

"duced into its great circulatory torrent. At first we suspected that some accident had caused the death of the animal, such as air getting into its vein, or some clot, but the operation was executed with the utmost care, and the death in those cases should have been sudden and unaccompanied with the course of symptoms just mentioned.

"On making the autopsy, we found visceral congestions analogous to those that we had seen in the corpses of yellow fever patients, and we found in the blood the same cryptococci as existed in the corpse that served for the inoculation.

"If the death had been due to the quick action of its cryptococci, and not to an accident, the blood of the rabbit should, when itself inoculated in another animal, cause the death of the latter. To put this beyond doubt, we took a gramme of the dead rabbit's blood and injected it hypodermatically into a guinea-pig. Well, the latter died at the end of some hours (in the night of the 14th), and we found an extraordinary quantity of cryptococci in its blood, and saw also the anatomic-pathologic lesions which usually characterise cases of yellow fever in man. The death of the second animal was evidently due to contagion, and showed that the rabbit whose blood was inoculated, contained in itself its transmittory virus, and succumbed to the influence of its virus.

"Not content with this, we injected a gramme of the guinea-pig's blood under the skin of another guinea-pig, and in the space of some hours this one appeared feverish, oppressed with cold, ears and paws trembling, and rejecting (?) blackish dejections. A drop of this animal's blood showed an infinity of cryptococci, and within a little time it also died.

"By these experiments we have proved, therefore, contagion and transmission of the disease four successive times. The sick man received it from the medium in which he lived, from him we passed it to the rabbit, and from it to the guinea-pig, which, in turn, transmitted it to another guinea-pig. In all the four cases the blood showed swarms of cryptococci.

"In this manner we are able to produce epizootics in the animals in our laboratory, by inoculating many at once with microbated blood. These facts, therefore, prove beyond doubt that yellow fever is propagated by contagion from

"individual to individual; that it is primitively a contagious disease, but may become infectious as soon as sufficiently many focuses accumulate. They also prove that the disease does not reside exclusively or especially in any one organ, it resides in the blood, and, therefore, in all the organs the blood traverses."

The writer again wishes to state, that he has made no alteration in the translation in the subject matter of this article. It appeared in the *Official Gazette* of July the 26th, 1883, of the Jamaica Government.

Dr. Domingo Freire considers that he and his assistants, by the repeated experiments have fully established the parasitic nature of the disease, and that the cryptococci found in all cases of yellow fever, are those already dwelt on at length in my June letter to the *RECORD*, and named by Dr. Freire the *Cryptococci Zanthogenicus*.

Dr. Freire also refers to the discovery by him of an alkaloid-jot in the black vomit of malignant cases. This extractive matter he has isolated. He states that it exists as a salt. He claims to have reasons for believing that the alkaloid is a direct product of the excretion or secretion of the cryptococci, which he further adds does not prevent both the alkaloid and the parasites from being factors of the diseased state. As obtained by him, the alkaloid is a liquid of aromatic odor, oily, acrid; combined with water it forms an opalescent emulsion, soluble in alcohol and ether. It turns litmus a deep blue, and he further adds, "it must contain a good proportion of nitrogen, as it gives out abundant ammoniacal vapors when heated in contact with potash."

As a result of further experiments by cultivating cryptococci in gelatine in a Pasteur's tube, he says that the color of black vomit is not due to altered blood, but to the parasites, that he terms *Cryptococci Zanthogenicus*, and thus he produced an artificial black vomit. A culture of the earth cryptococci, that referred to in my June translation last, on this theme, from the grave of a man who had died a year previously of yellow fever, also produced artificial black vomit.

He conducted further experiments with earth from the same grave. A guinea-pig was taken: the animal was perfectly healthy, and a careful microscopic examination of its blood showed it to be normal. The pig was shut up in a small place, with a quantity of this earth. It died after five days, and its blood was literally filled with *crypto-*