

## ABSTRACT

The existence of the macular pigment in the living, human eye is at the present time fairly well established, but opinions on its role and effects on vision are still divided. To rectify this situation, several experiments were performed.

In the main experiment, the optical density curve of the pigment was estimated for 49 European and West Indian subjects by comparing their foveal and extra-foveal spectral sensitivities measured by the flicker technique. No significant differences were observed related to race, normal environment, age, sex, colour of skin or colour of eyes, but red haired subjects had on average a significantly higher density of macular pigment. The extinction coefficient of the pigment, which appeared to be lutein, was the same for all subjects and differences in density were consistent with variations in pigment concentration and/or thickness of absorbing layer.

In a subsidiary experiment, macular pigment density was assessed for a small sample of the 49 subjects by retinal photography. The combined results of this and the first experiment correlated well and led to the conclusion that visual performance is quite definitely affected by the presence in the fovea of a blue absorbing, non-photosensitive, pre-receptor pigment. The relatively low sensitivity of this