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HEMISPHERIC PERIMETERS OF THE 19TH CENTURY

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FÖRSTER of Breslau, the father of clinical perimetry, in 1857 conceived his arc as a part of an imaginary cupola (cf. AUBERT & FÖRSTER, 1857).

Fifteen years later, SCHERK (1872) of Berlin presented the first hemispheric perimeter (fig. 1). This black cupola, which could be opened to assure illumination, was graduated in meridians 30 degrees apart and parallels 10 degrees apart; its radius was approximately 30 cm. It had a mobile point of fixation.

PFLÜGER of Bern modified this cupola around 1881 (fig. 2): shortened on the nasal side to 70 degrees, it was turnable according to the eye to be examined. The base was painted in neutral grey (cf. HEGG, 1892).

The tests with the SCHERK and PFLÜGER instruments were conducted by rods, the limits of the field and the scotoma were inscribed in chalk on the concavity. The movements of the guided test were also used: circular, radial, and spiral.

SCHWEIGGER of Berlin in 1873 demonstrated a rotating cupola with, on one meridian, a series of closable perforations, only one remaining free. Unfortunately, SCHWEIGGER did not provide an illustration with his very brief communication, so we do not know his system of inscription or registration.

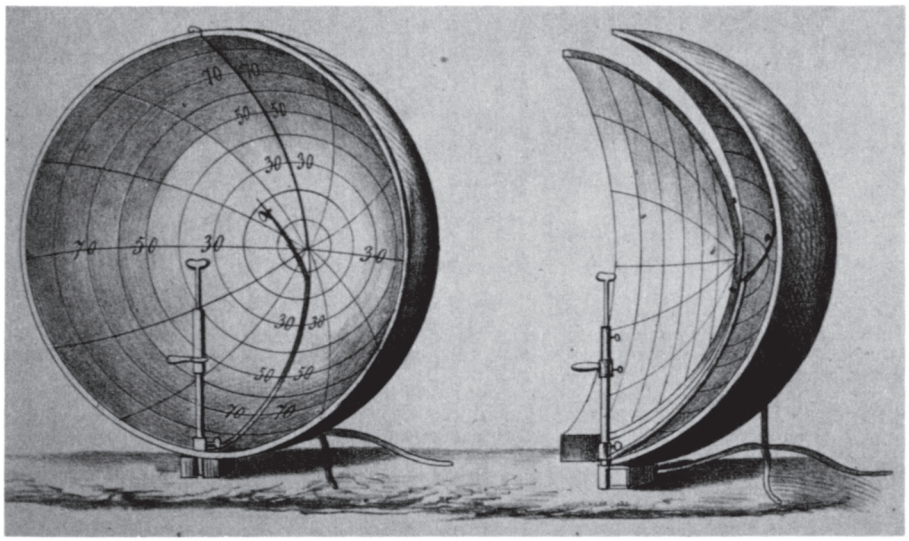


Fig. 1: Perimeter of SCHERK (1872)

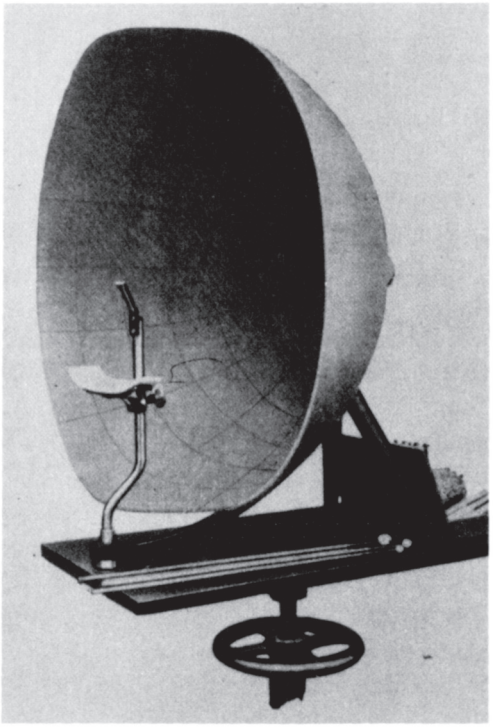


Fig. 2:
Perimeter of PFLÜGER (towards 1882)

MONDEJAR, a Spaniard, ordered the construction in 1898 of a metallic hemisphere 30 cm in radius with 32 radial slits (fig. 3) in which the tests — large-headed pins supported exteriorly by little plugs or knobs of wood — were shifted. Their positions were visible on the convexity.

