

A case of tobacco amblyopia presenting unusual defects in the visual fields : and a case of optic atrophy complicating beri-beri / by F. O'Kinealy.

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Publication/Creation

[Calcutta] : [Spink & Co.], [1901]

Persistent URL

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A CASE OF TOBACCO AMBLYOPIA
PRESENTING UNUSUAL DEFECTS IN
THE VISUAL FIELDS

AND

A CASE OF OPTIC ATROPHY COMPLICATING BERI-BERI.

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Case I.—Tobacco Amblyopia:—An Eurasian male, *æt.* 38, clerk, unmarried, was admitted for defective vision on the 25th February 1901.

History.—About fifteen years ago the patient suffered from a mild attack of syphilis, and two years before his present trouble was subjected to mental worry for some time.

He has been a heavy smoker for years, consuming on an average about 3 pounds of tobacco a month, represented by 250 strong Burmah cheroots and half a pound of American tobacco of medium strength. He drinks in moderation, about three quarts of spirits monthly.

In March 1900 his vision first began to fail while engaged in an excessive amount of clerical work, during which he smoked more than usual.

The first symptoms noticed were "red spots" before the eyes, accompanied by lachrymation, haziness of vision and pain. His sight improved for about three months with the aid of glasses, but gradually relapsed, till by the middle of November 1900 he could not read print, though still able to decipher manuscript. Since then his vision has been slowly deteriorating, though he has lately diminished his smoking.

Beyond "cataract," from which his father is said to be suffering, and the death of a sister from supposed "kidney disease," there is nothing suggestive of ocular troubles in his family history.

Condition on admission.—The patient looks healthy, and no abnormality, other than his visual defect, can be discovered.

Ophthalmic examination—Eyelids and extrinsic muscles healthy, and moving normally on both sides. T. n.

Conjunctivæ ; cornæ and anterior chambers natural
Aqueous clear.

Irides healthy, pupils round, equal, and reacting normally to light and accommodation.

Ophthalmoscopically : media clear, optic discs healthy, and fundi normal.

V = $\frac{6}{18}$ imperfectly, and Jaeger 18 with difficulty in each eye, not improved ; no astigmatism. Vision better in half lights. A red object on a green ground appears black when seen at a distance. No apparent congenital colour-blindness.

The Visual Fields, examined with test objects 1 cm. square, shew the following defects :—The Right Field (Fig. I) is contracted outwards for white, red and blue, as well as below for the two latter colours. Green is not distinguished as such anywhere in the field, except so occasionally and doubtfully at the fixation point that the area cannot be mapped out ; it is called "yellow" or "white" or "red" indiscriminately. Yellow is also indistinguishable and is described as "light red" throughout the field. There are two scotomata for red and blue ; the larger fan shaped and situated in the upper and inner quadrant, the smaller extending from around the fixation point

outwards beyond the blind spot to 20° , and lying chiefly in the lower and outer quadrant. Over these areas the above colours are seen as "dark red" and "dark blue" respectively, while between them in the upper and inner quadrant is a small strip of the field, about 5° wide, in which there is no defect. In the larger scotoma the defect for blue is the greater by 5° upward and 10° inwards, that for red extending 5° further downwards; while in the smaller scotoma the defect for red is slightly larger upwards, and that for blue extends somewhat further inwards.

In the Left Field (Fig II) there is contraction for white outwards, and in all meridians for red and blue. Neither green nor yellow can be distinguished as such anywhere in the field, the former being called "white" or "yellow," and the latter "light red." There is a scotoma for red and blue extending from around the fixation point outwards beyond the blind spot to 30° , in which area these colours are seen as "dark red" and "dark blue" respectively, becoming darker towards the fixation point. The defect for blue is the greater by 5° upwards.

The treatment consisted of absolute abstinence from all tobacco and alcohol, combined with the administration of Potassium Iodide, Mercury and Strychnine, the latter drug being given hypodermically as well as by the mouth.

