patient quickly from the endemic region to a mountainous district where the disease has never existed. Prophylaxis is the only way in which to meet this disease with success.

### MALARIAL MULTIPLE PERIPHERAL NEURITIS.

Dr. Henry Strachan, Corresponding Editor, sends a communication on this affection as observed by him in 510 cases treated in the Kingston Public Hospital, Jamaica, during the past five years. Fairly full notes were taken of 121, and it was on these notes that he chiefly depended for statistics.

Strachan first describes the usual symptoms exhibited. The patient complains of "numbness," and a "burning heat" in the palms of the hands and the soles of the feet. The numbness is often accompanied by "cramps" and is worse at night and during wet weather. He complains also of impaired vision and hearing, and often of a feeling of constriction around the lower part of the chest. Usually an eczematous condition of the tops of the eyelids, the angles of the mouth, and the muco-cutaneous margins of the nostrils will be noted. The lips are unusually red, and the palms of the hands hot to the touch and hyperæmic. Should the case be one fairly advanced, there will be complained of, in addition, inability to walk well and incapacity to work owing to failure of motor power in the upper extremities. Such cases suffer most from constant pain in the extremities, especially the feet. One can almost pick out the cases of malarial peripheral neuritis by noting those patients who are sitting up in bed rubbing their feet, and moaning and crying. A patient in the more advanced stage will be carried to the hospital by friends. There is extreme wasting of the muscular system. He cannot move or even feed himself, any attempt at movement resulting in a peculiar, aimless jerk. The pigmentation of the skin is increased, and there is marked pigmentation in the palms of the hands, soles of the feet and lips, where the pigment is normally less in quantity in the colored races, than in the rest of the skin. Respiration is impaired owing to the condition of the respiratory muscles, all of which are called into play to aid in procuring the necessary amount of air. Should such a patient die, it is most often from the paralysis of the muscles of respiration becoming complete, or the heart being allowed to run riot without the restraining influence of the vagus

which has become involved. Death is, however, a rare termination of this form of neuritis; recovery, more or less complete, being the rule.

Strachan next examines more in detail the various points noted in the general description given, discussing first the subjective symptoms, such as, (1) dimness of vision; (2) impaired hearing; (3) numbness and cramps in the extremities; (4) girdle pain; (5) joint pains and other abnormal symptoms or sensations. Certain objective symptoms or signs are further discussed: (1) trophic changes; (2) monoplegias; (3) altered gait; (4) conditions of patellar reflex; (5) conditions of cutaneous reflexes; (6) conditions of sensations; (7) soreness of muco-cutaneous lines of junctions; (8) wasting of muscles.

In a few cases Strachan had seen bullous eruptions on the hands and feet, and in others small ulcers which had evidently resulted from untreated bullæ. Sometimes small scattered vesicles were seen on the fingers and toes. Desquamation of the palms and soles had been noted during convalescence. In two or three cases corneal ulcerations occurred. Facial paralysis was present in seven cases; in one double facial palsy was a marked feature, The patient recovered perfectly. In one case there was paralysis of the external rectus in each eye. The gait in all but very mild cases was markedly altered from the normal. The knee-jerk was absent in more than half the cases presenting themselves (53 per cent.); was exaggerated or subnormal in 23 per cent., and was normal in the rest. The condition of the cutaneous reflex excitability varied greatly—was exaggerated, diminished, absent or normal. Pain was almost always present. Even in very bad cases the prick of a pin was felt, although there was delay in the transmission of sensation. Sensations of touch, heat and cold, although delayed, and the former blunted or impaired, were only in the most severe cases completely absent. Soreness of the muco-cutaneous borders, *i.e.*, of the eyelids and lips (commonly), urethra, anus, or vulva (rarely) was almost the first indication that the patient was attacked. Wasting and contraction of the muscles was very marked in extreme cases, the "claw" hand and foot being prominent features. The changes revealed by the ophthalmoscope were varying degrees of retinal hyperæmia, rarely amounting to optic neuritis. Strachan had not seen optic atrophy, but

there was generally an increase in the pigmentation of the fundus. Pigmentation of the brain and spinal cord was the only feature noted post-mortem. Hyperæmia due to dilated peripheral vessels seemed to be an early feature, if not the earliest. The congested conjunctiva, and muco-cutaneous borders; the deep pigmentation which remained in so many cases as an evidence of the past disease, together with the pigmentation noted at the post-mortem examinations would support the idea of long-continued dilatation of the peripheral blood vessels.

Strachan concludes that the circulating poison which starts the nerve changes in this form of peripheral neuritis is the poison of *malaria*. It is the more chronic form of malarial poisoning which is followed by neuritis, just as the more chronic form leads to anæmia and renal changes, more frequently than the acute. By chronic is meant the almost daily occurrence, for varying periods of time, in persons living in malarial districts, or who have suffered from some intense form of malarial poisoning, of slight ague attacks, unattended by rigor and only followed by brief and slight sweating. Often the patient is only conscious of a feeling of lassitude and pain in the limbs. This going on for a long time, with at intervals a more acute attack, the patient finds himself growing feebler, anæmic, and suffering from ill-defined sensations of malaise. Such patients have sometimes enormously enlarged spleens.

The drugs which relieve or cure are anti-malarial,—especially quinine, perchloride of mercury, and arsenic. Good food is also important.

### EXPERIMENTAL NEURITIS.

Pitres and Vaillard,[41] to whom the subject of multiple neuritis is indebted for previous valuable investigations, have made a series of interesting experiments on the effects of hypodermic injections of ether in the production of neuritis. These experiments throw new light upon the subject of traumatic neuritis, and in addition have a practical, admonitory value to those using hypodermic injections, particularly of sulphuric ether. Cutaneous anæsthesia, disorders of motility, and even serious trophic lesions, have been observed following such injections, and the experimental researches of Arnozan and Salvat proved that the mechanism of these lesions was a neuritis. When an injection of half a cubic centimetre of

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