INVESTIGATIONS ON HOOKWORM DISEASE

[Abstracts from the *American Journal of Hygiene*]

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Augustine and Smillie after studying intensively on the different types of soils of Alabama to determine their effectiveness in producing mature hookworm larvæ found that sandy soils gave quite uniform yields of about 43 per cent value and that clay soils gave varying yields of from .006 to 12 per cent. In this last case the average was about 5 per cent. They found that the degree of efficiency of soils, tested as media for uncinariæ cultures was to be directly related to their textures; that is, their physical properties.

Augustine and Smillie also made surveys on children from different parts of Alabama which showed that the incidence of infestation is greatest in the two sandy provinces, the Upper and Lower Coastal Plains, and that the disease is limited to the last.

The authors recommend that health officers in the hookworm belts determine by culture methods whether the soils predominating in their communities is favorable or unfavorable for hookworm development.

Augustine studying on the development and life of hookworm larvæ throughout the year 1923–1924 in Covington County, South Alabama, found that soils from polluted areas around schools and private homes were not found to contain infective hookworm larvæ later than December 27. No infective larvæ were isolated from December 27 to March 3. Reinfestation was encountered after March 3 which increased in intensity with the approach of the summer months.

The failure of hookworm ova to develop during the winter months he thought to be attributed to frequent frosts and low temperatures. Dry periods during the spring were found to check hookworm development entirely. Soil infestation about the houses was usually found to be of less than one months duration during the summer months. The early death of larvæ may be ascribed to the rapid drying of the sandy soils.

Augustine after a series of field experiments demonstrated that only a few hookworm ova developed embryos during the winter months; that in South Alabama the hookworm ova may appear

viable for longer than one month in the winter but fail to develop into the infective stage when placed under favorable conditions, and that a high mortality occurs among young larvæ even under favorable conditions.

Stoll and Hausheer discussing on the accuracy in the dilution egg-counting method, confirmed the fact that its technic as orginally titled is "an effective method of counting hookworm eggs in feces". It was so confirmed after comparing dilution counts to total counts by direct centrifugal flotation, carried out with great care. They say that so far, inherently upsetting factors have been demonstrated in the method even from analysis by them of other published work on the matter: They emphasize on the attention required by details of the method that are true of any precise laboratory technic. Discrepant results seem to be caused chiefly by three factors—(1) inadequate comminution of the stool portion used; (2) failure to withdraw the proper size drop for counting, *promptly* after such sufficient shaking as produces a homogenous suspension in the tube, and (3) inaccurate counting by the microscopists, of ova that are actually on the slide.

For the purpose of field application the use of an average of two counts is sufficient, provided they be approximately alike, but when stools are to be egg-counted for experimental work, more slide counts entering into the average are desirable.

Docherty in a paper on hookworm infestation and reinfestation in Ceylon, summarizes from over 20,000 egg counts by the dilution egg-counting methods, that the percentage of the original infestation retained at the close of a campaign is 40.5 per cent after one or two treatments with carbon tetrachloride, while with the same way of treating people, but using instead a carbon tetrachloride—chenopodium mixture, the percentage is only 24.8.