He improved considerably, and at the time of his discharge from hospital (April 17th, 1901), his visual condition was as follows:—

V. R. = $\frac{6}{9}$ imperfectly, Hm. + $\cdot 5$ D = $\frac{6}{9}$.

Jaeger 16 easily,

c + 2.75 D Sph = Jaeger 1 @ 30.5 cm. with difficulty.

V. L. = $\frac{6}{9}$ imperfectly. Hm. + 5 D = $\frac{6}{9}$ with difficulty.

Jaeger 16 easily,

c + 3 D Sph = Jaeger 1 @ 30.5 cm with difficulty.

V. B. E. = $\frac{6}{9}$ imperfectly, Hm. + $\cdot 5$ D not improved.

Jaeger 12,

$$\frac{R + 2.75 \text{ D Sph}}{L + 3 \text{ D Sph}} = \text{Jaeger 1 @ 30.5 cm. fairly.}$$

Both Visual Fields (Figs III and IV) have improved. The limits for white are still contracted outwards, but the boundaries for colours more nearly approach the normal, and the scotomata for red and blue have disappeared. Yellow is still indistinguishable as such and is called "light red" throughout both fields, but

the perception of green has returned in a marked degree' (Compare with Figs I and II)

In the Right Field (Fig. III) there are two fan-shaped scotomata for green; the larger extending outwards, upwards and slightly inwards from within 10° of the fixation point, the smaller passing downwards from the fixation point. Over both these areas green is indistinguishable and is called "yellow" or "white." The boundary of the field for green in the lower and outer quadrant forms an entering angle, which dips in between the scotomata to 10° from the fixation point, just below the blind spot.

In the Left Field (Fig IV) there is a small wedge-shaped scotoma for green, commencing 10° from the fixation point and extending downwards and outwards immediately below the blind spot, within which the colour is described as "white."

Case II—Beri-beri, Optic Atrophy.—

A Goanese deck-boy, *æt.* 45, was admitted for beri-beri on the 22nd November 1900.

