

Trypanosome, which flourishes in their digestive canal, into the blood of the small monkeys (marmosets) and other warm-blooded animals whose blood they suck. And on careful inquiry in districts where they are common, Dr. Chagas found that many of the human natives had this Trypanosome living and multiplying in their blood, having been infected by the bite of the huge bug. The infection causes serious illness, and leads to a kind of idiocy when it has been established in the blood of children, arresting their proper nutrition and growth. This new Trypanosome is called *Trypanosoma Cruzi* after Oswald Cruz, the founder of a laboratory in Brazil for the study of disease, where some of the best work of the last three years in the investigation of microbe-caused disease has been done.

Knowledge as to the existence of disease-producing microbes and their carriage by hitherto unsuspected bugs, flies, and other insects, is rapidly extending year by year. The last discovery implicates a nasty little blood-sucking two-winged fly, which abounds in damp basements and out-buildings in Italy and the warmer parts of the world. There are several species of the kind—that common in Italy and the Herzegovina—(I remember its unwelcome presence at Naples forty years ago!)—is called “the Pappataci.” Naturalists call it “*Phlebotomus papatasi*.” It is like a

very small gnat, but has a fatter body, and is of a grey colour, and has drab-coloured wings. It has now been shown that this little fly carries to man the microbe of a “three-day fever,” which is like the Dengue fever of India, and is common in the South of Europe. The microbe, having been taken in with blood, appears to have to stay for eight days in the Pappataci before it has so developed as to be capable of being introduced by the fly-bite to other victims. Details as to the history are still to be discovered. The Pappataci flies without any noise, and gets through the meshes of all but the finest mosquito curtains. It makes a very nasty sore place where it bites or stabs so as to suck blood. There are species of it in Africa and India, probably active in carrying disease germs to men and animals. It is allied to the group and sand-flies called “*Simulium*,” some of which abound in these islands and worry salmon-fishers with their biting swarms. It has been suggested that the human disease called Pellagra, in North Italy, is caused by a microbe carried by sand-flies, but no experiments tending to prove this have been published. It used to be thought that Pelagra was due to poisoning by unhealthy maize on which the agricultural population of North Italy feeds, just as, at one time sleeping-sickness was held to be caused by badly-prepared manahoe root, on which African natives feed.

