`Definitions / Review

Chemical

**Developer** - Chemical used to develop the latent image on exposed photographic paper or film. It reduces the exposed silver halides to metallic silver, causing the exposed areas to turn black in relation to the amount of light they have received.

**Stop** – Chemical used to stop the action of the developer in photographic processing. It is usually a dilute solution of acetic acid, but sometimes plan water is used.

**Fix** – Chemical used to dissolve the unexposed silver halides the developed photographic paper or film so that the paper or film may be viewed in white light conditions. This step is known as “fixing “ the image.

**HypoClear (also Perma Wash)** – A trade name for a chemical *washing aid* which removes any excess fix from the paper or film before the final wash. It greatly reduces the washing time and is only necessary in film and fiber based paper.

**Photo-Flo** – A trade name for a *wetting agent*. This chemical, when added to water, reduces surface tension so that the water flows more evenly off the film surfaces avoiding droplets that will form spots when dry.

**Printing Out** – the general term for all photographic paper processes in which the image is formed as the material is exposed to light. Most of these processes do not need to be chemically developed, but they do need to be fixed in order for the image to be permanent.

**Developing Out** – A general term for all photographic paper processes that form a latent image by being exposed to light, which is later made visible through chemical development.

**Latent Image** – The invisible image formed on light sensitive photographic paper or film when exposed to light. This image is only made visible when it is chemically developed.

**Silver Halide** – The general chemical term for several different silver salts, which are chemically changed when exposed to light.

**Positive** – A photographic image, on paper or film, where the tones or colors appear as they are in nature, rather than reversed as in a negative. Usually it is a print made from a negative. When it is a film positive, it is often called a *transparency* or *reversal* film.

**Negative** – A photographic image formed and developed onto transparent film, glass or paper. The tones are reversed from nature. Blacks appear as whites and whites appear as blacks, thus called the negative.
**Camera**

**Pinhole** – A camera, or light tight container, which uses a simple pinhole to form an image, rather than a lens. Theoretically they are always in focus, but practically they almost always form a soft focused image because of the thickness of the material through which the pinhole is made.

**35mm Viewfinder** – the scene to be photographed is viewed directly through an optical device separate from the lens. A viewing problem occurs with this system if a correction is not made called parallax error; that is a discrepancy between what the photographer sees through the viewer and what is recorded on the film. Parallax error is more of a problem the closer the camera is to the subject.

**35mm Rangefinder** – This is essentially a viewfinder system that has been corrected for parallax error by the use of two mirrors. The advantage is its speed and quietness compared to a single lens reflex camera.

**SLR – Single Lens Reflex** – You view the scene or image directly through the lens that will be used to take the Picture. Reflex – derived from the word reflection refers to a mirror located inside the camera body in front of the film plane, which reflects the light from the subject up through a prism, which in turn exits through the viewfinder. There is no possibility for parallax error and out of focus elements are easily seen.

**Focus** – Focusing adjusts the distance between the lens and the film according to the distance of the camera and the subject.

**Focal Plane** – This is the surface where light rays fall and come together to form an image. The film inside the camera is at the focal plane.

**Focal Length** – 35mm cameras have a fixed focal length. The focal length of the lens is the distance from the nodal point of the lens’ (optical center) to the film or the focal plane when the lens is focused at infinity. This term is also used to define the lens length, such as 35mm (short, wide angel), 50mm to 80mm (long, telephoto). etc.

**Plane of Focus** – The imaginary geometric plane within which critical focus is located in the scene being photographed.

**Focusing Screen** – In 35mm reflex cameras it displays the image entering through the lens onto a ground glass used to aid in framing and focusing of the image.

**Camera Exposure** – Proper exposure is achieved through adjustments of both the shutter speed and the aperture size according to a light meter reading.

**ASA / ISO** – International standard designations for film speed, or the sensitivity of the film to light.

**Light Meter** – A devise used to measure the amount of light in a scene and to calculate film exposure based on the light sensitivity (ASA) of the film being used. These are usually built into the camera, but there are also hand held light meters.

**Shutter System** – The shutter system controls the amount of time that the film is exposed to light. Shutter settings refer to fractions of a second.

- Shutter settings- 8, 15, 30, 60, 125, and 250, 500
- Equal to- 1/8, 1/15, 1/30, 1/60, 1/125, 1/250, 1/500

Each shutter setting allows the shutter to remain open approximately half as long as the one before it, and twice as long as the one after it.
**Lens Aperture** – The aperture works with the shutter to control the amount of **light** that hits the film. The aperture consists of thin metal leaves, which overlap to make an adjustable diaphragm within the lens. The larger the diaphragm opening the more light passes through. The scale of the openings is indicated in terms of f-stops. The larger the f-stop number the smaller the opening.

**F-stops** – 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, 64

These numbers are fractions, which indicate the ratio of the **focal length** to the diameter of the lens. Each f-stop is approximately 1.4 times larger than the proceeding value. The aperture scale is arranged so that each aperture setting transmits twice as much light as the next smaller f-stop number. In addition to controlling the amount of light entering the camera, the aperture size also determines the depth of field.

**Depth of Field** – The range of distance in front of and behind the plane of focus that will be in apparent focus in the picture. The size of the aperture effects the depth of field.

- Large aperture = small f-stop number = shallow depth of field.
- Small aperture = large f-stop number = great depth of field.

**Law of Reciprocity** – This is the correlation between the aperture and the shutter speed. Consecutive shutter speed settings are related to one another the same way f-stop numbers are. Each consecutive lower number lets in approximately twice as much light as the preceding number. When f-stop and shutter speed is changed simultaneously one stop in opposite directions the same exposure is obtained.

- F-8 at 1/500 is the same as F-11 at 1/250. (F-11 = less light 1/250 = more time)

**Reciprocity Failure** – This occurs when exposure times are too fast or too slow. Most films experience reciprocity failure at shutter speeds of 1/1000 of a second or faster and at one second or slower. To compensate for this failure time must be added to the exposure.

**Exposing for Black and White** – if the scene you are photographing is predominantly white or black in color, your light meter will not give you an exposure that will correctly render the scene. It is recommended that you over ride the meter reading with a two-stop compensation as follows.

- White – open up two stops, or two stops more exposure
- Black – close down two stops, or two stops less exposure

**Bracketing** – A method of over and under exposing frames of the same picture in the camera, to ensure proper exposure in light conditions that may not give a correct exposure with a typical light meter reading. Take one picture at the exposure indicated by the light meter, then take another exposure one stop over and another one stop under the recommended reading. This is done by changing either the aperture or the shutter speed, but not both at the same time. This range of exposures can be increased to two or more stops in each direction.