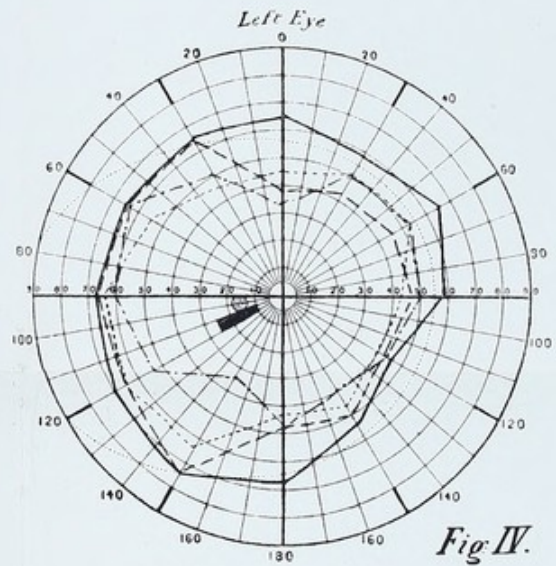
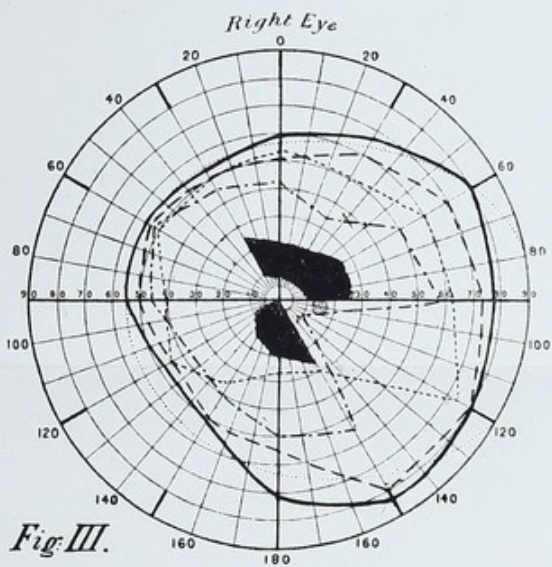
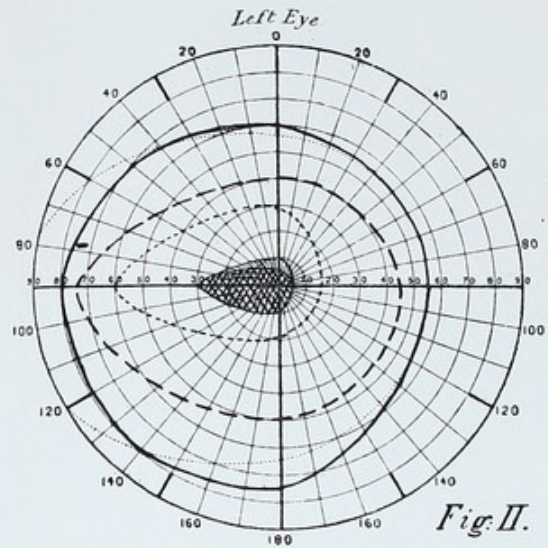
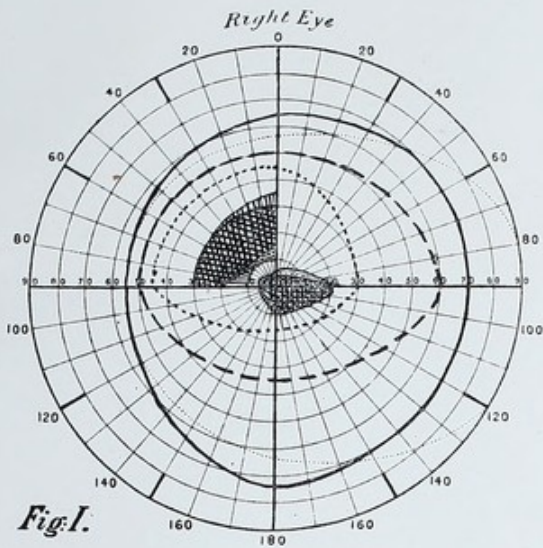
History.—About two months previously while in China, he first noticed "tingling" in his extremities accompanied by "a feeling of cold," and from that time gradually developed general swelling of the whole body, with breathlessness and loss of power to such an extent that he became bed-ridden.

There is no history of syphilis or alcohol.

Condition on admission.—The patient looked extremely ill and was quite helpless. Tongue clean and bowels regular. Temperature subnormal. Pulse 104 lying and 116 sitting. Dyspnœa marked. There was considerable loss of power in the extremities, with complete absence of the patella reflexes and ankle-drop on both sides, but no definite sensory disturbances. Anasarca was marked and involved the whole body with the exception of the genitals. Ascites was present, but there was no effusion into the pleuræ or pericardium. There were signs of œdema of both lungs at their bases posteriorly, and a cardiac systolic murmur was audible over the tricuspid area. The liver and spleen were normal. The urine was scanty, acid sp. g. 1020, and contained a trace of albumen.

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Fields.

White	————
Red
Blue	-----
Green	-.-.-.-

Scotomata.

Red and Blue	
Red only	
Blue only	
Green	



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He gradually improved, and after some time was able to get about. It was then noticed that his sight was defective, but the patient was so lacking in intelligence, that no satisfactory information regarding his eyes could be elicited. There never had been any evidences of external ocular trouble, nor could any be discovered on further examination.

The patient being quite illiterate, his sight was tested by means of dots¹ and shewed $V = \frac{3}{80}$ in each eye, not improved.

Ophthalmoscopic examination.—

Right Eye:—Media clear. There is marked pallor of the whole optic disc, especially of the temporal half, which is bluish white in appearance. The lamina cribrosa is clearly visible. The edge of the disc is sharply defined, irregular, and surrounded by a ring of pigment, which in places encroaches on its surface. There is a choroidal crescent immediately external to the pigment at the temporal margin of the disc. The retinal arteries are diminished in calibre and the main trunks show a well-marked light-streak in places. A small arterial twig passing downwards and outwards from the disc, shows distinct thickening of its walls with marked diminution of the blood column. About 3 d. d. upwards and outwards from the disc and parallel to its margin, is a group of four small circular yellowish soft-edged choroidal patches, which are crossed by branches of the ascending temporal artery and vein.