DYER, an American, made a spiral exploration in 1885 (figs. 4 and 5): in his semi-transparent cupola, the test was guided through the slit of a needle turned by a handle. This apparatus was also supplied with a recorder.

CARTER, an Englishman, perfected a few details of DYER's perimeter in 1886: for example, he used a small electric bulb as the test.

True scanning was made possible already in 1873 by JEAFFRESON of Newcastle-on-Tyne. It was a projection system (figs. 6 and 7): a white cupola of 30.5 cm radius formed the facade of the glas-lamp unit from which the light penetrated, via an orifice provided with diaphragm disks and colored filters, to a mobile convex mirror. The concavity was graduated in meridians of 15° each, in 3° in the regions of the blind spot, and in parallels of 10° each.

The illumination of the cupolas, except for DYER's, remained inadequate, although McHARDY of London succeeded in illuminating his arc in 1882.

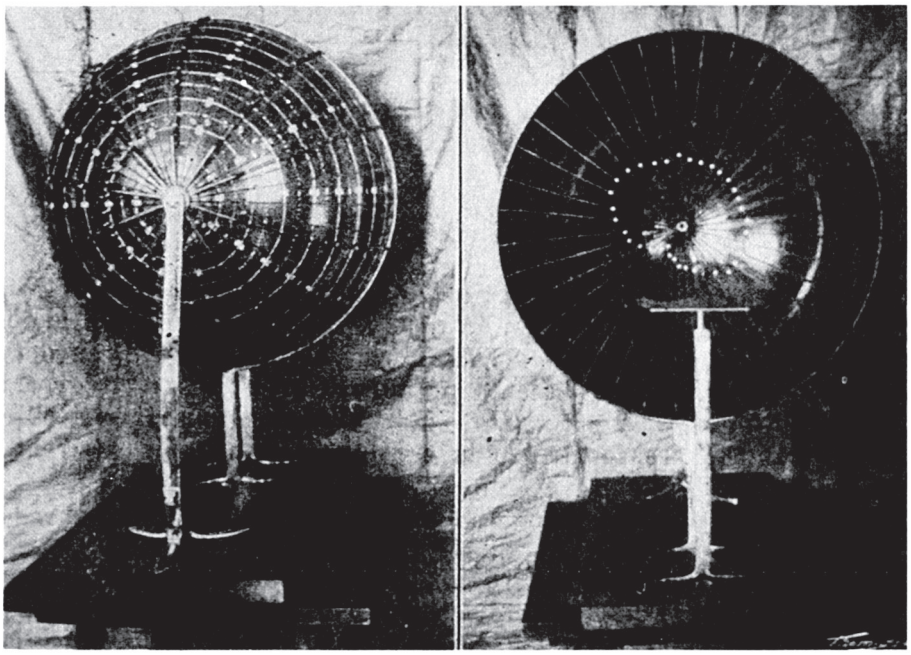
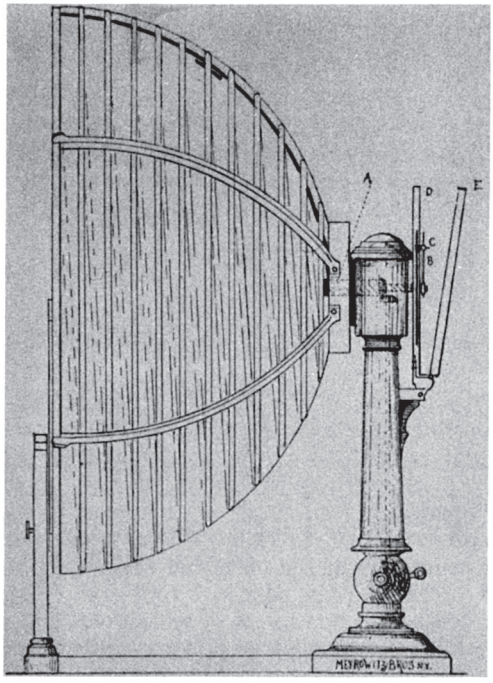
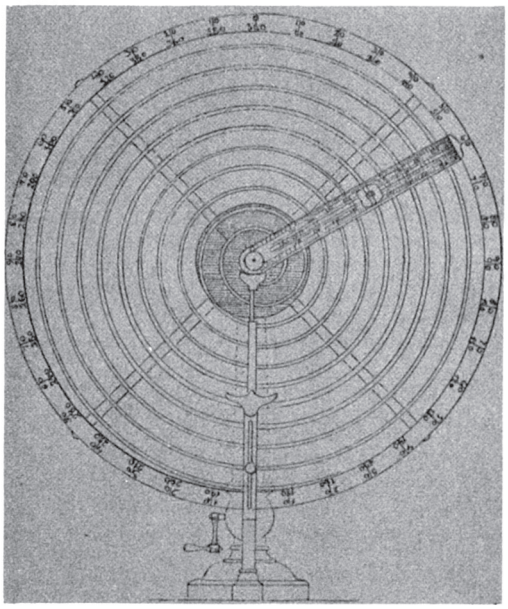
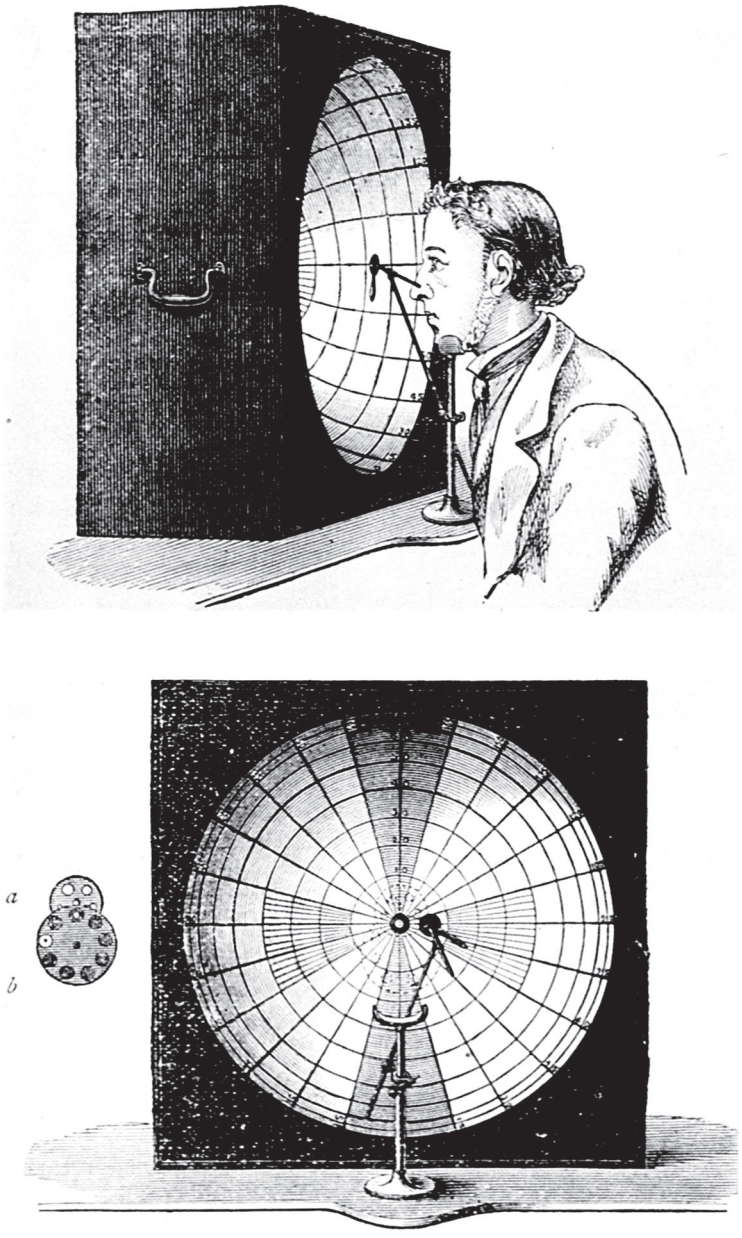


