AN INTRODUCTION

TO

CLINICAL PERIMETRY

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WITH 227 ILLUSTRATIONS AND 3 COLOURED PLATES

CHAPTER I

THE NORMAL FIELD OF VISION

WE have seen that the field may be regarded as a hill of vision surrounded by a sea of blindness. For purposes of description, we must consider this hill as shown
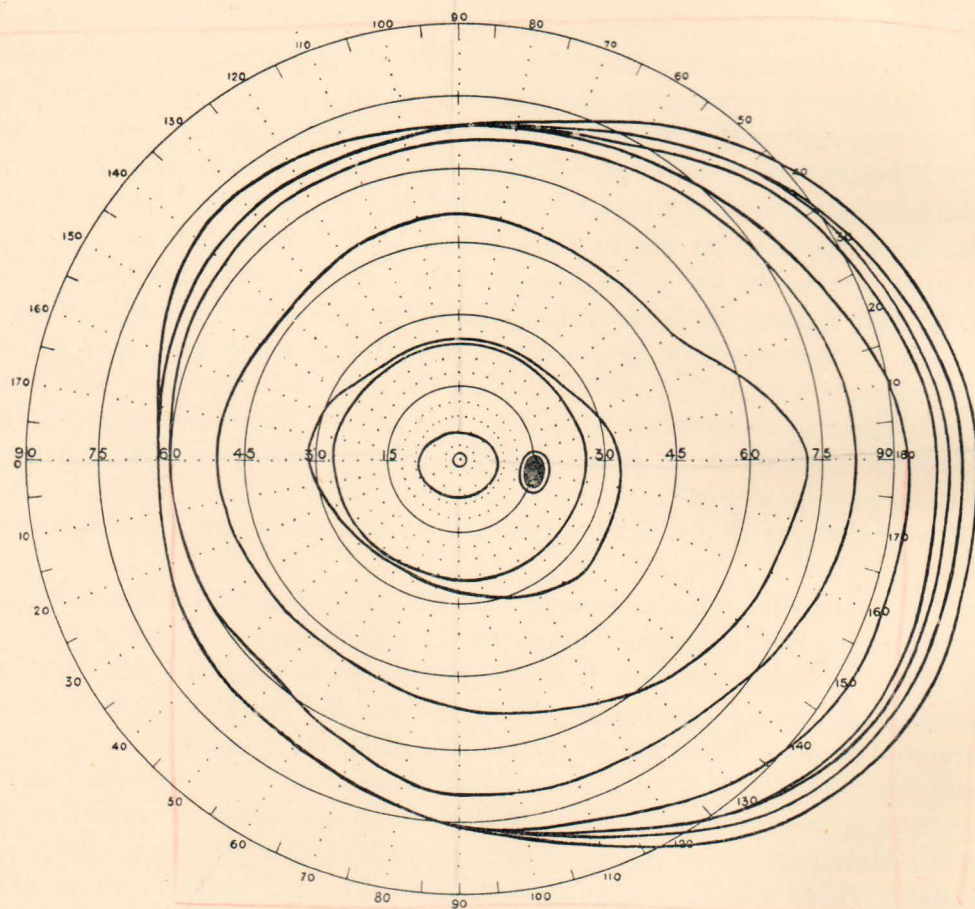

FIG. 1.—CHART OF THE VISUAL FIELD OF THE RIGHT EYE, SHOWING THE ISOPTERS FROM THE PERIPHERY INWARDS TO THE CENTRE FOR $\frac{160}{1000}$, $\frac{80}{1000}$, $\frac{40}{1000}$, $\frac{20}{1000}$, $\frac{10}{1000}$, $\frac{5}{1000}$, $\frac{5}{2000}$, $\frac{3}{2000}$, $\frac{1}{2000}$, $\frac{1}{4000}$, AND $\frac{0.63}{4000}$.

The numerator of each fraction represents the diameter of the test object in millimetres, the denominator the distance from the patient. It will be seen that as the test object is reduced in size the field becomes smaller, slowly at the periphery, but rapidly towards the centre. On the nasal side the larger test objects all give the same extent of field, so that the nasal edge of the field is perpendicular, the temporal edge being steeply sloping. The geometrical centre of the field is about 20° to the outer side of the visual axis or physiological centre.

upon a map or chart by contour lines in the usual way (Figs. 1, 2). The centre point of the chart corresponds to the visual axis, the object directly regarded, the fixation point or centrum. The area of the map is measured in degrees from this point, round which

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the coast-line of the island or outer boundary of the field is indicated by the outermost or lowest contour line.