Left Eye:—Media clear. The condition of the optic disc is similar to that in the right eye, the edge is less irregular, and the deposit of pigment is confined to the temporal margin, where there is also a choroidal crescent. The diminution in the calibre of the retinal arteries is less marked, and the light streak is absent. About $\frac{1}{2}$ d. d. downwards and inwards from the disc is a single circular choroidal patch, similar to those described in the right eye.

The visual fields could not be taken owing to the patient's want of intelligence.

¹ Internationale Sehproben by Dr. M. Burchardt, with 5 Plates; Otto Enslin, Berlin, 1893. These test-dots being graduated for various distances, will be found useful for examining the vision of illiterate natives. They are obtainable from Messrs. Lawrence and Mayo, Calcutta.

Remarks.—The unusual features of the first case are the contraction of the visual fields, especially for red and blue, together with the absence of green and yellow vision, and the scotomata for blue. As a rule in tobacco amblyopia the peripheral boundaries of the visual field are normal, and there is a central scotoma for red and green. Cases of this disease are however mentioned by De Schweinitz,¹ in which a scotoma for blue has been described, but the defect is said to be rare. He also states that the entire field for red and for green may be abolished, while other cases are quoted in which a central scotoma for yellow has been found, with or without limitation of the colour-field.

In the present case there was no evidence of any non-toxic red-green blindness, nor could any cause other than tobacco be found for the amblyopia. In the earlier fields (Figs. I and II) the paracentral form of the scotoma extending from the fixation point to the blind spot, which is usually found in tobacco cases, is well shewn; while the fan-shaped defect in the right field (Fig. I) is suggestive of the remains of a "breaking through" of the scotoma, which sometimes occurs in these cases.

In the later fields (Figs. III and IV) the situation of the scotomata is unusual. In the case of the right eye however (Fig. III), the previous occurrence of "breaking through" is suggested by the proximity which exists between the scotomata, and the entering angle formed by the periphery of the field for green.

In the left eye (Fig. IV) the scotoma is in close proximity to the blind spot, in the neighbourhood of which the colour defect is said to begin sometimes.

¹ The Toxic Amblyopias.

The crossing of the boundaries for colours occurring in the later fields, is probably due to the retinal asthenopia which was present at the time of examination.

The abolition of the field for yellow is exceptional, but the improvement that has already taken place in the perception of the other colours, encourages hopes of its restoration.

With regard to the second case, it may be noted that Manson¹ looks upon implication of the nerves of sight as very exceptional in beri-beri. Kuies² mentions that the occurrence of optic atrophy in this disease has been reported by Laurençao and by Kessler. The latter observer also noticed that contraction and insufficient filling of the retinal arteries, with white sheaths around the arteries and veins, accompanied atrophy of the papilla.

In the present case the optic atrophy is attributable to the beri-beri, but the origin of the choroidal changes is doubtful.

Supplementary Note on Case I.—Since the above was written the patient has presented himself for further examination, the result of which is as follows :—

May 5th, 1901.—Distant vision unaltered.

Near vision improved :

R. = Jaeger 10 imperfectly,

c + 2.75 D Sph. = Jaeger 1 fairly.

L = Jaeger 12 imperfectly,

c + 3 D Sph = Jaeger 1 fairly.

B.E. = Jaeger 10 with difficulty,

$$c \frac{R + 2.75 \text{ D Sph}}{L + 3 \text{ D Sph}} = \text{Jaeger 1 easily.}$$

Both fields of vision remain somewhat contracted, especially outwards ; but the scotomata for green have disappeared, while the perception of yellow has returned at the fixation point, extending 10° outwards and 5° upwards from it in the right eye, and 5° outwards in the left. There is still a certain amount of retinal asthenopia.

¹ Allbutt's System of Medicine. Vol. II.

² The Eye in General Diseases.

