



### 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 reenforces the action of insulin by the process of synergy.

*Science News Letter, February 17, 1940*

#### BIOLOGY

## Shrimp Embryos Survive Six Months Without Air

**C**HAMPIONSHIP 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.

*Science News Letter, February 17, 1940*

**LANGUAGES**  
Made *easy* By  
**LINGUAPHONE**

This amazing new Method enables you, in your own home, to speak and read any of 27 foreign languages in an incredibly short time. Endorsed by leading university professors and thousands of men and women as the quickest, simplest and most thorough language method. Send for FREE book.

**LINGUAPHONE INSTITUTE**  
31 RCA Building      New York City

If You Are Interested in Better  
Health and Longer Life Read

**TROUBLES WE DON'T TALK ABOUT**  
By **Dr. Joseph Franklin Montague**  
Well Known New York Intestinal Specialist

\$ | Cloth, 142 Pages      • COLITIS    • CONSTIPATION  
Illustrated              AND MANY OTHER AILMENTS

**The HOME HEALTH LIBRARY, Inc.**      516-5th Ave.,  
New York City

## PLANT PATHOLOGY

## Mimosa Trees Menaced By New Fungus Disease

**M**IMOSA trees, whose bright flowers and delicate, feathery, gray-green foliage are a delight to winter sojourners in Southern resorts, are menaced by a new disease, apparently caused by a soil-dwelling fungus.

Little is known about the disease, except that it kills the trees very quickly and spreads rapidly. Its center of distribution, reports Dr. George H. Hepting of the U. S. Department of Agriculture, is at Tryon, N. C., and dead trees have been found as far north as Richmond, Va., and as far south as LaGrange, Ga.

Diseases that may be early stages in tree-killing epidemics are also being studied by Department scientists in willows, oaks, shortleaf pines, Monterey cypress and Douglas fir. Two deadly diseases menace the American elm, and the London plane tree, favorite in cities because of its resistance to smoke, is under attack in centers along the Atlantic seaboard. Millions of dollars are being spent to save white pines from blister rust. The persimmon, whose wood is unequalled for golf club heads, will probably soon join the already extinct native chestnut. America's trees are in greater danger than most Americans realize.

*Science News Letter, February 17, 1940*



**CLOSE UP**

*This is how the trees on the facing page looked at nearer view.*

## POPULATION

## Low Birth Rate Linked With Finland's Economic Progress

**F**INLAND, today in the limelight as a country which has done well with meager resources, appears to owe its success partly to a declining birth rate and emigration, both of which have kept down crowding of farm population, that plagues central Europe.

A report (*Population Index*, January) shows that the Finnish birth rate has tobogganed an irregular but mainly downward course for two centuries. From 45 births per 1,000 population in mid-eighteenth century, the birth rate stood at 20 per 1,000 in 1937. Thanks to the Swedish parish system of registering vital statistics, Finland has a continuous record of births and deaths from 1750, to show trends.

Characterizing Finland as predominantly rural, though with a strong recent trend toward city and industrial development, the report says that most of Finland's farmers hold small land areas, but three-fifths of the farm families own their land. Only seven per cent of the land is cultivated. The soil is thin, deficient in lime and phosphorus. Marshlands are so acid that it takes generations of cultivation to make them productive. Factors which have enabled the Finns

to achieve a reasonably satisfactory adjustment of population to their resources without extreme wealth or extreme poverty include intelligent use of these meager resources, the cultural level of the people, forward-looking social legislation.

*Science News Letter, February 17, 1940*

### Plant Experiments

THE WORLD'S MOST  
FASCINATING HOBBY

#### COMPLETE SOILLESS GARDENING KIT

Soilless salts (17 Elements) to make 15 gals. solution.  
Iron citrate  
7-in-1 measuring spoon  
Pamphlet of directions, COMPLETE \$1.50

#### COLCHICINE

At lowest prices—Experiment in your garden with this **EASY TO USE** drug which doubles, quadruples chromosomes, produces giant never before existing plants, huge fruits, doubled flowers, makes sterile crosses fertile, some annuals into perennials. An import from Germany and Italy, price subject to change.

1/2 oz. ....\$21.00      1/8 oz. ....\$6.00  
100CC 0.6% solution .....\$2.00  
Vial of Colchisalve (experimental station formula) easiest to apply.....\$2.00

**FREE WITH EACH COLCHICINE ORDER**  
N. Y. STATE EXP. Station Bulletin No. 183  
Free with any of the above orders (if you order now) 1 Vitamin B1 pill to make 2 gal. solution.

#### FISHER 1940 MT-SCOPE

For detecting buried metals, ores, meteorites, etc.—send 10c for circular.

(send your check, cash, etc., all orders postpaid)  
(C.O.D. orders 25% deposit)

**CAMBRIDGE LABORATORIES**  
Wellesley, Mass.



## NATURE CAMP

### STUDY OUT OF DOORS

Improve your health while increasing your knowledge of Nature. Study of birds, wild animals, and rare plants directed by experienced field naturalists. Science teachers may engage in special field work. Graduate and undergraduate courses. Picturesque mountain environment. Excellent food. Recreational opportunities. Expenses reduced. Enroll now.

FIRST SESSION—June 27 to July 18

SECOND SESSION—July 17 to August 7

Send for illustrated, descriptive catalogue.  
Address: Professor George R. Green, Director of the Nature Camp, Room 311.

**THE PENNSYLVANIA STATE COLLEGE**  
State College      Pennsylvania