

THE CORPUSCLES, HEMOGLOBIN CONTENT AND
SPECIFIC GRAVITY OF THE BLOOD DURING
HIBERNATION IN THE WOODCHUCK
(MARMOTA MONAX)

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INTRODUCTION

The fact that a great many physiological and pathological conditions are attended by a variation in the number of corpuscles and in other constituents of the blood, has naturally led to an investigation of the effect of hibernation on the composition of the blood. It is well known that during this period of lethargy, lasting three or four months and even longer, there may be almost continuous sleep and there may have been no ingestion of food or water whatsoever. In consequence there is a loss in the body weight amounting to as much as one fourth. The body temperature may fall from 38°C. to only a few degrees above 0°C. and practically all the vital processes are reduced far beyond that met with in many other conditions that are known to have a marked effect on the blood.

Vierordt (1) was not only a pioneer in the accurate counting of blood corpuscles, but also the first to describe a change in their number during hibernation. In the marmot he found 5,800,000 red corpuscles per c.mm. at the beginning of winter-sleep, while at the end of this period he found only 2,300,000. According to Valentin, (2) he also found that the corpuscles diminished in size as well as in number. Quincke (3) similarly found at the end of hibernation (May 17) in the marmot only 3,500,000 red cells, or 70% of the number found during the summer. Hemoglobin determinations showed only 8.8 per cent or 64 per cent of the normal amount of this pigment. Quincke took the blood from the pulsating heart. He found the erythrocytes to be of the usual form but of various sizes, and some of them contained yellow droplets.