

HOOKWORM DISEASE.

[Condensed from a Paper.]

BY ANNA T. SORGENFREY.

(In the Pacific Coast Journal of Nursing.)

SIR Patrick Manson says, "Hookworm disease, since its discovery by Dubini in 1838, has become so widely diffused that it may be said to occur in nearly all the tropical and subtropical countries. Its marked characteristic is progressive anæmia. In many parts of India seventy-five per cent of the inhabitants are affected; in Egypt the anæmia it gives rise to is one of the common causes for rejection of troops in the army." Another authority says that in Ceylon it is considered as far more serious than cholera. It was found by another professor to be the cause of an epidemic of anæmia in a Cornish mine; it occurs in the mines of Austria and is abundant in Southern Europe. John D. Rockefeller recently donated one million dollars for the eradication of hookworm among the negroes and shiftless whites, commonly called "poor white trash" in our Southern States. Our island possessions, Porto Rico and Hawaii, are both heavily infected.

"The normal habitat of the hookworm is the small intestine of man particularly the jejunum, rarely in the lower reaches of the intestine and occasionally in the stomach. In these situations it attaches itself to the mucous membrane by means of its powerful capsule-shaped mouth, which is armed on each side by two claw-like hooks and one cone-shaped tooth. It obtains a plentiful supply of blood in this manner. It is supposed to shift its hold from time to time, the abandoned bite continuing to ooze blood for a short period. The red corpuscles pass through it unchanged, the plasma only being utilized.

"The female produces a never-ending stream of eggs which pass out in the fæces. While in the body of the host the development of the embryo does not advance very far, but on leaving the human body it proceeds in suitable circumstances to develop with great rapidity into certain other changes until it reaches a torpid condition; in that state it will live for weeks or months in muddy water, mud, or damp earth. In this way those handling the soil, the brick-maker, the miner, and the agriculturist are infected by the dirt adhering to their hands, dishes, etc., as well as by drinking-water." Nearly all the inhabitants of the tropics go barefoot, this being the most frequent manner of infection, the embryo which is microscopic, entering through the skin. It might

be interesting to hear about the intelligent way in which this embryo reaches the alimentary canal. After it enters the skin it proceeds through the circulation to the heart, the lungs, and finally to the œsophagus, where it is swallowed by its victim.

"Some idea of the intensity of the infection may be got from the enumeration in a given quantity of fæces—150 to 180 eggs per cubic centigramme indicate an infection of about 1000 worms, male and female." In other words, five or six eggs on an ordinary glass slide would indicate a heavy infection.

"Considering the constant drain of blood, the catarrh arising from the irritation of the mucous membrane, the consequent impairment of nutrition, as those poor people live usually on coarse innutritious food, it can be plainly seen that they are in a state of chronic starvation.

"The disease, as stated before, is characterized by marked anæmia, associated with more or less dyspepsia." One of the earliest symptoms is pain and uneasiness in the epigastrium, unnatural cravings, constipation, lassitude, pallor and mental apathy and depression. This last symptom is very marked. In the advanced stages the face is puffy and the feet and ankles swollen. There is no apparent wasting on account of the œdema present. Children infected with the disease are under-sized and under-developed.

A little girl eleven years old, weighing only thirty-eight pounds, was treated for heart disease and tuberculosis before it was discovered she had hookworm infection. That was one year ago. Now she is of normal weight and her height is so noticeable that her hookworm cousins are willing to be "stretched," too, as they call it.

In some instances the return to health was so sudden as to be remarkable. A new interest in life through a desire to go to work showed mental and moral, as well as physical improvement.

Thymol is the drug most popularly used. The patient is put on liquid diet for one or two days and an aperient, preferably Epsom salts, is given to clear the intestinal tract, after which thymol in twenty-grain doses (adult dose) is given every hour until three doses or sixty grains have been taken. One hour after the last dose of thymol another dose of salts is given. One or two hours after this the patient is allowed a light diet. No oil, alcohol, whiskey, wine, glycerine, or turpentine, used either as food or medicine, are allowed for the rest of the day, as thymol is soluble in all of these and poisoning by absorption of the drug might ensue, and therefore, collapse.

During treatment the patient should be in the recumbent position, as the drug produces an unpleasant form of mild intoxication, vertigo, and sometimes vomiting. In view of the emergencies that might arise it is imperative that the treatment be given by a trained nurse.

In San Francisco the first measures against the disease were taken by the Fruit and Flower Mission before the fire, and the recent experiment made by the Associated Charities shows what might be done if the city would provide funds to carry on the work systematically. The Charities paid the salary of a nurse for three weeks, during which time thirty-eight persons were treated in their own homes. Of this number twenty-one cures were effected at an average cost of \$3.25 per person cured, against at least \$10 per person if treated at the City and County Hospital until cured. Some of the patients who were restored to health had done no work for a year or more and were receiving at different times, aid from the Charities. When cured they became self-supporting.

These organizations have demonstrated that the problem is a sociological one. Funds should be provided to stamp out this pest, and if some definite action be not taken soon, we will have to count the cost later on, otherwise it should not require much imagination to picture the future of California's native sons and daughters.