morphia per jugular. Infundibulin per jugular had the most powerful action in reducing the volume of the thyroid, although at times there was a preliminary momentary increase. Adrenalin, after a temporary increase, produced a decrement in the volume. An infusion of the fresh ovary of a pregnant cat augmented the size of the thyroid, a fact noted by Hallion. Mammary, corpus luteum, thyroid, placenta, iodine and parathyroid extracts also increased the volume. The anterior part of the pituitary decreased the volume.

114 (810)

The relation of external temperature to hibernation.

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In a former communication[1] to this society it was shown that the absence of food is an important factor in determining the onset of hibernation in the woodchuck (*Marmotta monax*). In the present note attention is drawn to the fact that the cause of the awakening of these animals from their torpid condition in the early spring is not a rise in the temperature of their surroundings.

A colony of woodchucks was kept in artificial burrows a little over four feet[2] below the surface of the ground, as already described.[3] At the bottom of one of these burrows, the oil bulb of a Friez thermograph was placed, and connected with the recording clock-drum contained in a box at the top. All the burrows were packed with dry straw, while the one containing the bulb was shut off from the central court, to prevent the woodchucks having access to it.

A continuous record of the temperature at this depth has been kept from January 1, 1912, till the present time. It shows that the lowest temperature is reached late in March or early in April—just about the time when the hibernating woodchucks are beginning to wake up. There is no appreciable rise in temperature

[1] The Food Factor in Hibernation, PROC. SOC. EXPER. BIOL. AND MED., Vol. 9 (April 17, 1912), p. 92.

[2] Accurate measurement shows the burrows to be a few inches over four feet below the surface and not five feet as formerly stated.

[3] *Loc. cit.*

till well on in April. The diurnal variation, so marked at the surface, is almost completely abolished at this level, all the year round, and this is a circumstance which greatly favors animals with an imperfectly developed heat regulating mechanism, such as the woodchuck possesses.

Records of the air temperature taken at the Ithaca station of the U. S. Weather Bureau, situated about half a mile from the burrows, show that in 1912 the coldest month of the year was January, and in 1913, February, the average mean temperatures for the first four months being as follows:

	Jan.	Feb.	March.	April.
1912	16.3° F.	21.4	28.8	44.5
1913	34.7° F.	23.2	36.8	48.1

Notwithstanding the fact that the weather in these four months was much milder in 1913 than in 1912, the temperature at the depth of four feet, in March and April 1913, as indicated by the thermograph, was about 2° F. lower than in the corresponding months of 1912. The snowfall, however, was greater in 1912 than in 1913 and this will probably explain the apparent anomaly.

	Jan.	Feb.	March.	April.
Snowfall in inches, 1912	9.0	6.7	12.3	0.5
Snowfall in inches, 1913	2.1	5.0	2.9	0.8

In 1912, although the air was intensely cold, the comparatively thick layer of snow effectively retarded the radiation of heat from the surface of the ground.

It is interesting to note, then, that the woodchuck awakes from the hibernating state and becomes active just about the time the temperature of its surroundings has reached the lowest point for the year, and it would appear that some cause other than the temperature or carbon dioxide factor is at work to bring this result about.

115 (811)

Anaphylaxis in immune animals.

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In his general review of anaphylaxis, Besredka[1] stated that an injection of horse serum into guinea pigs produced hypersensitiza-

[1] Kraus and Levaditi's "Handbook," 1911, p. 248.