

necessarily sometimes at fault for the individual eye. On the other hand, it is not proved, and it is not likely, that the instrument errs to the extent that McClean's experiments suggest.

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## HOMONYMOUS HEMIANOPIA OCCURRING IN A CASE OF MALIGNANT MALARIA

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THE following case is, I think, worthy of record, because I can find no previous mention of a similar one:

Lieut. W., aged 28, admitted into hospital suffering from malignant malaria; was sent to see me because of defective vision on June 6, 1918. He walked into the room and I noticed that he walked like a man who had very defective vision, holding his hands rather far stretched out and with his eyes widely open and staring. In answer to the question as to what he complained of, he said that his sight had gone; he could not see where he was going, and it was as though he were "shut in at the sides." He told me that he had come down the line with malaria and had had numerous injections of quinine en route. When I heard this I thought to myself at last here is a case of quinine amblyopia. (NOTE.—I have still to meet one here—after over three years of ophthalmic work and with thousands of cases of malaria and hundreds of thousands of men taking quinine, there has been no case of quinine amblyopia, and neither have I heard of one at any of the other hospitals.) However, on further questioning him he stated, with many pauses for recollection, that on May 23, when he got out of bed to wash, he suddenly felt as though he had been struck between the eyes and had a severe pain in the head right through to the back (occipital region), and found that he could not see properly and had not been able to since. He remembers nothing clearly from that time onwards until six days later on May 29, when he remembers being carried into hospital at Kantara, and has remembered things that happened after this. And from a statement by a friend who was in hospital with him he was "delirious" during this period.

The history of the early part of his illness was as follows :

While in the firing line in Palestine he "felt queer, and his legs gave way under him" and as he happened to be near the M.O.'s hut he called in to see whether he could get any medicine. The Medical Officer found that he had a temperature of 102 degrees, and sent him to hospital. The following particulars are obtained from his field card notes: "Admitted to hospital May 18, '18, temperature 101·4 degrees. Blood examination showed malignant malarial parasites; intramuscular injection of quinine bi-hydrochloride gr. x. was given.

May 19, '18.—Temperature 101·2°. Quinine sulphate gr. x., t.d. by mouth and further 10 grains quinine bi-hydrochloride intramuscularly,

May 20, '18.—Temperature 99·2°. Intramuscular injection of quinine bi-hydrochloride gr. x. and quinine sulphate gr. x., t.d. by mouth and also on May 21, '18.

May 22, 18.—Note states: T. 100°. Pulse 80. Spleen, not felt. Liver, not enlarged. Skin red and marked dermatographia. Bowels constipated, but no cerebral signs. Quinine sulphate gr. x., t.d. and calomel and salts by mouth given.

May 24, '18.—Temperature keeps up—further intramuscular quinine gr. x. given and also on May 25, '18.

May 28, '18.—Temperature now satisfactory. Quinine only by mouth.

*On examination.*—The pupils were round, rather wider than normal, but contracted in a bright light although not briskly—the right one reacting more sluggishly than left.

*Visual acuity.*—R. 6/24, not improved. L. 6/36 partly, not improved. Reads J.6 with difficulty, having to pick out all the letters first. *Fundi* both healthy in appearance, vessels normal in calibre and discs of good colour. *Fields* show right homonymous hemianopia absolute and complete for colours and white; no movement or form sense or perception of light in the blank areas. *Wernicke reaction* not determinate.

*Further examination a few days later* brought out the following facts:

No history of a previous illness, and his sight has always been perfect; in fact, he was a "marksman." He had been using a mosquito net when taken ill, but had had no prophylactic quinine. He says he now feels fit, except that he has a heavy aching of the head across the brows and at the back as though something were tied tightly around his head. He states that he cannot explain things well as his memory has become bad and he cannot think clearly. He has difficulty in recalling events that have happened at any period of his life (for instance, he took nearly ten minutes to remember what his occupation was previous to the war), and the

deficiency is most marked for the period of the last few weeks. He speaks clearly, but rather jerkily, and apparently gets sudden flashes of memory of past events, and tells me at once before he forgets, which he does very easily. He says that it feels too much effort to think about anything, and he feels that he is likely to repeat his words. He has no difficulty in explaining the meaning of words read and can describe objects seen or touched. He finds trouble in spelling long words, but can spell short ones readily, and he can tell the time by a watch when told which is the short hand and which is the long one, and can do arithmetic. He is rather depressed, but he looks well nourished and not ill. He has no visual hallucinations. His urine is normal, Wassermann reaction is negative, and blood films show no malarial parasites, but marked excess of mononuclear leucocytes. Pupil reactions as before, ocular movements full, no nystagmus. There is marked tremor of his hands. Patchy anaesthesia of face and head, mostly on left side, and there is a patch of hyperaesthesia on left side of external occipital protuberance—otherwise there are no painful points. The cranial nerves are intact, knee jerks are normal, Babinski negative, and no Kernig's sign. There is no loss of power in his limbs, but there is marked defective sense of orientation in localizing the position of hand and foot (of right side) when these are placed in different positions.

In considering the situation of the lesion in this case, there are four points to be taken into account. These are:

1. Presence of R. complete homonymous hemianopia.
2. Diminution of central visual acuity,
3. Disturbance of peripheral sensation.
4. The loss of sense of localization of the limbs of right side of body.

These facts suggest a lesion of the brain near the angular and supramarginal gyri and the posterior part of the internal capsule (optic radiations) on the L. side. The sudden onset suggests a vascular lesion and the presence of malignant malaria with cerebral symptoms that a blockage by malarial parasites of a vessel or vessels in this part of the brain may be the cause of the symptoms.