Fig. 3: Perimeter of MONDEJAR (1898)





Figs. 4 and 5:
Perimeter of DYER (1885)



Figs. 6 and 7: Perimeter of JEAFFRESON (1873)

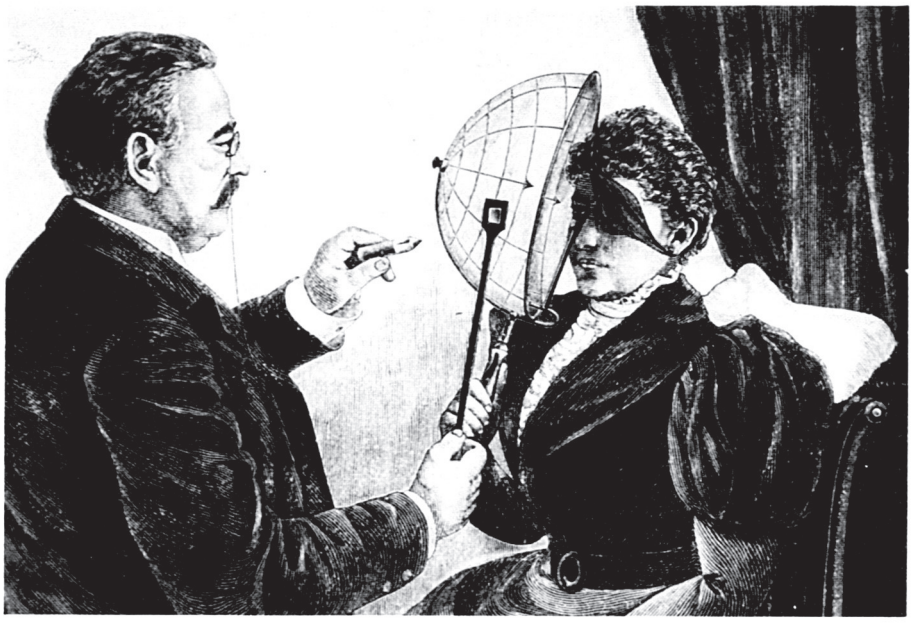


Fig. 8: Perimeter of ASCHER (1898)

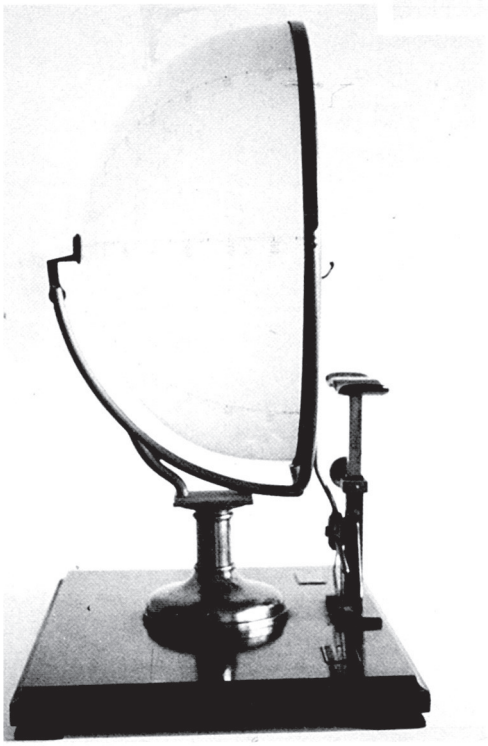
ASCHER of Frankfurt made use of a new transparent material, celluloid (fig. 8): he constructed a small hand perimeter with a 17 cm radius in 1898. The movement of the tests as well as he inscription of the limits was done on the convexity.

No other transparent cupolar perimeter was ever described in the literature; I was lucky to find one in Paris. It was a cupola of frosted glass with a radius of 15.5 cm and 8 meridians graduated each 10° (figs. 9 and 10). Two brass plaques on its wooden base were inscribed: ,,Périmètre du Pr. PANAS'' and ,,BOUZENDROFFER, constructeur à Paris''.

