

sera are to be examined to find suspected cases. Xenodiagnosis needs laboratory-bred assassin bugs, making it a complicated test to perform. The same thing holds true of biopsy material. A simple, easy serological test would be of great value in diagnosis of Chagas' infection in man, such as the slide agglutination test.

Summary and conclusions. 'H' and 'O' agglutinins, skin sensitizing antibodies and

lysins are present in the blood of animals infected or immunized with *Trypanosoma cruzi*. A simple, easy slide agglutination test is described for the diagnosis of experimental *Trypanosoma cruzi* infection in animals. Out of 108 human sera obtained from a hospital laboratory, only one agglutinated *T. cruzi* in 1:10 dilution.

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Effect of Hematin Upon Stability of Thiochrome in Solutions of Alkaline Ferricyanide.*

PHILIP S. OWEN, NORMAN WEISSMAN AND JOSEPH W. FERREBEE.

From the Laboratory of Dental Medicine, Harvard School of Dental Medicine, and the Second and Fourth Medical Services (Harvard) and the Thorndike Memorial Laboratory, Boston City Hospital, Boston.

The usual technic for determining thiamin by the thiochrome reaction consists in converting thiamin to thiochrome by alkaline oxidation with ferricyanide, extracting the thiochrome with iso-butyl alcohol and measuring its fluorescence with a photo-electric fluorometer.¹ In the course of a study of the thiamin inactivating enzyme of carp,² it has been observed that this procedure of analysis gives erratic results in the presence of hemolyzed red blood cells. Closer investigation has indicated that traces of hematin markedly increase the rate of destruction of thiochrome in solutions of alkaline ferricyanide. In the presence of this pigment before the thiochrome formed by alkaline oxidation of thiamin can be extracted with iso-butyl alcohol, a considerable portion may be destroyed and falsely low values of thiamin analysis obtained.

Table I illustrates the disappearance of thiochrome fluorescence which follows addition

TABLE I.

Effect of Hematin upon the Rate of Destruction of Thiochrome in Solutions of Alkaline Ferricyanide.

Solution	Time in minutes						
	0	1	3	5	10	20	30
Control	47.0*	47.0	46.5	46.5	45	44.5	43.0
Hematin (1:1,000,000)	46.0	6.0	1.5	1.5	0.5	0	0
Hematin (1:10,000,000)	46.5	37.5	28.5	22.0	10.0	3.0	2.0

*Fluorescence in galvanometer units, Coleman Electronic Photofluorometer—Model 12.

of 1 ml of a dilute solution of hematin[†] to 9 ml of an aqueous solution of 0.82 μ g of thiochrome containing alkali and ferricyanide in amounts comparable to those used in the thiochrome technic of thiamin estimation. The hematin effect is dependent upon the presence of both alkali and ferricyanide in the solution and may be observed with high dilutions of hemolyzed red blood cells as well as with dilutions of hematin.

Boiling, peptic digestion, carbon monoxide, or preliminary treatment with strong acid or alkali does not diminish the activity of the

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¹ Jansen, B. C. P., *Rec. d. Trav. Chim. d. Pays-Bas.*, 1936, **55**, 1046.

² Owen, Philip S., and Ferrebee, Joseph W., in press.

[†] Crystalline preparation of chlor-hemin obtained from Dr. Otto Schales, Peter Bent Brigham Hospital, Boston, Massachusetts.

hematin solution. However, if significant protein precipitation occurs in the presence of the hematin compound, the active material is adsorbed on the protein and taken out of solution. Under these circumstances the precipitated material becomes active and the supernatant fluid becomes inactive.

The mechanism of the hematin effect has not been studied in detail. Preliminary observations have failed to indicate a combina-

tion of thiochrome and hematin of the parahematin type. The most likely explanation is that hematin catalyzes the oxidative destruction of thiochrome in a manner similar to that described by Harrison in the case of cysteine.³

Summary. Hematin markedly accelerates the destruction of thiochrome in solutions containing alkaline ferricyanide.

³ Harrison, D. C., *Bioch. J.*, 1924, **18**, 1009.