\$250,000 for the district, which has an area of fifty square miles, and a population of approximately 1,300 persons.

Comparing the estimated cost of malaria control measures, with the above estimates of economic loss, it was shown that in four years the cost of control would offset the cost of malaria in the three items above determined, and leave as a net economic profit not less than \$250,000 as appreciation in property values.

Mosquito Eradication in Southeastern Pennsylvania. B. Franklin Royer and C. A. Emerson, Jr., Harrisburg, Pa. The American Journal of Public Health, Vol. 9, No. 5, May, 1919, p. 327.

An intensive mosquito eradication program carried forward under the supervision of the Pennsylvania State Department of Health, in the industrial area largely devoted to war work near Hog Island on the Delaware, is discussed in some detail in this paper.

The authors set forth what may be done by altering drainage conditions and use of oil in a summer season in a potential malarial district. They describe methods of organization for intensive work and quick results, and set forth the advantages of a well-planned co-operative scheme, worked out and financed in advance. From this experience Royer and Emerson are convinced that general supervision of campaigns for ridding large areas of mosquitoes, especially areas extending into many political subdivisions should be centralized in a strong, unbiased state organization having broad powers.

The benefits of mosquito eradication, other than health and comfort, extend well beyond infested areas, and result in increase of property values, both in the immediate district, and for considerable distances back of the breeding zone.

This work, done under the supervision of the Pennsylvania Department of Health and under plans furnished by this Department, protected 50,000 war workers, and, incidentally, protected nearly 200,000 citizens from the mosquito menace.

Practically no public health nor nuisance complaints during the summer and autumn months in an old mosquito-ridden community.

Plans are made to place these unwatered lands under cultivation for trucking and other farm purposes next summer.

The authors anticipate additional state legislation extending this work in peace time to all places where mosquitoes are sufficiently abundant to interfere with comfort and health, and to have this work supervised by the State Department of Health.

Endemic Malaria in the Philippine Islands as a Military Problem. Frank G. Haughwout, Manila, P. I. The Philippine Journal of Science, Vol. 13, Sec. B, No. 6, November, 1918, pp. 287-309.

Apparently the principal object of the author was to warn the military authorities of this country of the danger of brigading Far Eastern troops with American troops. The high morbidity and mortality from malaria in the Philippine Islands is shown, and the author lays stress upon

the insidious danger afforded by latent cases and carriers that may be overlooked in the routine medical examination and sent to the front. This danger, he thinks, is greater than that afforded by the intestinal diseases. He cites the experiences of the British Medical Corps in connection with malaria imported into the European Army camps by Asiatic troops. A plan for the detection of carriers of the malaria parasite is outlined.

In connection with the general subject, the author goes into the recent work regarding latent malaria, including the activation of the disease by the use of drugs and other means, the problem of quinine absorption and the so-called "quinine-fast parasites" and the treatment of malaria with the roentgen rays. He also discusses the influence of wounds, surgery and anesthetics on latent malaria. The point is made that the malaria carrier is not only a source of peril to healthy troops, but he is, himself, exceedingly likely to develop acute malaria under stress of war conditions.

The author emphasizes the difficulty of carrying out anti-mosquito measures in tropical countries and states his belief that the problem still lies largely in the laboratory, where means for the destruction of the gametocytes must be discovered.

David Livingstone and the Transmission of Disease by Insects. E. W. Gudger, Greensboro, N. C. The Boston Medical and Surgical Journal, Vol. 180, No. 19, May 8, 1919, p. 523.

David Livingstone spent over one-third of a century in exploration in South Africa. During most of this time his life was a continual struggle against parasitic diseases and their insect transmitters. Hence it is not strange that as early as 1850 we find from his pen a quite exact description of the symptoms and effects of the tsetse fly disease of cattle, nagana. Those interested will find this in full on pp. 94-97 of his "Missionary Travels and Researches in South Africa," 1858, and on p. 612 a careful description of the fly and its biting apparatus whereby the parasites are transmitted. He speaks of the "poison germ" and definitely says that it is introduced into the body of the beast by the bite of the fly. Furthermore, he anticipated by fifty years the explanation of the prevalence and continuation of this form of trypanosomiasis due to the wild game furnishing a reservoir for the germs, for he says definitely that the diseases can never be exterminated so long as the great herds of wild animals abound.

He did not so clearly understand the causation and transmission of malaria, although it is plain that he believed mosquitoes to be the means of transmission. On p. 389 of his "Expedition to the Zambesi," 1866, he writes thus: "Myriads of mosquitoes showed, as probably they always do, the presence of malaria." Human trypanosomiasis, the "sleeping sickness" of our day, does not seem to have been known to Livingstone, as he nowhere makes mention of it.

To those interested a perusal of the full article will make clear the exactness of the knowledge of the insect transmission of disease on the part of this great explorer.