

HAWAII AS A FIELD FOR SCIENTIFIC  
WORK IN TROPICAL MEDICINE.\*

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In an address before the New York Pathological Society, Dr. Flexner, president of the Rockefeller Institute, speaking of dysentery, said:

The attempt to establish a common etiologic factor for all cases of dysentery has thus far failed. . . . Given a disease that is never entirely absent from tropical regions, that appears with epidemic severity, that permits easy access to the *materies morbi*, one would certainly have been tempted to predict that the success achieved in so many apparently less difficult fields would probably be repeated. . . . Our imperfect knowledge of dysentery should be ascribed neither to lack of opportunity for the study of the disease nor to lack of energy in the pursuit.

After close acquaintance with the disease in the Philippines, Dr. Richard T. Strong recognizes two different forms on which he bases a careful report, from which I quote:

Owing to the great frequency of dysentery in the Philippines our present inability to cope with the disease, and the fact that one attack appears to afford no protection whatever, makes it necessary that very thorough and careful studies should be made in order to discover, if possible, some method of preventing infection and possibly some serum that will affect a cure.

This applies very well to Hawaii.<sup>1</sup> By means of recruits from Hawaii and the Philippines, Dr. Craig of San Francisco has been able to study the pathology of chronic dysentery of tropical origin, and Professor Kieffer of Philadelphia to trace the relation between abscess of the liver and the *Ameba dysenteria*.

## ANKYLOSTOMA DUODENALE.

Stimulated by the spirit of research in tropical phenomena, Dr. Stiles of Washington, D. C., discovered a new species of hookworm (*Uncinaria americana*), also giving rise to disease in man. This is the parasite that has caused the Porto Rican anemia we see in Hawaii and the heavy losses among sheep in Texas.

Egypt was the original habitat of the species, but, owing to our modern methods of travel, this undesirable foreigner is making himself hated away from home.

Another observer attributes ground-itch, a disease common in Assam, India, West Indies and the tropics generally, to the same parasite. He says:

With this . . . to stimulate observation, no doubt others will be found in this country, and it is possible that the prevention of the spread of the disease will become an important matter of sanitation.

Dr. Claude A. Smith, demonstrator of pathology in the medical school of Atlanta, has made an exhaustive study of the disease in the South, a subtropical country, where it is extremely common and where it gives rise to anemias and cachexias that were formerly attributed to malaria. Since the arrival of the Porto Ricans in Hawaii, Dr. Sandow of Waimea, Kauai, has contributed a valuable paper on the subject,<sup>2</sup> but the disease still offers a free field for investigation.

A form, at least, of ankylostomiasis has been here for many years, and in 1895 I described a case in a Portuguese who had never been out of Hawaii. The symptomatology was classical, though little was known as to the etiology of the case.

## BILHARZIA HEMATOBIA.

From far Egypt, where it is supposed to have originated, this disease came to the notice of Drs. Booth of Sparta, Ill., and Walker of Indiana. The latter says, "Practically no attention has been paid to the disease in this country."

Since the discovery of the trematode worm by Bilharz in 1851, the disease has been described by Drs. Allen, Henderson, Atherstone, Cobbold and Griesenger from cases seen in Cairo, the Cape, Natal, the Transvaal and islands neighboring to Africa. Hematuria attributed to cystitis, vesical calculus, nephritis and, particularly, malaria may be found in most cases to be caused, even here, by a specific hematobic organism.

In a case of persistent and rather extensive hematuria which came under my care at the Malulani Government Hospital in 1897, the patient<sup>3</sup> suffered considerable pain and at each micturition passed variable quantities of pure blood. Occasionally there were clots. By placing a specimen in a transparent vessel and holding it before a strong light, wavy threads might be seen. These contained numerous typical ova. Small quantities of blood containing ova were occasionally passed per rectum, and some dysenteric symptoms supervened as a result of the presence of the parasite.

## BUBONIC PLAGUE.

Although so much has been written there is much more to know concerning this very ancient disease which, despite the liking its germ has for coolness, persists in staying with us. Perhaps it is an indirect compliment to our climate.

