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REPORT ON THE ETIOLOGY, AND THE PREVENTIVE VACCINATION OF YELLOW FEVER.

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Translated from the French by Dr. Wolfred Nelson, late of Panama, S. A.

Whence comes yellow fever, how does it propagate itself, and what is our etiological knowledge of its nature? Can that knowledge produce some prophylactic means or measures, easy to apply and sufficient to give absolute protection against this formidable plague?

Such were the problems that I had undertaken to solve after my arrival on the Isthmus of Panama. I shall now briefly give the results of my experiments and studies :

I.

In the month of June, 1882, in a report to the Superior Agent of the Inter-oceanic Canal Company resident in the City of Panama, S. A., I had the honor to inform him, that I had found in the blood of yellow-fever patients, some microscopic organisms,—some filiform, others resembling a string of beads (*chaplets*), and, lastly, brilliant little bodies. That the organisms were constant in appearance, and could thus serve as elements for diagnosis.

After some trials and a great many failures I succeeded in isolating the microbes, and obtained

them in great quantity without the human body, by artificial cultivation, in liquids suitable for their nutrition and reproduction.

I was then enabled to study the mode of existence of the microbes. If one observes the filiform bodies attentively for a given time he perceives in their transparent and homogeneous substance, a series of small corpuscles, that refract light more than the other parts of the microbe. Little by little these corpuscles arrange themselves around a central axis or core, giving the organism the appearance of a string of beads (*chaplet*. This French word signifies the string of beads "told" by devout Catholics while praying). Soon other changes follow, the string-like formation separates and in place thereof nothing remains but a mass of brilliant little points. The size of little points is about the thousandth of a millimetre. These corpuscle germs have great resistance. *They do not perish by drying, and can after many years serve to propagate the disease, by regenerating the filiform bodies, when placed under favorable conditions.*

But what rôle can we attribute to the microbes in the production of yellow fever? To elucidate this question I have had recourse to experiments on animals. At the beginning of my work I experimented on a number of rabbits, later with dogs, poultry, rats and monkeys, but these animals did not show any predisposition to the disease.

At length a result was obtained by inoculating a guinea pig with half a gramme (a gramme is equal to 15 1-3 grains) of blood taken from the heart of a man an hour after his death from specific yellow fever. The animal sickened and after two days' fever died in great agony.