# DISCUSSION

## LIGHT EYES AND GLARE SENSITIVITY

IT has been noted that light-eyed persons can see less well under low illumination than dark-eyed persons.[1] It is also well known that albinos who lack retinal pigment see poorly not only in the daytime but also at night. They are particularly sensitive to bright illumination. One investigator[2] has found that Negroes see from two to four times better than whites at night. These findings would indicate that persons with dark eyes (Negroes representing the extreme) see better at night, whereas light-eyed persons (albinos representing the extreme) are less sensitive in darkness.

Another investigator reports that dark-eyed persons withstand dazzling glare better than blonds.[3] Our own results from testing 1,238 individuals also indicate that light-eyed persons are more sensitive to glare than dark-eyed persons. This may be explained by the fact that light pigmented eyes, being more transparent than eyes with dark irises, transmit more light.

In this experiment an attempt was made to distinguish eyes on the basis of darkness of iris pigmentation. All the light-grey-, blue- and green-eyed subjects were placed in one group, and the dark-brown- and blue-eyed subjects were placed in another group. We feel that the important factor is not the color but the lightness or darkness of the eyes.

Six hundred and twenty light-eyed individuals and 618 dark-eyed individuals were used as subjects. The apparatus used in this investigation was a glare sensitivity test[4] which simulates in miniature a night-driving scene. While the subject holds his head against the eyepiece, two glaring lights shine into his eyes. The intensity of light at the eyepiece is kept constant at all times. The subject during the test is required to distinguish the direction of stripes painted on a rotating test object which has its own source of illumination. The threshold of sensitivity is determined by increasing the illumination on the test object until the subject can distinguish correctly the direction of the lines. At this point the index of glare sensitivity is ascertained in terms of the amount of light required to correctly perceive the lines. Fig. 1 shows that light-eyed individuals in all age groups are more sensitive to glare than dark-eyed individuals.

We have found that light-eyed persons are under a double handicap, at night: (1) Their eyes are not as sensitive under low illumination as those of dark-eyed individuals, so they are not able to distinguish dim objects when driving alone on a road at night; (2) they are more sensitive to glare than dark-eyed individuals, so that when confronted by glaring headlights they see the road less clearly.

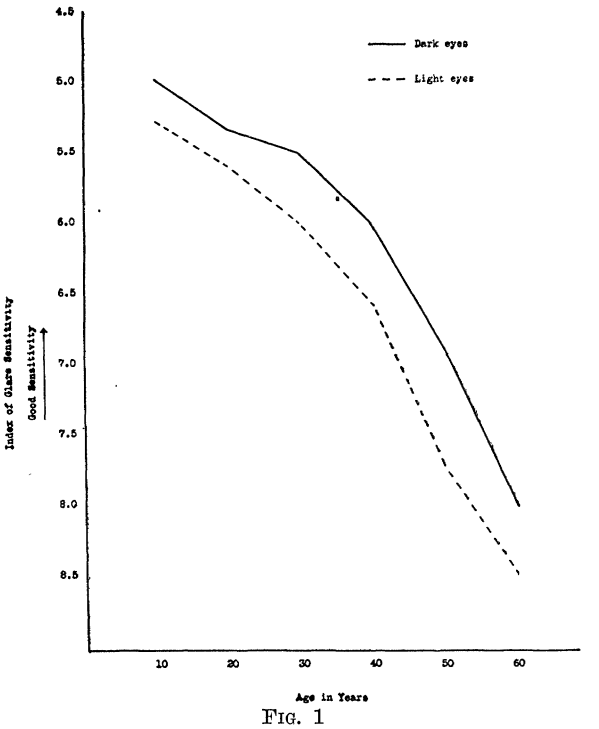


FIG. 1

There is also evidence that light-pigmented eyes have larger than average[5] pupils. Before acceptance, this discovery needs to be verified with more subjects. If found to be generally true, it may help to explain why light-eyed persons are blinded more by glaring headlights.

If future investigation corroborates the findings outlined above their applications to the automobile driver problem are as follows: (1) Light-eyed drivers as a group should be educated to drive more cautiously at night because of their poorer night vision and their greater susceptibility to glare from automobile headlights.

(2) Light-eyed drivers should be educated to protect their eyes by sun glasses in the daytime.

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## ON THE CITATION OF AUTHORITIES FOR BOTANICAL NAMES

PEATTIE has recently made a plea for botanists to take up again the one-man citation for scientific names,

[1] H. Helson and J. P. Guilford, *Jour. Gen. Psychol.*, 9: 58–76, 1933.

[2] J. N. Roy, *Arch. Ophthal.*, 48: 72–83, 1919.

[3] E. Bayer, *Indust. Psychotechn.*, 10: 207–209, 1933.

[4] For description of glare test see: "Driver Testing Results," monograph by H. R. DeSilva, *Harvard Traffic Bureau*, 1937.

[5] H. S. Langfeld, *Ztsch. f. Sinnesphysiol.*, 42: 349–358, 1907–1908.