

in the organs have been found at all suggestive of prolonged local disturbance of the circulation.

Occasionally there are symptoms pointing to serious disturbances in the functions of the brain. A number of the patients have been epileptic; but with the exception of the first case, to which I shall refer, I know of no instance in which the attacks appeared to be directly associated with the development of Raynaud's disease. In Case XIX. of Raynaud's original thesis, usually quoted as an illustration, the woman had epileptiform attacks which preceded and were not specially related to the gangrene of the feet of which she died.

Our attention was directed to cerebral symptoms in the disease by a patient at the Johns Hopkins Hospital, whose case is reported in full by Dr. H. M. Thomas in Volume II. of the *Reports* (1890). I give here a brief abstract and a note of his condition subsequently to Dr. Thomas's report :

CASE I. *For six winters attacks of Raynaud's disease; attacks of epilepsy occurring only when the local symptoms were present; hæmoglobinuria.*—This man, aged twenty-six years, had had for three winters in succession attacks of Raynaud's disease, the hands and feet and ears and nose being affected. The case presented nothing unusual so far as the local condition was concerned. He had had losses of substance in the ear-tips, but not of the nose or of the fingers. The most remarkable peculiarity was the occurrence of the disease in the winter only, and the association of it with severe epileptic convulsions and with hæmoglobinuria, a symptom which has been frequently noted in the disease. The epileptic attacks occurred only in the winter, and always in association with the local asphyxia and the bloody urine. The report given by Dr. Thomas is up to January 10, 1890. The patient was in the wards on two subsequent occasions: on February 6, 1892, and March 21, 1893. In the winter of 1891-92 the ears and nose troubled him very much, and he had had blotches on the arms. Up to the date of his admission he had had no convulsions. He had had several attacks of bloody urine. We did not see him again until March 21, 1893. During this winter he had repeated attacks of discoloration of the ears, nose, and fingers, with the passage of bloody urine. On this admission he had no convulsions. He had, however, two additional symptoms of great interest, namely, attacks of severe abdominal pain, resembling colic, which recurred at intervals, and enlargement of the spleen, which could be felt 4 cm. below the costal margin. The patient has not been under observation for the past three years, and I have not been able to find his address.

I can find no parallel case in which the epilepsy occurred only during the manifestations of Raynaud's disease.

So far as I can gather from the literature, the only instance in which aphasia developed in connection with the attacks is reported by M. Weiss.¹

A woman of very nervous temperament was subject to most aggru-

¹ Wiener Klinik, 1882.