PHOTOLESSONS

MARCH 01.2008

WHITE LIGHT and INKs...

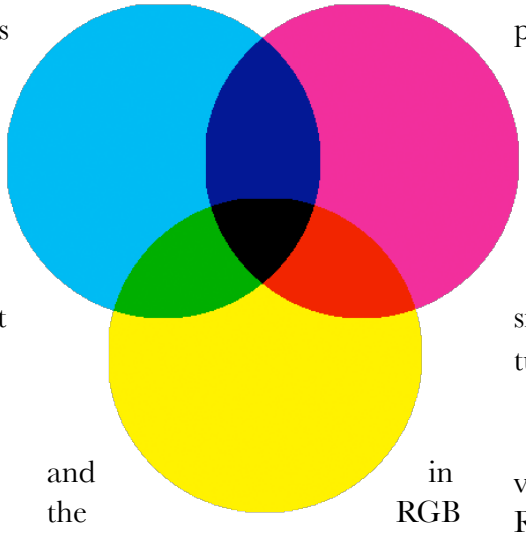
John Pringle

White or full spectrum light is comprised of three distinct primary colors which are RED, BLUE, GREEN, all in equal quantity. When you mix red and blue light (without green, you will get MAGENTA. You can look at the color chart at the top of the page for the other combinations. These are called additive colors as they three add to white or full spectrum light.

CMY colors are called Subtractive colors and this example is typically used when describing inks that are added together to make a color. When CYAN and YELLOW are added in equal quantities, it produces GREEN (paints, inks). When an equal quantity of MAGENTA is added to the mix, the colors fall to BLACK.

Since the color subtractive science works on paper with math more so than in practical terms, a black ink is added to obtain a full black.

In fact, if you look closely, you can see that the BLACK in the core of the CMY mix is deeper than the black that surrounds the RGB sample. In the CMY sample, the computer rendered the final black very deep



and in the RGB sample, the black was set to 100%, which is about what CMY can produce without the added black.

If you vary the value of any of the primary colors other than with a 100% equal mix, you will have a color that is not pure primary additive or subtractive.

There are many colors within the fullness of white light that is compromised by adjusting the input of any of the primary color values.

Camera film have three distinct layers which are rendered in the lab to capture RGB. There are other layers on the film as well to hold it together and tone its capture ability according to the science involved in its preparation. Camera digital chips have photo diodes which capture light intensity. These also are arranged in a predetermined pattern favoring green over red and blue. The circuitry in the camera adjusts the image captured to produce an effect in similitude to having been captured on film.

Where film has a layer of silver and or chemicals to react to Red, Blue or Green, there is a post process that washes away the areas of that film that did not get hit by red, blue or green to make intermixing of the layers possible for image production in the printing stage. Digital chips select colors and amplify them according to the cameras ISO settings. The end product with mathematical equations, which are then manipulatable in proprietary RAW software allowing it to be read in common use software, preparing it for the printing process.