

A NOTE ON THE SO-CALLED ENLARGEMENT OF THE BLIND SPOT IN GLAUCOMA*

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ABOUT sixty years ago Bjerrum described his method of investigating the central fields in cases of glaucoma, and after the publication of Seidel's findings (1915), it became the custom to describe the central field changes in glaucoma as wedge-shaped scotoma arising from the blind spot, and progressing to form Bjerrum's arcuate scotoma, which process was frequently described as "enlargement of the blind spot". This was the universally accepted state of affairs until the late nineteen twenties, although one does find the occasional reference to the occurrence of scotoma arising away from the blind spot (van der Hoeve, 1915; Elliot, 1921). However, Traquair (1931) pointed out that even if the arcuate scotoma did develop in this way, the term "enlargement of the blind spot" was not justified as it was more applicable to the condition found in cases of papilloedema, or coloboma of the optic disk. He further showed that when working with small test-objects, the earliest defects were found to be scotoma arising away from the blind spot and only joining it later to form the arcuate scotoma, and this opinion he has maintained in later publications.

It is therefore somewhat confusing to find that recently published textbooks still adhere to the original description of the development of the Bjerrum scotoma and use the term "enlargement of the blind spot". In view of this diversity of opinion, it was felt to be of interest to try to establish the site of origin of the arcuate scotoma by investigating the central fields of patients whose clinical histories suggested the possibility of early glaucomatous changes.

Thirty-five such cases were investigated on the Bjerrum screen at 2 metres. All fields were done with white objects from 20 mm. to 2 mm. (The 1 mm. object was not satisfactory on this screen as it was frequently not seen beyond the 15° circle by normal subjects.) Of the cases examined fifteen were found with scotoma only demonstrable with small objects and therefore presumed to be early defects. It appears from these cases that, apart from baring of the blind spot to a 2 mm. object, the earliest defect is a

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scotoma only demonstrable with small objects which appears in the temporal field, most frequently the upper, from 15° to 25° from the fixation point, and not connected with the blind spot. This scotoma later enlarges and runs into the blind spot, but it is then usually possible to locate a more dense nucleus not yet connected with it. In one case a scotoma with no nucleus was found connected to the blind spot. This scotoma was not wedge-shaped, and was narrowest at its junction with the blind spot.

In no case was the blind spot found to be enlarged, and it seems that this term is not applicable to the perimetric changes in glaucoma.

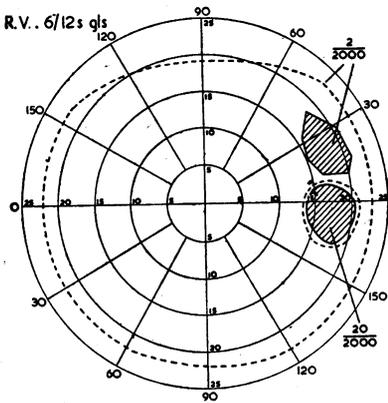


FIG. 1.—Case 1, F.R., male, aged 51.

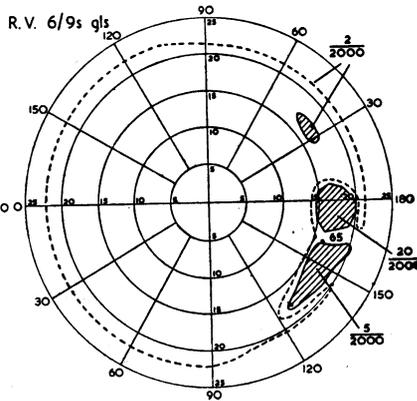


FIG. 2.—Case 2, P.N., male, aged 44.

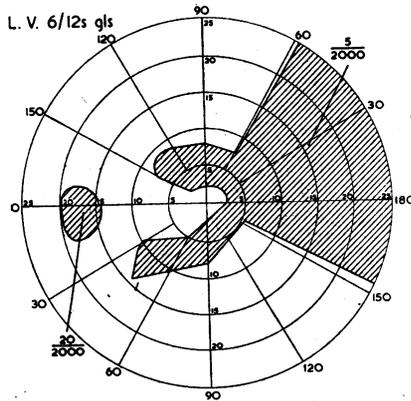


FIG. 3.—Case 3, M.D., female, aged 56.

Case Histories

The following cases are selected to illustrate these points:

Case 1. F. R., male aged 51 (Fig. 1). Recurrent attacks of haloes and misty vision in R.E. since 1947. No abnormality found until December, 1949, when he appeared one evening with a typical attack of sub-acute glaucoma which settled with eserine. Optic disks normal. Peripheral fields full. R. central field shows a typical early scotoma. L. central field full. Admitted for R. trephine.

Case 2. P. N., male aged 44 (Fig. 2). Bilateral trephine January, 1948. Condition has remained stationary since. R. peripheral field normal. L. shows gross constriction. R. central field shows barring of the blind spot with a small scotoma above it and a more dense one below.

Case 3. M. D., female aged 56 (Fig. 3). September, 1949, cupping of left optic disk, noticed on routine examination. No symptoms. L. trephine October, 1949. R. peripheral field full. Central field shows barring of blind spot (2 mm. object). L. peripheral field shows nasal constriction. Central field shows arcuate scotoma above and below the fixation point, breaking through on the nasal side. (This is an example of a fairly advanced case with the defects still well clear of the blind spot.)

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