

iphery but remained in the center of the under-surface of the cover-glass. Pressure was gently applied to the latter to ensure airtight sealing of the hanging drop inside the hollow glass. Many such hanging drop preparations were made and incubated at 37°C. and at 20°C. in separate lots. The advantage of such hanging drop cultures is obvious. It permits direct microscopic examination at frequent intervals without contamination.

Growths of flagellates were easily demonstrable in the chick brain, heart and whole embryonic tissue preparations from the fifth day on when the cultures were kept at 20°C. Similar preparations kept at 37°C. consistently yielded negative results. In number and size the flagellates reached their maximum at the end of 2 weeks, beyond which the number began to diminish. Generally after 5 weeks it became difficult to demonstrate the presence of the well preserved flagellates due apparently to the exhaustion of the nutriment in the hanging drop or possibly to the accumulation of toxic metabolic products.

Multiplication of the *Leishmania* flagellates in these embryonic chick tissue media were shown by the successful subcultures from the first positive hanging drop to a fresh hanging drop preparation. Such subcultures at 20°C. generally showed increase of flagellates in large numbers, which became obvious from the 7th day on but there was no growth at 37°C. Attempts to subculture in hanging drops the flagellates from N.N.N. media were also successful only at 20°C.

Of interest is the fact that the media containing either embryonic chick liver or intestine alone repeatedly showed no growth of flagellates. When the tissue suspension was made up of equal parts of chick liver and chick brain, the flagellates also failed to grow.

7529 C

Flagellation of *Leishmania Donovanii* in Blood from Normal and Infected Hamsters.

HUEI-LAN CHUNG. (Introduced by F. R. Dieuaide.)

From the Parasitic Diseases Laboratory, Department of Medicine, Peiping Union Medical College.

Hitherto the cultivation of *Leishmania donovani* has been on various artificially prepared media usually with rabbit's blood as one of the ingredients. It is of some interest to record the flagella-

tion of this parasite in blood from normal and kala-azar hamsters.

A minute piece of spleen from a hamster heavily infected with kala-azar was ground up in a mortar with 1.2 cc. of heart blood from the same animal. From this 4 hanging drop preparations were made with aseptic technique and sealed airtight with sterile vaseline. Two of these preparations were kept at a temperature between 20° C. and 22° C. These showed a large number of *Leishmania* flagellates when examined on the 6th day. The remaining 2 preparations kept at 37° C. showed no flagellates on repeated examination at different intervals up to the end of 3 weeks. Similar experiments repeated with normal hamster's blood yielded the same results, namely, the development of flagellates in such hanging drop preparations when kept at room temperature (20° C.-22° C.) but none in the preparations kept at 37° C.

The range of temperature in which flagellation may occur may be quite large, for Christophers, Shortt, and Barraud¹ obtained positive cultures of *Leishmania donovani* in temperatures between 16° C. and 34° C. The fact that *Leishmania donovani* from the spleen of a kala-azar hamster develop into flagellates in the blood from the same animal at room temperature points to the possibility that the parasite may even flagellate in the mammalian host under favorable conditions.

7530 P

Relationship of Peptic Ulceration to Gastric Chemism.

ALTON OCHSNER, MIMS GAGE, AND KIYOSHI HOSOI.

From the Department of Surgery, Tulane University School of Medicine, New Orleans, La.

The relationship of gastric acidity to peptic ulceration has been debated for years. The present investigation was undertaken in an attempt to evaluate the etiologic importance of gastric acidity. A total of 125 dogs was used, but of this number 68 died at various intervals after the operation, leaving 57 animals on which our results are based. Each animal was kept in separate clean quarters with a constant supply of fresh drip water. They were allowed to play on the roof on sunshiny days. All the lesions described were sub-

¹ Christophers, S. R., Shortt, H. E., and Barraud, P. J., *Ind. Med. Res. Memoirs*, 1924-1927, 1-5, 55.