Topic no. 69

Film Stock

Film stock is the basic component of all motion pictures, allowing images to be captured and reproduced through the use of a camera. Since the early experiments with celluloid film in the late 19th century, the motion picture world has undergone constant revolution through the development and improvement of film. Thanks to applied technical wizardry, film has moved from the grainy black and white images of the original Kodak camera to the colorful marvels of modern stock in just over a century.

Originally, film was built on a paper base, making the composition of moving pictures an incredibly difficult process. Celluloid film stock, which was flexible and less delicate than paper, became heavily marketed by several early film pioneers, including George Eastman and Thomas Henry Blair. Despite the considerable advantages given by celluloid film, early film stock was deficient in a few serious matters: it was unable to process red light, and had no standardized size.

In the early days, film cameras were often unique to their creators, leading to all kinds of variation in the size of film used. As equipment became more standardized, film stock began being issued in a few typical sizes, most notably the 35, 16, and 8 millimeter widths. The matter of film being rendered in realistic color was not addressed until the early 20th century, with the invention of panchromatic film that could see red, blue, and green layers of light.

Today, modern film stock is a lot more complicated than it looks. Instead of a simple piece of dark flexible material, a typical piece of film contains several different layers of emulsions and filters. On top of a safety base, an anti-hilation layer prevents fogging, followed by layers of red, green and blue emulsions each with a filter between them. The film stock also contains yellow, magenta and cyan dyes that are released during processing to give a full spectrum of color.

In purchasing film stock for a motion picture, speed and resolution are two key qualities to consider. The width of the film determines the resolution, or image sharpness, given by the film. 8 mm film typically has the lowest resolution, while 35 mm film is the standard form almost all major motion pictures. Film speed determines how sensitive the film is to light; if a lot of night scenes are planned, higher film speed may be necessary. However, higher film speed may lower the resolution, so filmmakers tend to look for a happy medium in terms of resolution and speed.

Film stock can be quite pricey, depending on the width of the film and length of the roll used. With 35 mm film, a 1000 ft (304.8 m) roll will result in approximately 10 minutes of usable film, and will usually start at about $500 US Dollars (USD.) Using lower resolution film, such as 8 mm, will result in more time per foot of film, and may be a wise solution for amateur or low-budget filmmakers. Some enterprising independent filmmakers choose to avoid film stock altogether by shooting on digital cameras, but film cameras are still considered the giant of the motion picture industry by most experts.