These lines are termed isopters. The position of any isopter is determined by the size of the visual angle subtended by the test object to which it corresponds. Thus if an object of 160 mm. diameter is used at 1,000 mm. distance, the angle subtended is
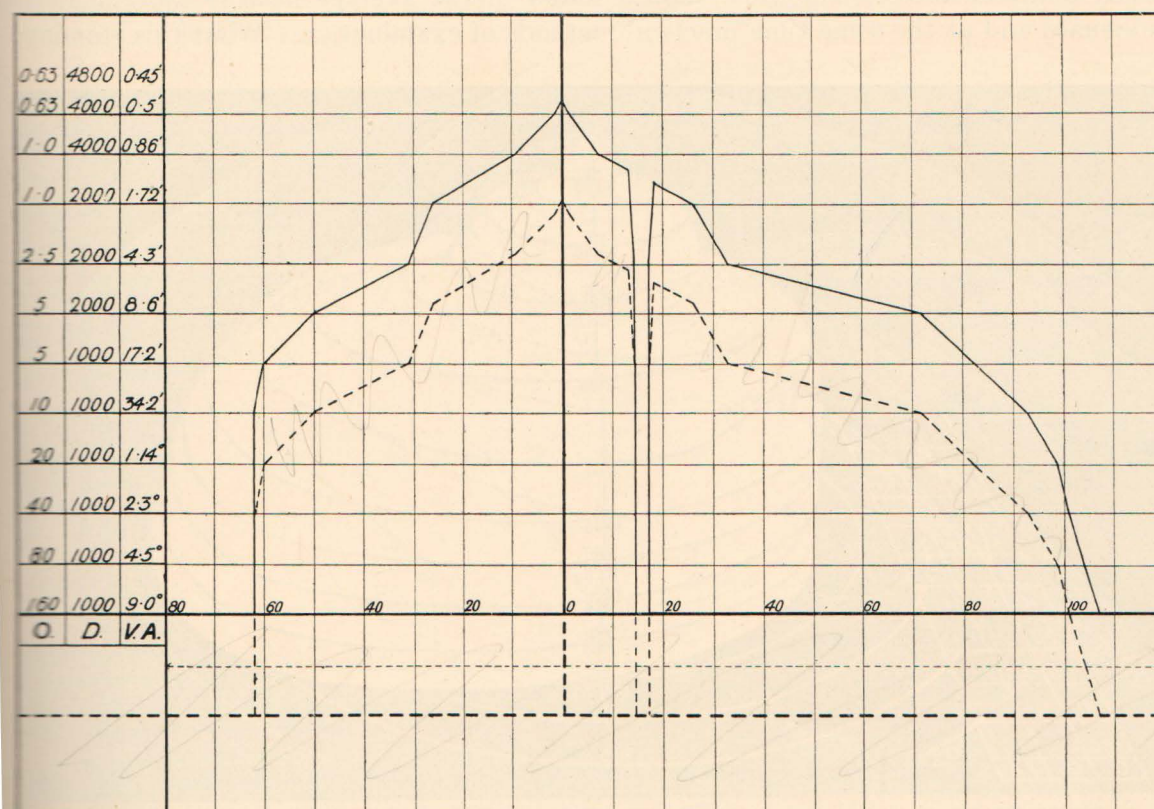

Fig. 2.—The Field of Vision regarded as a Hill seen in Section.

Modified from Roenne (291). The continuous horizontal base line indicates the extent of the field in degrees, the vertical lines the visual acuity : O the diameter of the test-object in millimetres, D its distance from the eye in millimetres, and V.A. the visual angle subtended at the nodal point. Beginning with an angle of 9°, the visual angle is halved for each successive isopter ; a modification is introduced by the substitution of $\frac{1}{2000}$ and $\frac{1}{4000}$ for the original figures (Roenne) of $\frac{2 \cdot 5}{4000}$ and $\frac{1 \cdot 25}{4000}$. The interrupted line shows the alteration produced by a *uniform* depression of the acuity over the whole field. The blind spot appears as a pit with crateriform mouth. It is shown a little wider than it should be, as if its full width lay on the horizontal meridian instead of slightly below it.
This chart is intended to illustrate a clinical rather than a mathematical conception of the composition of the visual field in terms of relative visual acuteness ; it is at least approximately accurate.

$\frac{\ }{\ } \times \frac{130°}{\pi}$, and the isopter is the isopter for $\frac{160}{1000}$ and the contained field is the field for $\frac{160}{1000}$ (see p. 9).

The field is usually charted as seen by the individual whose field is represented. Thus the field of the right eye is placed upon the right side of the chart with its temporal or right side towards the right, and its nasal or left side towards the left, and the field of the left eye is placed upon the left side of the chart with its temporal side to the left.