DS5

COLOUR

Take a stage lighting flood, switch on and it emits white light. Place a piece of colour medium in front of the flood and the light emitted will be coloured.

Colour medium acts as a filter and only allows certain of the colours which are present in white light to be transmitted. All unwanted parts of the white light are absorbed by the filter.

Take two floods, place red media in front of one and green media in front of the other; direct both floods towards a white surface, one flood emits red light, the other emits green but the reflection from the white surface is yellow.

This happens because our eyes have a mechanism which interprets colour sensations by means of receptors, these respond to the primary colours in light, red, green and blue. Any colour we see is "sensed" by this simple function.

In the experiment above, the white surface reflects red wavelengths and green wavelengths together and the red and green receptors in our eyes indicate a yellow sensation.

If we repeat the above experiment but add a third flood with a blue media, the resulting reflection will be a near white. White energises all three parts of our colour mechanism. In other words white is complete reflection of all the primaries.

Tints occur whenever two or more of the primaries are reflected, so whenever we add primary colours we begin to approach complete reflection, i.e. white. If we wish to produce a pale tint, we take a primary colour and add proportions of the other primaries, or we can take two primaries and add some of the third primary, we thus produce a tint by approaching whiteness.

A typical example would be to take red and green which, as we have seen, produce yellow and add a little blue by means of a dimmer. The yellow will immediately appear to be paler because it is approaching whiteness.

This is how modern detergents make yellowing linens and cottons look white. A blue dye is added to the detergent and yellow (red green) clothes plus blue equals white.

The chart fig (i) gives some basic proportions of primary colours needed to produce tints.

Tinted colour media allows these proportions of primary colours to pass through the filter and although there is a dominant hue it is modified, i.e. green plus a small amount of red plus a small amount of blue becomes pale green. Pink is full red blue plus a little green, etc.

When we apply light to coloured pigment we can increase the facility of the pigment to reflect, if the light is of the same colour as the pigment or it if contains some of that colour.

If, however, we apply a coloured light to a pigment that has no common factor, the pigment will absorb the coloured light, i.e. red pigment under blue light looks black, etc.

If we examine a pigment in a costume or a piece of scenery, we can decide if any tint of light will enhance it, modify it, or even destroy its power to reflect on the basis that like enhances, and unlike destroys reflection of colour.

The simple experiments mentioned above are worthwhile as they will teach you quickly and simply what to expect of coloured light. Try them on textiles, posters, etc.

Useful Hints

Primary colours are usually restricted to the cyclorama. Pale tints are used on acting areas, unless you have a specific requirement which demands alternative treatment.

Higher wattage lamps render colours differently, they emit more blue than the lower wattage lamps, so try the colour medium in the correct spotlight or floodlight before committing yourself too far.

Colour medium is extremely durable but it does not last for ever. Inspect your colour medium from time to time. If it has faded, replace it. A full size sheet will make sufficient pieces for about 30 small spotlights, so it is quite economical.

Colour Chart

Red	Green	Blue	Resultant Colour
100%	Nil	Nil	Red
100%	25%	Nil	Deep Orange
100%	50%	Nil	Orange
100%	75%	Nil	Deep Amber
100%	100%	Nil	Deep Yellow
75%	100%	Nil	Yellow
50%	100%	Nil	Lime Green
25%	100%	Nil	Apple Green
Nil	100%	Nil	Green
Nil	100%	50%	Sea Green
Nil	100%	75%	Peacock Blue
Nil	100%	100%	Midnight Blue
Nil	75%	100%	Blue Green
Nil	Nil	100%	Blue
25%	Nil	100%	Purple
50%	Nil	100%	Magenta
75%	Nil	100%	Deep Mauve
100%	Nil	100%	Mauve
100%	Nil	75%	Cerise
100%	Nil	50%	Crimson
75%	100%	100%	Warm White

NB. Paler tints of the above are produced by adding some of the third primary colour.