## REVIEW OF REVIEWS

### REPORT OF THE MALARIA COMMISSION OF THE LEAGUE OF NATIONS

The following abstract from the Second General Report of the Malaria Commission of the League of Nations, appeared in the February number of the *Tropical Diseases Bulletin*:

"Of the actual measures which may be employed for the lessening of malaria, there is none of which it can be said that it is the method of unquestioned choice. That selected in any instance, after adequate local inquiry, must depend on local conditions. Yet such measures do fall into two great categories designated direct and indirect, the terms being, however, used in rather special senses. The direct measures of the Commission are those which kill malaria parasites, either in man through the treatment of infected persons, or in anopheles by the destruction of malaria-infected mosquitoes in houses. In the opinion of the commission these direct measures are primary and always indispensable; the others, though often most valuable, are really adjuvant. The old aim of breaking the chain somewhere is, then, replaced by the new one of killing the parasites themselves. Nor is it held advisable that too many different measures of control should be put into operation at the same time; it is better to take one or two and carry them out thoroughly, for experience has enabled the laying down of the valuable principle that for every measure there is a 'minimum effectible degree of perfection'; if it be not carried out with a certain degree of thoroughness it is of no use at all.

"Regarding the destruction of plasmodia in man by treatment it is pointed out that quinine, quinidine and kinetum are nearly equally effective in dosage of 1 gm. daily, while cinchonine falls into the same category if the dosage be increased to 1.5 gm. Quinidine is, however, the strongest cardiac depresent. Kinetum consists almost entirely of residual alkaloidal bases, the composition of the samples issued for these tests being quine 15, cinchonidine 35, cinchonine 25, quinidine 5, and quinoidine 20 per cent. It must be concluded, then, that a standard preparation of the principal alkaloids, purified only so far as to exclude the more toxic constituents is as efficacious as quinine. This conclusion implies that the 'cinchona febrifuge' of India and Java regains its old eminence, always provided that it can be standardized. It also implies that the use of these total alkaloids in place of quinine only, greatly enlarges the amount of specific antimalarial alkaloid which is at present available for world use, and should, apart from commercial rings, correspondingly cheapen the cost of treating malaria. Moreover, the demand for, and so the cost of, cinchona alkolids will be further reduced by the commission's further pronouncement that 'prophylactic quinine' in the usual preventive doses does not prevent malaria, it merely keeps in a certain abeyance an infection which has become established. In those ways more and cheaper alkaloid will become available for use where its action is most greatly to be desired. All this implies the primary importance of

diagnosis, and the commission indicates administrative methods by which its accuracy can be forwarded.

"Regarding the similar direct attack upon plasmodia in anopheles, the procedure advised starts from the fact that, at least for Europe, the majority of infected mosquitoes are found inside houses, and that it is impossible to exaggerate the importance of their destruction there. Certain hospitable housewives offer within their homes to anopheles maculipennis the attractive luxuries of cobwebs, dirt, dark corners and shady cupboards. They, and those who live with them, should be brought to regard the presence of gorged, sluggish, probably infective mosquitoes in the home much as cultured people regard the bedbug and the louse, and to destroy them, or at least to put them to all possible discomfort by house cleaning and whitewash. Moreover, the commission is satisfied of the usefulness of the suggestion, associated particularly with the name of 'Roubaud', that a damp dark still animal house situated between a breeding ground and the home will divert the insects to a harmless vicarious meal."

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## IMMUNITY REACTIONS TO PARASITES

The following interesting abstracts of papers contributed to the third annual meeting of the American Society of Parasitologists, appeared in *Journal of Parasitology* for December, 1927.

### "CHANGES IN THE BLOOD OF CATS DUE TO AMEBIASIS

"Kittens were inoculated intrarectally with cultures of Endamoeba histolytica. Upon the inoculated kittens, and control animals (uninoculated ones of the same litter) total red and white blood cell counts and differential blood counts were made daily or bi-daily for a week prior to inoculation and during the period of infection. Careful records were kept at the same time of the intestinal parasites found. Results indicated that kittens inoculated with E. histolytica will develop acute amebiasis, causing slight loss in weight, a marked polymorphonuclear leucocytosis coupled with a rise in the number of large mononuclear cells, terminating in the death of the animal. The polymorphonuclear leucocytosis may be due to secondary bacterial infection.

