animals, attention was called to the lesion by the presence of pale opaque focal area in the psoas mucsle. Microscopical examination of these areas showed that the muscle fibers were irregular in shape, had lost their nuclei and striation and presented the typical hyaline appearance of Zenker's degeneration as it occurs in man. In these animals the adjacent tissue showed no hemorrhage, exudate or evidence of connective tissue reaction. The animals died after 18 and 35 days respectively, the first having received 8 injections and the second 7 injections of venom in doses varying from 0.5 to 2 milligrams.

A third rabbit died on the 38th day after the first injection, having received nine injections, the last on the 23d day. At autopsy mottled hemorrhages were seen in the rectus and psoas muscles and about these hemorrhages, the peculiar opaque, whitish appearance of hyaline degeneration. Upon microscopical examination, the picture was identical with that of true Zenker's degeneration. Irregular, swollen, vacuolated and varicose, hyaline fibers, more or less fractured, without nuclei and invaded by leucocytes occupied large irregular areas. In the midst of these fibers were foci of hemorrhage and throughout an infiltration of polymorphonuclear leucocytes, while about the necrotic areas were wide bands of granulation tissue which sent prolongations between the bundles of muscle fibers. In such areas the surviving fibers frequently showed multiple nuclei.

Whether or not these lesions have fundamentally a common relation with those caused by anaphylactic poisons is of course a matter of doubt. It seems wise, however, to add, in support of Beneke's experience with the venom of *Crotalus terrificus*, these observations on the effect of the venom of *Crotalus adamanteus*.

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Note on the effect of animal extracts upon the volume of the thyroid gland.

By ISAAC OTT, M.D., and JOHN C. SCOTT, M.D.

The volume of the thyroid was registered by an oncometer and a modified piston recorder. The arterial tension was also noted. The animals used were dogs, etherized and with a small dose of

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.

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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.*