



COLD BEAUTY

Beauty of two forms of frozen water is well illustrated in the cover picture and the two accompanying ones. On the cover is shown the result of a rapid fall of snow in still air, intercepted by the seed-balls of a sycamore. The pictures on this page and the facing page show the formation of hoar-frost or rime on the twigs of trees, after a night when chilly mist hung over the lowland where they grew.

PHYSIOLOGY

Find Pituitary Extract Influences Use of Sugar

A NEW attack on diabetes, by way of the pituitary gland, has been launched through researches by Prof. J. B. Collip, of McGill University.

A specially prepared extract of the pituitary, small but important gland in the head, "has a profound effect upon carbohydrate metabolism," Prof. Collip has found.

Carbohydrate metabolism, the utilization by the body of sugars and starches from foods, is the mechanism that goes wrong in diabetes. Failure of the Islands of Langerhans in the pancreas to produce sufficient insulin has been considered the cause of the condition, and insulin in proper dosage keeps diabetics healthy. Other glands besides the pancreas, however, have been shown to play a part in carbohydrate metabolism. In fact, scientists know that the glands of internal secretion, such as pancreas, pituitary, thyroid and adrenals, are closely related and influence each other in various ways.

Now that a pituitary gland extract which affects the body's utilization of sugar and starch has been discovered, the next step will be to learn how it achieves this effect.

The work is still in an early stage and is purely of academic interest as yet, Prof. Collip emphasized. But it has already raised a number of questions which, when solved, may show the whole

problem of carbohydrate metabolism and of diabetes in a clearer light.

Among the questions to be answered are whether the pituitary extract achieves its effect on sugar utilization directly, whether it acts through the adrenal glands, whether it acts by stimulating the pancreas to produce more insulin, and whether it reinforces the action of insulin by the process of synergy.

Science News Letter, February 17, 1940

BIOLOGY

Shrimp Embryos Survive Six Months Without Air

CHAMPIONSHIP honors for plain, unvarnished ability to "take it" are claimed on behalf of embryos of the little brine shrimp species known as *Artemia*, by Prof. Douglas M. Whitaker of Stanford University.

In the encysted state, a special condition in which the young shrimp survive hard seasons, they have been kept sealed in glass tubes under high-vacuum conditions for six months. During all that time they had no oxygen, yet when the glass was cracked and the embryos deposited in strong brine they went on through with their development as if nothing had happened. Other embryos were able to develop normally after a 24-hour immersion in liquid air, at a temperature of 310 degrees below zero.

Further tests are being made against time. Encysted embryos are being kept in bottles, which will be opened at five-year intervals, to see how long the little animals can live in this state of suspended animation.

Artemia is a small species of shrimp, found only in lakes of concentrated brine, saltier than sea water, such as the Dead Sea in Palestine and Great Salt Lake and Mono Lake in this country.

Similar resistance to extreme conditions has been found by Drs. C. V. Taylor and A. G. R. Strickland, also of Stanford University, in a lower animal form known as *Colpoda*, that lives in ordinary ponds.

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