Thanks to my friend, Mr. Prudhommeaux of Caen, I succeeded in discovering its first owner: Dr. Laignier, senior, former clinic chief at the ,,*Clinique de Louis de Wecker,* Rue de Cherche-Midi'' in Paris.

I would like to note here that LUDWIG de WECKER, a German born in Frankfurt, became French thanks to a charming French lady. Taken with her, he followed her to Paris.

Finally, there is a singular perimeter that STILLING presented in Berlin in 1877: it was a sphere of unpolished glass approximately 23 cm in diameter that permitted examination to 45° (fig. 11). The mechanism to move the test is interesting: an arti-



Figs. 9 and 10:
Perimeter of PANAS (no date)

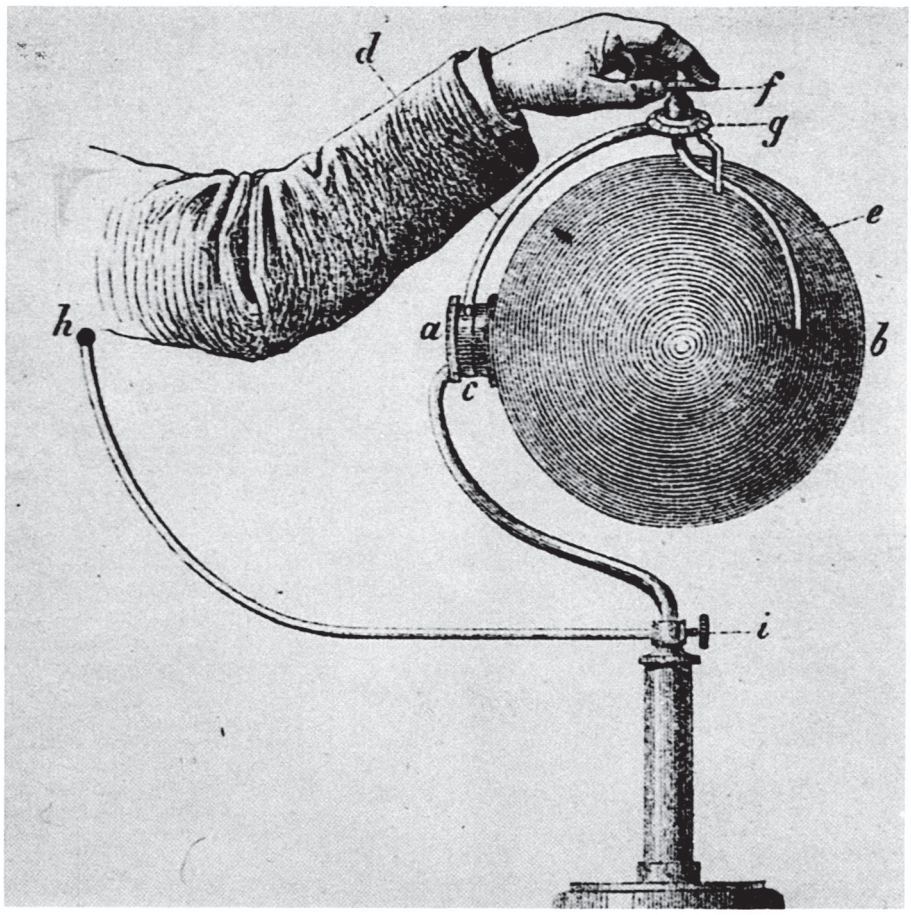


Fig. 11: Perimeter of STILLING (1877)

culated arm assures perfect scanning, the position of the test being readable on two graduated rings. Two polar orifices and a small fixation sphere make examination of the central field possible.

At the end of the XIXth century, there were nine different hemispheric perimeters, several test movement devices, and two scanning techniques — one by projection and one by registration. The problem of illumination of the cupola, nevertheless, was not solved. ,,The modern hemispheric perimeters are the fruit of a very old idea'', stated DUBOIS-POULSEN (1952) in his magistral work on the visual field.

Unfortunately, the ideas noted above were born too soon, and their ingenious realizations fell into oblivion.

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Acknowledgments

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