been obtained from 4 animals to whom neither anesthetics nor any drugs have been administered for 24 hours. In each instance a rise of blood pressure has been seen in the absence of intestinal inhibition. Simultaneous records have also been obtained in 6 animals to whom morphine has been administered, and in 1 animal to whom paraldehyde has been given. In each of the animals a rise of blood pressure was obtained without intestinal inhibition. In every instance a sufficient dose of epinephrine was effective in maintaining intestinal inhibition.

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Bartonella Infection in Local Rats.

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Mayer, Borchardt and Kikuth[1] have shown that the anemia which develops in white rats after splenectomy is due to the activation of a latent infection with microorganisms belonging to the group *Bartonella*. For these microorganisms, they use the name *Bartonella muris*. The infection is general among the rats in Hamburg. There is a severe, acute form to which the rats succumb within a few days, and, a milder form from which they may recover spontaneously or which leads to death within several weeks. The spontaneous disappearance of the parasites may be followed later by a fatal or non fatal recidive.

Lauda[2] was able to confirm the observations of Mayer, Borchardt and Kikuth on Viennese rats although the infection was not as general as it was in Hamburg. Nauck[3] obtained positive results in Peking. Rats from southern Italy showed no *Bartonella* in their blood after removal of the spleen. When injected with the organs of Viennese rats before the splenectomy, they developed a typical *Bartonella* anemia after the operation.[4]

Since rats are so widely used for experimental studies, an examination of local rats for *Bartonella muris* is worth while. Two strains of rats were at our disposal. One was from a standard

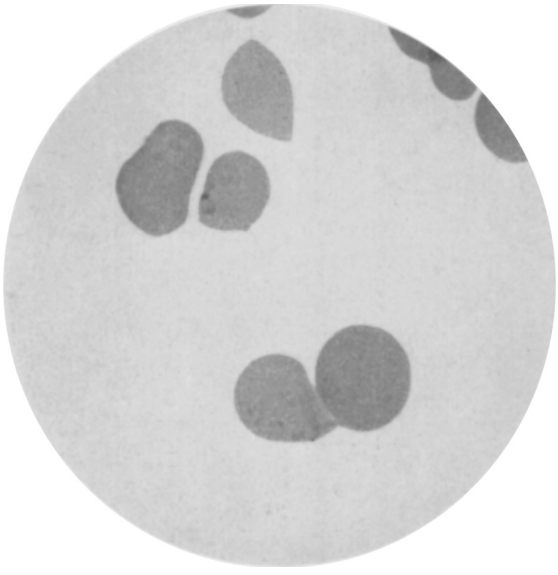

FIG. 1. *Bartonella Muris.*
Note the parasites overlapping the edges of the erythrocytes.
Modification 1500 times.

pedigreed stock kept in the laboratories for nutritional studies and the other one was obtained from a local dealer and much cheaper than the first strain.

Of the pedigreed rats, all which have so far been tested have proved infected. The *Bartonella* appeared in the peripheral blood from 4 to 5 days after the splenectomy. Within 2 days the red count then dropped from 6½ millions to 2½ millions and the hemoglobin content decreased from 100% to 35%. There was a marked neutrophile leukocytosis. Some of the rats died during the severe attack of anemia; some recovered spontaneously. Recovery starts with a sudden and very marked shower of normoblasts.

A very interesting observation has been made on young rats of this group, aged about 4 weeks. Their blood already contained numerous *Bartonellae* before the operation. In normal adult rats it is very difficult to detect the parasites. If present, they are very scanty (Lauda). The results with the rats of the second group were different. Only 1 rat out of 7 became anemic. It recovered completely within 3 weeks. Two of the splenectomized rats were starved for 3 days. They, too, showed no *Bartonella*. One rat died from an hemorrhagic-purulent-broncho-pneumonia. There were no *Bartonellae* in the heart's blood.

For the detection of the microorganisms the panoptic blood stain-

ing method of Pappenheim gives very good results. We use a slightly alkaline Giemsa's solution. Short decolorizing of the stained films in 1% $NaCO_3$ solution brings out the *Bartonella* most distinctly. It is helpful especially if there are only very few parasites present.

The *Bartonella* is first visible free between the red blood cells. It is a small biscuit shaped body composed of two granules kept together by a thin capsule. Later, the bodies become attached to the surface of the erythrocytes. They now have the shape of a slender rode that stains blue and contains two small purple granules on both ends. We could not convince ourselves that the parasites invade the red cells. Mayer, too, says that they are found on the surface of the cells. As many as 30 microorganisms may stick to a single erythrocyte. In this stage, there is a great variety in the size and shape of the *Bartonellae*. Further studies will have to show whether the different forms are stages of a cycle or are due to degeneration.

The problem of cultivating the *Bartonella muris* is being investigated by us.

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Origin of the Blood Monocyte.*

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The monocytes of the blood were studied in normal rabbits as well as in those in which a monocytosis was produced. This was accomplished by two methods: one was the intravenous injection of lithium carmine, india ink (Higgins') and saccharated iron oxide in various combinations. The other method consisted of infecting the rabbits with *B. monocytogenes* recently isolated by Murray, Webb and Swan.[1] Some of these infected rabbits were also injected with lithium carmine while others were splenectomized. Two of the latter were slowly injected with one quarter of a cc. of

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