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CHAGAS FOUND IN RHODNIUS PALLESCENS
BARBER IN PANAMA

BY

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From Gorgas Memorial Laboratory, Panama, R. de P.

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A NATURAL INFECTION OF *TRYPANOSOMA CRUZI* CHAGAS FOUND IN *RHODNIUS PALLESCENS* BARBER IN PANAMA

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Information concerning the finding of *Triatoma geniculata* Latr., naturally infected with *Trypanosoma cruzi* Chagas in Panama has been given in a previous paper (1). A second blood-sucking reduviid with a spontaneous infection of this trypanosome has now been found. This insect was only recently named and described as *Rhodnius pallescens* by Barber (2) although specimens of it apparently were found in Panama more than twenty years ago.

The specimens of this *Rhodnius* that I have been able to obtain were collected by occupants of a hut in the small village of Aguas Buenas. This hut was of native construction with side walls of cane, earth floor and thatched with palm leaves. Aguas Buenas is located about 12 miles from Panama city and about 1 mile from the Madden Dam Highway. It is simply a small settlement consisting of not more than three dozen huts and having about 125 inhabitants. A few additional huts are scattered about in the nearby bush.

Two adult females of the *Rhodnius pallescens* that had been collected by the inhabitants of the infested hut were given to an employee of this laboratory while he was making a blood survey for malaria in the village on March 17, 1932. The people living in the hut complained that they were receiving numerous and severe bites from these bugs. On April 16 two more of these *Rhodnius*, a male and a female, were received from this house. Three more specimens, two females and a fourth stage nymph, were received on April 20 and on May 7 another specimen, a male, of this species was obtained.

The first four specimens obtained from this hut died soon after they were received. The last four were in good condition when they reached the laboratory and it was decided to feed them in an effort to rear a supply of this species for the purpose of determining if it would act as a transmitter of *Trypanosoma cruzi*.

A clean guinea pig, no. 94, was first used as a host animal on which these bugs were fed. One of the females fed on this guinea pig on April 21. This bug died the following day. The second female fed April 21, May 5, May 12, May 16 and May 19. The male fed May 12 and May 19 and the nymph fed April 21 and May 5. This made a total of ten individual blood meals on this guinea pig by these four bugs. The blood of the guinea pig was examined daily and on May 23 it was found to be positive. Two trypanosomes were found in a thick drop blood smear made on this date. Owing to the various times the bugs were fed on this guinea pig it was not possible to determine the incubation period.

The bug in the nymphal stage molted May 25. The adult that emerged appeared to have defective mouth parts, however, and it was unable to feed and died on June 28.

The two remaining adult *Rhodnius* were next fed on guinea pig 385. The female fed May 31, June 3 and June 8. The male fed June 6. This made four times this guinea pig was bitten. Trypanosomes were found in its blood on June 10.

The two bugs were next fed on guinea pig 393 on June 20. This animal became positive nineteen days later.

Guinea pig 394 was the next animal used. Both the *Rhodnius* fed on this guinea pig June 24. The blood of this guinea pig became positive July 11. Since it had been demonstrated that these bugs had produced an infection in each of the four guinea pigs upon which they had been fed it was decided to continue the use of the guinea pig 394 as a host animal for later feedings in order to avoid the use of more clean guinea pigs.

It may here be noted that the first case of Chagas disease to be recognized in Panama (3) was a child living in a hut about 2 miles from Aguas Buenas. A few months later, in 1931, three children living in this small village were found to be infected with the disease. Thick drop blood smears of all persons in the village

have been examined monthly at this laboratory for a period of more than two years but no other cases have been found despite the presence of the infected *Rhodnius*. An adult, female *Triatoma geniculata* was also received from this house on April 16. Unfortunately this *Triatoma* was dead when received and it is not known whether it was infected.

The occupants of the hut in which the infected *Rhodnius* were collected now consist of three adults and two children, one of the latter being a baby of fourteen months and the other a girl of fourteen years. No infection has yet been found in the members of this family.

SUMMARY

A recently described species of Reduviidae, *Rhodnius pallescens* Barber, has been found with a spontaneous infection of *Trypanosoma cruzi* in Panama.

REFERENCES

- (1) CLARK, H. C., AND DUNN, L. H.: Experimental studies on Chagas disease in Panama. Amer. Jour. Trop. Med., January, 1932, xii, no. 1, 49-77.
- (2) BARBER, H. G.: A new species of *Rhodnius* from Panama (Hemiptera: Reduviidae). Jour. Washington Acad. Sci., November, 1932, xxii, no. 18, 19, 514-517.
- (3) MILLER, J. W.: Chagas disease in Panama: Report of three cases. South Med. Jour., July, 1931, xxiv, no. 7, 645-647.