The Institute of Infectious Diseases of Berlin established a separate department for the study of plague, but its facilities are meager compared with what our own might be, especially as regards the etiology and symptomatology of the disease.

We have abundant clinical material and shall continue to have; and our autopsies have already furnished rich pathologic data.<sup>4</sup> What better field in which to differentiate scientifically plague from certain phases of cerebrospinal meningitis *en transport* between here and other ports. We have meningitis here on occasion, and we had a few cases in Hawaii at the time it was sporadically prevalent through the United States. Why was it prevalent? Why did it persist with untraceable foci? Have we had any cases of non-specific plague or climatic bubo? Should we know them if we did?

In 1902 Dr. Coty made an interesting report of twelve cases of non-specific plague. They were European males who had lived in the tropics from three and a half months to twenty-seven years. He says:

We have in this condition an adenitis occurring in debilitated persons in the tropics, and the exciting cause is the entrance of the ordinary microbes of suppuration into the lymphatic system, most often through trifling lesions of the skin.

Manson speaks of abortive plague, another name for the mild or ambulatory form which Cantlie specifies as a type. The latter also classifies "climatic bubo" (really a non-specific adenitis) as *pestis minor*, stating that the disease "remains at present undetermined." He says:

Climatic buboes as generally described give signs and symptoms wholly analogous to the descriptions of *pestis minor* we are familiar with. There exists a febrile state, an enlarged

\* Abridged from a paper read before the Hawaiian Territorial Medical Society, Honolulu, under the title, "A School of Tropical Medicine for Honolulu. Why Not?"

1. Goodhue, E. S.: "Some Notes on Dysentery," 1900.

2. Sandow: "Ankylostomiasis, a Disease Prevalent Among the Porto Rican Laborers and Their Families on Plantations," 1903.

3. He has since died. He was a brother of two of the best known society men and millionaires of New York.

4. Sinclair, A. N.: "Plague and Its Aspect in Honolulu," 1904. Cofer: Public Health Reports, Public Health and Marine-Hospital Service, Honolulu, 1900-1906. Goodhue, E. S. and W. J.: "The Elele Epidemic," 1902.

inguinal gland which may or may not go on to suppuration, and the course of which can not be assigned to any local site of infection.

Dr. Sinclair of Honolulu has made a reasonable suggestion in recommending the use of *pestis simulans* instead of *pestis minor*. He says:

I would suggest the abolishing the term *pestis minor* (inherently it means a form of plague) and suggest *pestis simulans* as being non-committal for cases that run a mild course of true plague in districts where plague is more or less epidemic, and where it is impossible to demonstrate the presence of plague bacillus; *pestis ambulans* may be retained for cases of true plague as shown by bacteriologic examination, the case being ambulatory in its nature.

In 1903 a case of supposed plague was brought to the Mariam Emerson Hospital, Eleele, by the patient's physician and placed under my care.

CASE 1.—A Japanese woman, aged 20, married, with a good history, had been somewhat indisposed for a few days previous to the swelling of the glands in her right groin. When she presented herself she was suffering from headache, pain in the swollen, reddened femoral region, with a pulse rate of 115, and a temperature of 104 F. This continued for three days, the gland in the right groin reaching the size of a goose egg. The vertical string of glands in the opposite side and the axillary glands were also enlarged somewhat.

The right gland suppurated and broke down on the twelfth day, discharging a large amount of pus, which contained no plague bacilli, but many streptococci and diplococci. Much loss of tissue resulted, but the patient recovered and was discharged after three weeks.

Nearly every symptom of ordinary plague was present, though the case occurred about a year after the Eleele epidemic, near the site of which the patient had lived.

Manson's query as to whether pus germs might not neutralize the toxins of plague is worth considering.

Certainly the cases that go on to suppuration are the milder ones.

#### FILARIASIS.

Filariasis is little known here clinically, although it is widely distributed in Porto Rico, and several cases have been traced from that source to districts in the United States.

