard to realize that the camera does not adjust itself automatically also. When light is poor, the length of exposure must be greater or a larger diaphragm opening must be provided for light to enter the camera.

The problem of light intensity is one of the most difficult to ascertain, and it can be easily solved by the use of light-measuring instruments, tabular data, or estimation. Very few persons are successful in estimating light intensity.

The instruments used depend largely upon the visibility of certain objects when viewed through dark glass or upon the length of time required for a piece of photographic paper to change color. Tables of these results are printed in scale form upon the instruments and can be depended upon as accurate. Often, however, the light is so weak as to exceed the limits of the instrument. But these instruments add to the expense of necessary equipment and constitute an additional apparatus to be carried.

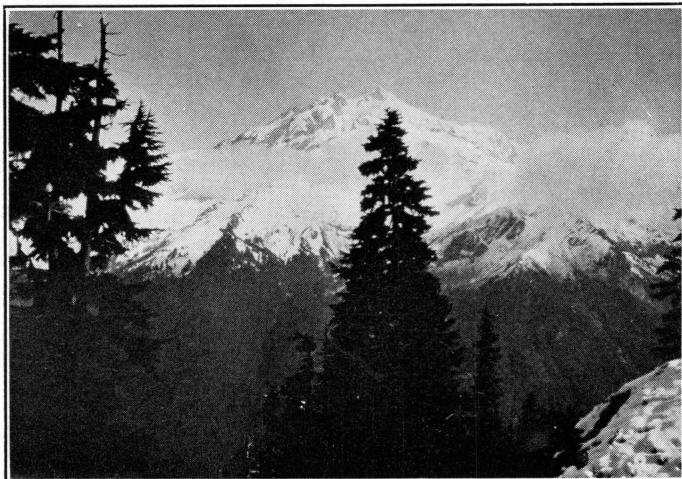
Tables of intensity of light and type of subject are very usable, but they depend upon personal judgment of conditions. The four graduations of natural light: dull, gray, clear, and brilliant, must be carefully determined.

Having ascertained the intensity of the light based on the darkest part of the picture, the next problem is to decide upon the adjustments necessary to use the light to the best advantage. Besides judging the distance, the forester must select the proper diaphragm opening and set the correct shutter to accompany it.

There are two means of marking diaphragm openings on the camera. Both systems are based on the ratio of the diameter to the focal length of the lens or the distance at which the lens must be placed from the film to give a sharp image of an object. In

one system the opening is expressed simply as a fraction of the focal length. Thus f.8 means that the aperture is one-eighth of the focal length of the lens; in the uniform system (U. S.) the openings are marked so that the numbers are proportional as the exposure required, f.4 being taken as unity, so that the scale is as follows:

System	DIAPHRAGM OPENING									
f.	4	4.5	5.6	6.3	8	11	16	22	32	45
U. S.	1	1 1/4	2	2 1/2	4	8	16	32	64	128
Light	EXPOSURE, SECONDS									
dull	1/100	1/50	1/25	1/10	1/5	1/2	1	2	4	
gray	1/200	1/100	1/50	1/50	1/25	1/10	1/5	1/2	1	2
clear	1/400	1/200	1/100	1/100	1/50	1/25	1/10	1/5	1/2	1
brilliant	1/800	1/400	1/200	1/200	1/100	1/50	1/25	1/10	1/5	1/2



The photographer's Happy Hunting Ground.

A normal exposure is one taken of a landscape on an ordinary sunny day with a usual type of hand camera, a certain brand of film, a diaphragm opening of f.16, and an exposure of 1/25 of a second.

The conditions to remember in making camera adjustments are the time of year, time of day, character of the weather, the subject, the type of camera, the kind of film, the diaphragm opening, and the length of exposure.

If different films are used, suitable corrections must be made for their relative speeds, which are printed on the package.

Ordinary cameras are not equipped with shutters having

speeds of less than 1/25 of a second, and if longer exposures are required the diaphragm area must be doubled by opening from f.16 to f.11 or time exposures will have to be made.

If time exposures are to be made, the photographer must become expert in counting seconds and half seconds. Since it is impossible accurately to tell when the second hand of a clock goes through a second of time, it is necessary to use some more accurate method. A sufficiently accurate method is to count the half seconds by saying slowly, "one-half," for each half second; the seconds by repeating, "one-half and one," and the other longer exposures by the combinations for half and full seconds of the above. A quarter second is counted by repeating "quarter."

A good, solid tripod is almost necessary in making time exposures. Even exposures of 1/10 second are too long to hold the camera in the hand.

To photograph clouds, a yellow filter and a somewhat longer exposure are necessary. For light clouds the exposure should be made 1/5 longer. For pictures by full moonlight an exposure of an hour or longer with a stop of f.16 will do.

It is necessary sometimes to give a photograph a shorter exposure if the picture is to be made at a high altitude.

Closely related to the intensity of the light is the character of the subject which is to be photographed. Snow scenes are one type of picture which the amateur generally over-exposes. The reflected surface requires only 1/4 as long an exposure as is needed for an ordinary landscape. On the seashore or on the shore of a large lake the effect of the reflected light should also be taken into account.

The relative length of time required for different stands of timber where pictures are to be taken is given in the following table:

Relative exposures required for various types of forest stands and species (referred to the "normal exposure" with opening of f.16):

Conditions	Exposure, Seconds
Ordinary landscape	1/25
Stand of leafless hardwoods	1/4
Stand of leafy hardwoods	1
Open stand of thin-foliaged pine	1
View under scattered conifers	1
Open stand of hemlock	3
Open stand of dense-foliaged pine	8
Open stand of Western red cedar	32
Dense stand of dense-foliaged pine	40
Stand of white fir	80
Dense stand of Western red cedar	100

