THE

GILES-ARCHER Colour Perception Unit

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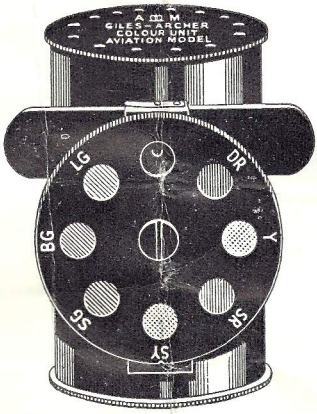

DESCRIPTION

The Colour Unit consists of:

(1) A Lamp House.
(2) A slide with three apertures.
(3) A set of filters enclosed in a disc which is engraved for more readily distinguishing the colour in use.

These filters are as follows:—

(1) D.R.—Dark Red, **for detecting shortening of Red End of the spectrum**
(2) Y. —Yellow.
(3) S.R. —Standard Red.
(4) S.Y. —Standard Yellow.
(5) S.G. —Standard Green.
(6) B.G. —Blue Green (Signal Green).
(7) L.G. —Light Green.
(8) —A Clear Aperture.

*The actual Transmission Values are:—

Filter S.R. Transmits from 6250 A.U. to Infra Red.
Filter S.Y. Transmits between 5600 to 6600 A.U.
Filter S.G. Transmits between 5000 to 5450 A.U.

Of these, S.R., S.Y. and S.G. approximate very closely to the specification suggested for civil aviation (I.C.A.N.).* For convenience in using the three standard colours, the disc is notched just above the standard yellow. This enables the operator to know easily in the dark the position of the standard filters, the standard red and the standard green being placed either side of it.

The lamp is housed in a container designed to avoid overheating and to exclude extraneous light. Illumination is furnished by a 15 watt Pigmy lamp of standard E.L.M.A. specification. The filters which are enclosed in a disc capable of rotation are of gelatine, enclosed in plane glass, and are protected from any radiated Heat by special Heat Resisting Glass placed between the filters and the bulb.

APERTURES

The slide has three apertures as follows:—

(1) 5 m/m aperture.
(2) 3 m/m aperture with frosted glass.
(3) 1 m/m aperture with neutral filter.

It will be seen that two yellows are found in the new Unit, denoted 'Y' and 'S.Y.' The yellow 'Y' is less sensitive than the Standard Yellow which complies as nearly as possible with the I.C.A.N. specification.

It will be noted that this filter is placed between Standard Red and Standard Green. It is shown immediately after one or the other, i.e. after either Red or Green has been exposed. So to a person possessing full normal colour vision, the Standard Yellow remains unchanged under these conditions, and is still called yellow. Where, however, colour vision is even slightly deficient, in some cases not sufficiently affected to fail in the Ishihara Test, the Standard Yellow will be miscalled as either red or green, according to the colour of the preceding filter. In its present position, it is of great value for record purposes, but it is considered that where failure is found with this filter, the ordinary yellow should then be shown. Provided there is no hesitation with the naming of this filter, the candidate can be passed if this is his only mistake.

METHOD OF TESTING

(1) Commence the Test by showing the complete sequence of colours through the large aperture (aperture 1), asking the candidate to name the colours.
(2) If the candidate miscalls the white light explain to him that this light is supposed to be white.
(3) Use aperture 2 pushing the slide sideways to bring this into view. Employ filters out of sequence and cover over the aperture with the hand, so that the candidate cannot guess what is coming. Then use aperture 3 in like fashion. Aperture 3 contains a neutral filter.
With this aperture it may be necessary to move the candidate up to 10 ft. distance when testing for dark red.

In cases presenting any difficulty, it is important to show the Red and Yellow filters and pass up to Light Green and then back from Dark Green to Yellow. Regard S.Y. (Standard Yellow) as a confusion test only. Remember that the small aperture is not a fair test unless the examination room is really dark and that where this is not the case the assessment may be made upon the results obtained through apertures 1 and 2.

Result A. Colour Normal: The term explains itself. There should be no mistakes whatever in the sequence of showing the filters using apertures 1 and 2. Even Standard Yellow (S.Y.) should be named Yellow or Orange, provided that the candidate has been shown the plain aperture immediately before this. In proper conditions of darkness, there should be no difficulty with any of the colours using aperture 3.

Result B. Colour Defective Safe: There should be no mistakes made in regard to the naming of the deeper shades of Red and Green. Standard Yellow can be misnamed and Yellow can be 'Orange.' The