Dr. Sassure of Charleston, S. C., reports 22 cases, and Dr. Manson, in his work on tropical diseases, says that the *Filaria nocturna* has been found as an indigenous parasite in most tropical and subtropical districts. He says:

In many places quite 10 per cent, and in other places half, of the population harbor it. One-third at least of one district in India carry blood filaria. I find that in some of the islands of the South Seas, Samoa, for instance, fully one-half of the people are affected.

It would be interesting to know why Hawaii is blessed above her sisters.

#### CHOLERA.

This disease<sup>5</sup> came to us in 1895. It may not offer the field for research that some others do, but an enthusiastic laboratory student would have enough to do even with only eighty-seven cases. The question of diagnosis would have been settled quickly by expert opinion, and some new knowledge perhaps furnished regarding effective quarantine and infection through fish.

#### BERIBERI.

Theoretically as well as clinically this is another disease of great interest. The causation is largely unknown and offers a wide field for speculation, Rost and Ashmead holding that the disease is caused by the eating of fermented rice.

In 1903 the Institute for Medical Research, Federated Malay States, made a report of great value, basing their summary on 500 beriberi cases at the Kwala jail. Dr. Ross' reference to the similarity between beriberi and chronic arsenical poisoning is suggestive, and the theory may account for some epidemics which occurred outside of the beriberi habitat. Hawaii has had and still has much valuable material relating to the disease.<sup>6</sup> Dr. Donald Currie of Washington, D. C., describes some cases (1903) of "beriberi, or a disease closely resembling it, met in San Francisco in Chinese fishermen returning to San Francisco from Alaska." While the paper is interesting, its value is not so great as it would have been had the writer verified his diagnosis.

#### SYPHILIS.

While not particularly tropical, a compilation and careful record of syphilitic cases, the prevalence of the disease and its effect on the Hawaiian race, would be valuable data. There is much to be learned, too, from an examination of old Hawaiian skeletons which show, particularly in the vertebral portion, the destructive effects of syphilis in the days when that disease was new to the race.

Some work in the line of Dr. E. F. Robinson's investigations regarding the Philippines would be not only interesting but profitable.

#### OTHER DISEASES.

"I can assign no reason for the high percentage of tetanus in Florida," writes a practitioner to his editor, "unless it be that tetanus is far more prevalent in warm and moist climates than in cool and dry ones. This I read when I was a student about 40 years ago, and my residence here for 35 years confirms it."

It would be interesting carefully to tabulate the cases of *tetanus neonatorum* among Japanese in Hawaii and make an illustrative comparison between that disease and rheumatic tetanus.

Why is there absolute absence of scarlet fever in the tropics? Can it be transmitted here, or is Dr. Manson's theory correct? Why are acute rheumatic fever, erysipelas, rachitis and sunstroke rare in warm countries? What modifications, if any, do pertussis, measles, chicken pox, smallpox and German measles undergo when transferred to warm countries? Will diphtheria ever be a common disease in the tropics? With all our climatic tendencies, is pneumonia any milder here than it is abroad? What about that delightful disease of our childhood—mumps?

Dr. Malcolm Morris, always versatile and instructive, says of ringworm: "For years wisdom had been crying in the streets and no man regarded it, and about all we know of the disease is that it is caused by fungi and that those fungi are of more than one kind." I am now battling with a case of tropical ringworm, due, I believe, to the *Audouini*, differing from other forms, persistent, recurrent, having no regard whatever for the reputation of the attending therapist.

Would you know epidemic, gangrenous rectitis, said to be confined to hot, damp regions in the north of South America and in the islands of the South Pacific; sprue found in all tropical and subtropical countries; yaws distributed among the natives of all parts of the tropics, related perhaps to syphilis, and lately described by Dr. Musgrave of Manila, and the various lesions caused by the *Filaria medinensis*—would you recognize them, I ask, if you came across them?

5. "Special Report of the Board of Health on the Cholera Epidemic," 1895.

6. Cooper, Charles B.: "Beriberi," 1905.