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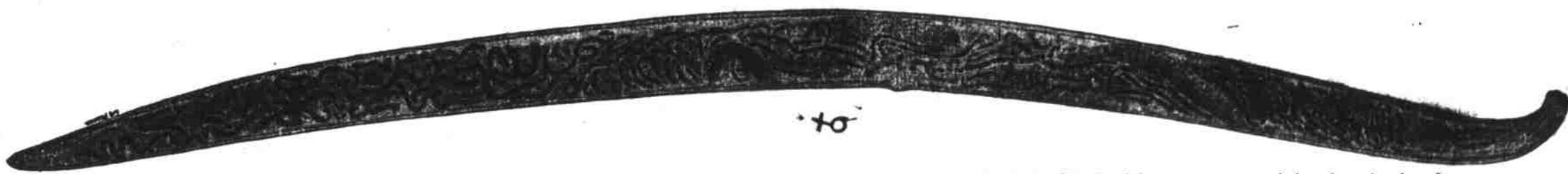
LUMBERTON, NORTH CAROLINA, THURSDAY, JULY 20, 1911.

WHOLE NO. 2684

Free Treatment for Hookworm Disease

The State and Robeson county are giving everybody an opportunity to be examined and treated for hookworm disease. Examination and treatment are absolutely free. For this purpose dispensaries have been established at the school buildings of the following places:

- St. Paul on Tuesdays, July 11th, 18th and 25th, August 1st, 8th and 15th.
- Maxton on Wednesdays, July 26th, August 2nd, 9th and 16th.
- Fairmont on Thursdays, July 13th, 20th and 27th, August 3rd, 10th and 17th.
- Red Springs on Fridays, July 21st and 28th, August 4th, 11th and 18th.
- Lumberton on Saturdays, July 15th, 22nd and 29th, August 5th, 12th and 19th.



A female hookworm, very much magnified. See how its head is turned backward and how its body is filled with organs containing hundreds of eggs.

Dr. B. W. Page, a representative of the State Board of Health, is in charge of the work, assisted by Mr. A. McKimmon of the State Laboratory of Hygiene, Raleigh. People are daily being examined. As many as forty-five have been treated in one day. About two-thirds of those examined have been found to have the disease. Every one who wishes to take advantage of this opportunity is urged to come at once and bring a small amount of the bowel movement to be examined. See the hookworms and their eggs for yourself through the microscope.

NORTH CAROLINA INFESTED WITH HOOKWORM DISEASE

An examination of more than 23,000 men, women and children from all parts of our State shows that about one-third of them have the disease.

Rural life is a very important predisposing cause of hookworm disease, and it has been demonstrated that this is largely due to the fact that sanitary arrangements in the country districts and in many towns are very primitive. The disease is spread by the infected human excrement of those who have the disease. Many of our farm and village dwellings either have no privy or the existing privies are unsanitary in construction. As a result, the soil around the privies, bushes or other hiding places is polluted. This is scattered by chickens, dogs, etc., and especially by heavy rains. Persons working or walking with bare feet, or wearing leaky shoes on such contaminated soil, are very liable to hookworm infection. When the bare feet are brought in contact with the infected soil, the little hookworm germs bore through the skin, producing an attack of "ground itch," which is usually the first stage of hookworm disease. The infection may also be taken in with muddy water, with fruit and uncooked foods, as plums, peaches, strawberries, lettuce, etc.

CAUSE OF THE DISEASE.

The disease is caused by small round worms, white or brownish in color, which are one-third to half an inch in length and the thickness of a number thirty sewing thread. In the adult stage they are found fastened by their jaws to the lining membrane of the small intestine. They suck the blood, make wounds, produce a poisonous substance which causes inflammation and catarrh of the bowel. This hinders digestion, and the damage done invites typhoid fever or tuberculosis. The great loss of blood is the most important damage. The patient may harbor several thousands of these worms, which lay many thousands of eggs. These eggs are discharged from the bowels of the patient to develop in the presence of oxygen in one to six days into the infecting germs, to add infection to this patient or to infect other people.

SYMPTOMS OF HOOKWORM DISEASE.

The very mild cases of this disease may show very few effects from infection, but as the severity of the infection increases the symptoms become more pronounced. In the severe infections the patients may be under developed in body and mind. They present a thin-blooded condition, often mistaken for malaria. The skin may be dry and tallow-like, and, in some cases, tan colored; the hair is dry, the shoulder blades are usually very prominent and the abdomen frequently swollen. There is usually tenderness in the pit of the stomach. Ulcers are often seen and these heal slowly. In the summer many of the patients have ground itch. There may be at times severe headaches and dizziness. The digestion is poor and in many cases the appetite is ravenous or perverted, the patient eating dirt, clay, coffee grounds, etc. Often there is aching in the joints. The face presents a stupid appearance and in some cases is puffed. The eyes are listless, the mind is dull, and in school the child falls behind his classes.

PREVENTION OF THE DISEASE.