### "CHANGES IN THE BLOOD OF CATS DUE TO TRYPANOSOMIASIS

"Litters of young cats were separated into two groups. One group was inoculated with pathogenic trypanosomes (T. equiperdum and T. brucei); the others were kept for control. Trypanosomes appeared in the blood within two days; the infection, accompanied by the usual symptoms, terminated in death within one and one-half months. During the period of infection and for five days prior to inoculation total red and white blood cell counts, differential blood counts, hemoglobin, and blood-sugar determinations were made either daily or bi-daily. Results show a progressive secondary anemia, a pronounced general leukapenia, which seems to affect all the white blood cells in about the same degree, and little change in the blood glucose until just before death when there is an abrupt decline.

"COMPLEMENT FIXATION IN THE DIAGNOSIS OF INFECTIONS WITH ENDAMOEBA HISTOLYTICA

"During experiments upon the presence in alcoholic extracts of cultures of Endamoeba histolytica of hemolytic and cytolytic substance, it was discovered that such extracts also produced complement-fixation when used as antigens with the blood serum of individuals infected with this parasite. The present paper gives the results obtained in the diagnosis of infections with Endamoeba histolytica using such extracts as antigens and the methods of making the extracts and of applying the test. The conclusions reached as the result of the examination of over 300 blood sera from as many individuals with the complement fixation test as outlined in the paper are as follows:

"1. Complement fixing substances can be demonstrated in the blood serum of individuals infected with Endamoeba histolytica by using as antigens alcoholic extracts of cultures of this parasite.

"2. The complement fixation reaction disappears in cases of infection with this parasite that have been treated and the Endamoeba eliminated.

"3. Individuals free from infection with Endamoeba histolytica do not give a positive complement fixation reaction when their blood serum is tested with such extracts of cultures of Endamoeba histolytica.

"4. The reaction does not occur in the individuals infected with Endamoeba coli, Endamoeba nana, Iodamoeba williansi, Trichomonas hominis and Chilomastix mesnili. It is probable, therefore, that a positive reaction does not occur in other protozoan infections or infectations when such an antigen is employed in the test.

"5. The reaction does not occur in individuals suffering from other diseases or infections.

"6. The reaction does not occur in individuals giving a positive Wassermann or Kahn reaction if Endamoeba histolytica is not present.

"7. The reactions occur not only in individuals presenting definite symptoms of infection with Endamoeba histolytica but also in cases presenting indefinite symptoms and in 'carriers' without any symptoms of the infection.

"8. The practical value of the test in the diagnosis of infections with Endamoeba histolytica is still uncertain, owing to the difficulty of preparing suitable extracts, the technical difficulties of the test, and the facts that in practically every case a proper examination of the feces, microscopically every case giving a positive complement fixation reaction."

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## A NEW LARVICIDE FOR MOSQUITOES

During the course of mosquito ecological studies the authors found that borax produced a decidedly toxic effect upon the larvae of these organisms. Commercial borax proved as effective as the purified borax. The experiments dealt chiefly with Culex and Aedes though a few tests were tried upon Anopheles. All seemed very susceptible. Of 8,900 larvae of *Culex pipiens* only twelve attained maturity and only because they had pupated shortly after their intro-

duction into the experimental containers. Only the larval state is affected. Ova hatch in a normal manner, but the resulting larvae fail to reach the second instar. The presence of this material did not prevent oviposition of culex ova. The pH remained quite constant, varying from 9.1 to 9.3. Second instar larvae of *Aedes vexans,* as true of Culex, practically never survived the fifth day. Borax was used in proportion of from 1.5 to 10 grams per liter. All concentrations gave satisfactory results. These mixtures retained their lethal properties for a considerable period (at least one and a half months) without renewal. The relatively low cost of borax may cause it to become an important factor in certain restricted phases of mosquito control.

—Matheson, R. E., and Hinman, E. H., *Amer. Jour. Hyg.,* 8: 293-6: 1928.

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## "MEDICAL PROGRESS"

The American Association for Medical Progress this week enters the field of educational journalism, with the first issue of its new quarterly *Medical Progress.* The new publication deals in a popular way with the recent discoveries in medical treatment in which the lay public is interested. Benjamin C. Gruenberg, managing director of the American Association for Medical Progress, and author of many works on biology, hygiene and educational subjects, is editor of the quarterly.

The first issue contains an article on the control of scarlet fever by Dr. Gladys H. Dick of the John McCormick Institute for Infectious Diseases, Chicago; a discussion by James E. Peabody of the Copeland-Wainwright Bill now before Congress, providing for recognition and national care of employees in the public service who voluntarily risk life and health in research for the benefit of the country; notes by Benjamin C. Gruenberg on 1928 as a year of commemoration of the centennaries of the four great scientists, Von Baer, Hunter, Harvey, and Malphighi. There is also a resumé of pending state and national legislation affecting medical progress; a review of Pavlov's "Conditioned Reflexes"; and news notes and items of interest from research laboratories and health departments throughout the country.