

Photography Notes ¹

1 Aperture and shutter speed

These are based on Ansel Adams' book [A] and John Schaefer's [S].

Focal length: The *focal length* of a lens is defined to be the distance between the lens and the plane (in front of the camera) of sharp focus.

Aperature: The *relative lens aperature* is the diameter of the lens opening divided by the focal length of the lens. A relative lens aperature of $1/N$ is written f/N . For example, a lens with 100mm focal length and a opening diameter of 25mm has a relative aperature of $f/4$. The number N arising in this way is called an *f-stop* (or *stop number* or *full stop* or *whole stop*). Usually the stop numbers fall into the sequence

$$1, \sqrt{2}, 2, 2\sqrt{2}, 4, 4\sqrt{2}, 8, 8\sqrt{2}, 16, 16\sqrt{2}, 32, 32\sqrt{2}, \dots,$$

which might be rounded up or down to

$$1, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, 45, \dots$$

The larger the f-stop, the smaller the aperature.

Shutter speed: We use aperature and shutter speed settings to control the amount of light from the subject that reaches the film/sensor. The formula expressing this exposure relationship is

$$\text{exposure} = \text{intensity} \times \text{time},$$

or $E = I \cdot t$. Here the time t is measured by the shutter speed. Shutter speed settings are measured in a geometric series (in seconds):

$$1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, \dots,$$

which is often rounded to

$$1, 1/2, 1/4, 1/8, 1/15, 1/30, 1/60, \dots .$$

There are a number of (f-stop, shutter speed) combinations which give the same exposure. For example,

$$(f/22, 1/2), (f/16, 1/4), (f/11, 1/8), (f/8, 1/15), (f/5.6, 1/30), (f/4, 1/60),$$

$$(f/2.8, 1/125), (f/2, 1/250), (f/1.4, 1/500), (f/1, 1/1000),$$

all have the same exposure.

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2 Quotations

These were taken from [HJ] and the Internet site [PQ].

In previous ages the word ‘art’ was used to cover all forms of human skill. The Greeks believed that those skills were given by the gods to man for the purpose of improving the condition of life. In a real sense, photography has fulfilled the Greek ideal of art; it should not only improve the photographer, but also improve the world.

David Hurn in **On being a photographer**

Your first 10,000 photographs are your worst.

Henri Cartier-Bresson

In photography, visual organization can stem only from a developed instinct.

Henri Cartier-Bresson

The first thing to do is carry a notebook and during quiet times or as the thought occurs to you, compile a list of anything that really interests you. In other words, write a list of things which fascinate you without regard to photography. ... Be as specific as possible. After you have exhausted the list, you begin to cut it down by asking yourself these questions. Is it visual? ... Is it practical? ... Is it a subject about which I know enough? ... Is it interesting to others?

David Hurn in **On being a photographer**

For a subject to be strong enough to be worth photographing, the relationship of its forms must be rigorously established. Composition starts when you situate your camera in space in relation to the object. For me, photography is the exploration in reality of the rhythm of surfaces, lines, or values; the eye carves out its subject, and the camera has only to do its work.

Henri Cartier-Bresson in **American Photo**, September/October 1997, p. 76.

A camera alone does not make a picture. To make a picture you need a camera, a photographer and above all a subject. It is the subject that determines the interest of the photograph.

Man Ray - Oct. 2, 1966 (Handwritten and signed note) [9 Days of Photokina “Man Ray on the Future !” An Interview by Ed Hirsch and Ben Zar, **Popular Photography**, January 1967, Volume 60, No. 1, p. 98]

Simply look with perceptive eyes at the world about you, and trust to your own reactions and convictions. Ask yourself: ‘Does this subject move me to feel, think and dream? Can I visualize a

print - my own personal statement of what I feel and want to convey
- from the subject before me?’

Ansel Adams, **The Best of Popular Photography** by Harvey
V. Fondiller, Page: 280.

... basic principles are:

1. Photographers are not primarily interested in photography. They have a focused energy and enthusiasm which is directed at an outside, physically present, other. They bring to this subject an exaggerated sense of curiosity, backed up by knowledge gleaned from reading, writing, talking, and note-taking.
2. The photographer transmits this passion in ‘the thing itself’ by making pictures, therefore the subject must lend itself to a visual medium, as opposed to, say, writing about it.
3. The photographer must assiduously practice his/her craft so that there is no technical impediment between realizing the idea and transmitting it through the final print.
4. The photographer must have the ability to analyze the components of the subject-idea so that a set of images not only reflects the basic categories but also displays visual variety. Intense, clear thinking is a prerequisite to fine photography.
5. The photographer is aware that, like all difficult endeavors, to be good at photography requires an unusual capacity for continuous hard work and good luck.

David Hurn and Bill Jay in **On being a photographer**

References

- [A] Ansel Adams, **The Camera**, Bulfinch, 1995.
- [G] GIMP <http://www.gimp.org>,
- [HJ] David Hurn and Bill Jay, **On being a photographer**, LensWork Publishing, Anacortes, WA, 2007.
- [PQ] Photography quoteations page, <http://www.photoquotes.com/>.
- [S] John Schaefer, **The Ansel Adams Guide, Book 1, Basic Techniques of Photography**, Little Brown and Company, 1999.