1. Treat the disease, thus destroying the egg-laying worms and at the same time cure the sufferers.
2. Wear shoes as long as there is any polluted soil, and don't eat uncooked foods which have been on, or near, contaminated soil.
3. See to it that every dwelling and schoolhouse is provided with sanitary closets and that the stools of no one are deposited elsewhere.

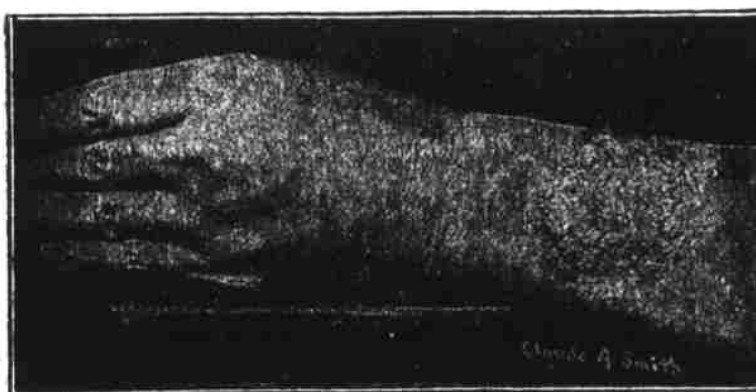
SANITARY CLOSET.

A sanitary closet is one which has a fly-proof vault under the seat and a close-fitting lid on a hinge for the opening in the seat. Under this opening a pail or tub is placed by raising a hinged door in the rear of the vault. Dry dirt, lime, or chemical disinfectants are put in the pails as needed to keep down the odor. The contents of the pail should be removed once a week and deeply buried as far from the well as possible, burned, or treated with germicides, but not used as manure, because this scatters the infecting germs or worms, which are too small to be visible to the naked eye.

Hookworm disease occasions much loss of wealth to North Carolina by causing needless loss of lives, wrecked homes, misery and poverty. It occasions annually a leakage of \$187,500 of the State's school funds and nine millions of dollars in labor.



This shows a slice of skin as seen under the microscope. Notice how the young hookworms are crawling through the skin. This is the way "ground-itch" or "dew-itch" looks.



Experimental hookworm infection. Shows confluent vesicle (blister) formation with slight decrease of swelling. (Photograph furnished by Dr. Claude A. Smith. Courtesy of C. V. Mosby Pub. Co.)



This shows two young hookworms in the lungs. The worm on the left is entering the air tubes.



This shows the young worm a short time after it escapes from the eggshell. The bottle-shaped structure at the blunt end is the esophagus, or gullet, and the darker organ following this is the intestine. This worm crawls or is scattered around on the ground. It feeds for about 8 days or more, according to conditions, storing up food and growing; during this process it sheds its skin twice, much like a snake.

The larger figure represents the worm after it has shed its skin the second time; the worm remains encysted, as shown, in this skin; it now no longer takes food until it enters man. It may live just so long (5 months, more or less) as it can live on the food which it has already eaten. If it becomes completely dried, it dies; therefore it cannot



blown around in the air as dust; prolonged solid freezing kills it. When partially dry, it is quiet, but it is very active when wet, as in dew. It can wriggle up a surface which is moist. This young worm may be swallowed, but more generally it enters through the skin.



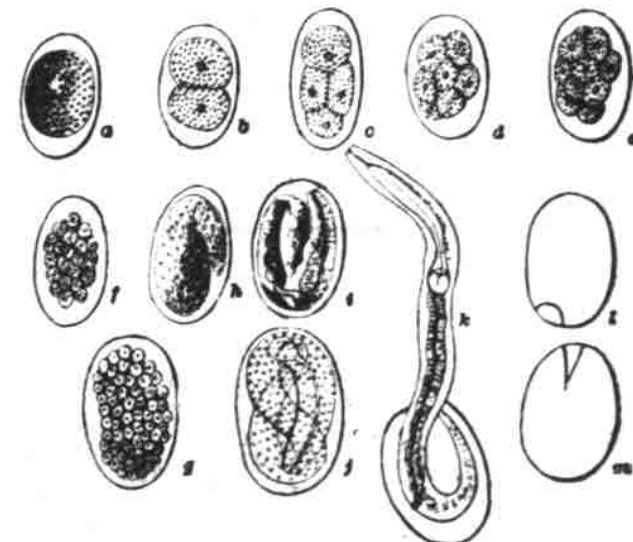
Head of a hookworm, greatly magnified with a microscope. We are looking directly into the mouth and see (above) the two jaws, and in the middle of the picture we see a hollow tooth, somewhat similar to the poison-fang of a snake.



Wake county boy, age 16. Photograph taken after he had gained 17 1/2 pounds. This increase resulted from one treatment. Patient still infected, but able to work six days of the week. Before treatment, was almost completely incapacitated.



- 1 A male hookworm, natural size.
- 3 A female hookworm, natural size.



Development of old world hookworm. A. P. C. D. E. F. G. changes occurring in egg preparatory to developing of little worm. H. I. J. K stages of the worm's development until it emerges from the eggshell. L and M, empty eggshells, greatly enlarged. (After Perroncito. Courtesy of C. V. Mosby Pub. Co.)