over a row of fifty books, each retinal element is excited in succession by each book, but we do not see one book taking the place of the other, but all the books side by side. Further, when the eye sweeps over fifty books in 1/10 sec., each book is seen, or appears to be seen, with perfect distinctness, though if the books moved at the same rate over the eye they would completely fuse together. Our perceptions in no wise correspond to the physiological processes in the eye, but are what they should be for our safety and convenience.

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## *CIRCULAR OF INFORMATION IN REGARD TO THE CAUSATION AND PREVENTION OF MALARIAL FEVER.*

Recent investigations have shown that malarial fever belongs to that class of diseases which require for their transmission the active intervention of a definite kind of mosquito, *i. e.*, *Anopheles*. This genus is not the common one of this region, but is nevertheless present in many localities.

The organism causing malarial fever (*Plasmodium malariæ*) is probably a true parasite, and, so far as we know at present, finds the conditions necessary for its existence only in the living human body and in this genus of mosquito, the latter becoming infected by sucking the blood from an infected human being. The malarial organism having thus entered the stomach of the mosquito, passes through certain changes in the body of the infected insect, and at the end of about ten days reaches the poison gland. After this time, if the mosquito bites another human being, the malarial organism is introduced into the circulation of the latter and malarial fever follows.

So far as we know certain localities are 'malarious' only because they furnish favorable conditions for breeding this mosquito. Malarial fever would not occur in any malarious district, unless some infected human being were in it, or came into it and infected the mosquitoes, which in turn infected other human beings.

Recent observations in the intensely malarial districts in Italy and Africa have shown that even newcomers in these regions who purposely expose themselves by living in the most highly malarious area, for example the Roman Campagna, do not develop malarial fever, if they are carefully protected from the bites of mosquitoes; and further, it has been shown that this disease may be produced with certainty in any locality if a mosquito of the genus *Anopheles* is allowed to bite a person suffering from malarial fever and then, after a sufficient time, is allowed to bite a healthy person.

Certain simple precautions suffice to protect persons living in malarial districts from infection:

*First.*—Proper screening of the house to prevent the entrance of the mosquitoes (after careful search for and destruction of all those already present in the house), and screening of the bed at night. The chief danger of infection is at night, inasmuch as the *Anopheles* bite mostly at this time.

*Second.*—The confinement and continuous screening of persons in malarial districts who are suffering from malarial fever, so that mosquitoes may not bite them and thus become infected.

*Third.*—The administration of quinine in full doses to malarial patients to destroy the malarial organisms in the blood, and persistence in the use of the remedy even for a few weeks after apparent recovery.

*Fourth.*—The removal of the breeding places of the mosquitoes through drainage, filling up of holes and surface pools, and emptying of tubs, pails, etc., which contain stagnant water. These mosquitoes particularly breed in surface rain pools and surface stagnant water, where there are no fish; also exceptionally in pails, tubs, barrels and tanks of standing water, though they seem mostly to prefer natural accumulations.

*Fifth.*—In pools which cannot be drained or filled, the destruction of the mosquito larvæ by the use of petroleum thrown upon the surface, by the introduction of minnows and other small fish which eat the larvæ, or by both methods.

These measures, if properly carried out, will suffice greatly to restrict and largely to prevent the occurrence of new malarial infections.

It is the desire of the Department of Health to obtain information as to the location of the cases of malarial fever, so that the people may be instructed as to the danger of infection and the methods of avoiding it.

It must be remembered that when a person is once infected, the organism may remain in the body for many years, producing from time to time relapses of the fever. A case of malarial infection in a house, whether the person is actively ill or the infection is latent, in a locality where the *Anopheles* mosquitoes are present, is a constant source of danger, not only to the inmates of the house, but to the immediate neighborhood, if proper precautions are not taken.

Malarial fever is quite prevalent in certain boroughs of New York City. It is likely to extend to the boroughs of Manhattan and Brooklyn in view of the extensive excavations and consequent formation of rain-pools in various parts of these boroughs, if means are not employed for its prevention.

The Board of Health desires the cooperation of all physicians in its efforts to disseminate information in regard to the causation and prevention of malarial fever, and in its efforts to restrict the prevalence of this disease in New York City.

HERMANN M. BIGGS.

## *THE BRITISH CONGRESS ON TUBERCULOSIS.*

THE Congress which met at London at the end of last month appears to have been remarkably successful. There were over 2,500 members, including the following delegates:

United States: Professors Osler and Janeway.

Austria: Professors von Schroetter and Davorak.

Belgium: M. le Sénateur Montefiore Lévi and Van Ryn.

Bulgaria: Mikailovsky.

Denmark: Professor Bang and Dr. Charles Gram.

France: Professors Brouardel, Bouchard and Nocard.

Germany: Professors Gerhardt, Flügge, Von Leyden, Frankel, Koch, Werner, Dettweiler, Dr. Freund.

Holland: Professor Thomassen.

Hungary: Professor Koranyi.

Norway: Dr. Malm.

Portugal: Professor da Silva Amado.

Roumania: Dr. Cantacuzino was unavoidably absent.

Spain: Señor Don Antonio Espino y Capo.

Sweden: Hof Marshal Printzjold.

Switzerland: Dr. Neuman.

The Congress met in four sections: State and municipal, medical, pathology and veterinary, and there were besides a number of general meetings. The addresses of Professors Koch and Brouardel attracted special attention, more especially Professor Koch's claim that the bovine tubercle could not develop in the human body. No one present seems to have known of Professor Theobald Smith's careful research, showing that bovine and human tubercle bacilli are not identical. At the close of the Congress, the following resolutions were adopted:

That tuberculous sputum is the main agent for the conveyance of the virus of tuberculosis from man to man and that indiscriminate spitting should therefore be suppressed.

That it is the opinion of this Congress that all public hospitals and dispensaries should present every out-patient suffering from phthisis with a leaflet containing instructions with regard to the prevention of consumption and should supply and insist on the proper use of a pocket spittoon.

That the voluntary notification of cases of phthisis attended with tuberculous expectoration and the increased preventive action which it has rendered practicable has been attended by a promising measure of success and that the extension of notification should be encouraged in all districts in which efficient sanitary administration renders it possible to adopt the consequential measures.

That the provision of sanatoria is an indispensable part of the measures necessary for the diminution of tuberculosis.

That in the opinion of this Congress and in the light of the work that has been presented at its sittings medical officers of health should continue to use all the powers at their disposal and relax no effort to prevent the spread of tuberculosis by milk and meat.

That in view of the doubts thrown on the identity of human and bovine tuberculosis it is expedient that the Government be approached and requested to institute an immediate inquiry into this question, which is of vital importance to the public health and of great consequence to the agricultural industry.

That the educational work of the great national societies for the prevention of tuberculosis is deserving of every encouragement and support. It is through their agency that a rational public opinion