

the chilly waters of a mountain lake. The latest findings, made on normal persons, indicate the dangers even when there is no allergy or hypersensitiveness to cold, and explain the mechanism of the sudden deaths, linking it with the chemical, histamine.

When an enzyme that inactivates histamine is taken into the digestive system half an hour before immersion in cold water, the increase in stomach acidity is prevented. This shows that the sudden increase of histamine-like substances due to immersion in cold water is what causes the trouble. Histamine dilates the small blood vessels and lowers the blood pressure dangerously. The shock of this sudden lowering of blood pressure may prove fatal.

Science News Letter, March 23, 1940

Arthritis Problem

ATTACK on the arthritis problem by experiments with mice and a new, unusual type of germ which gives the mice symptoms typical of human arthritis has progressed to the development of a vaccine that protects the mice against this experimental arthritis. Results of the vaccination experiments were reported by Drs. Albert B. Sabin, now of the University of Cincinnati College of Medicine and formerly of the Rockefeller Institute, and Dr. Isabel M. Morgan, of the Rockefeller Institute.

"I can see no present or future application of these experiments to human arthritis," Dr. Sabin replied to a question on this point.

Because the germ, a pleuropneumonia organism, belongs neither to the bacteria group nor the virus group of disease-causing microorganisms, Dr. Sabin's studies of it are interesting to scientists who want to know all about the strange new germ which, even if it may never affect humans, causes disease in the laboratory mice used for many studies.

Science News Letter, March 23, 1940

Noises Hurt

HIGH-PITCHED noises have a greater depressing effect than lower-pitched ones of the same degree of loudness, Drs. Edward J. Van Liere, Paul E. Vaughan and Davis W. Northup, West Virginia University School of Medicine, announced.

At a high pitch, a noise about as loud as a riveter slows down secretion of digestive juices and acid in the stomach more than the same noise at a low pitch, it was learned from studying the effects of noise on dogs' digestion. The same studies showed that variation between individuals is important, some being able to stand noise better.

Science News Letter, March 23, 1940

ENGINEERING

New Fluorescent Lamps Must Have "Aging" Test

See Front Cover

RACKS upon racks of luscious-colored fluorescent lamps are being constantly filled, tested and emptied at the General Electric Fluorescent Lamp Works at Nela Park. Twelve thousand lamps a day pass through this "aging" test, which is pictured on the front cover of this week's SCIENCE NEWS LETTER.

Girls run an induction coil, and sometimes their hands, up and down the lamps to light them as if by magic.

Foreign gasses in the lamps are thus cleaned up and the lamps leveled off so that when sold they will start normally.

Science News Letter, March 23, 1940

If an ostrich should bury its head in the sand, it would *suffocate*.

Teaching handicapped *shut-in* children via a telephone hookup from classroom to homes is being tried in Waterloo, Iowa.



Multiple Cropping

MULTIPLE cropping, or the growing of two or more kinds of vegetables or flowers in the same tank of water containing nutrient chemicals, is the newest development in hydroponics, or "dirtless farming" as it has been nicknamed. Possibilities of multiple cropping are explained by the originator of hydroponics, Dr. William F. Gericke, of Berkeley, Calif., in his new book, *Soilless Gardening*.

Dr. Gericke states that he has successfully grown such combinations as corn and potatoes; potatoes, tomatoes and celery; and daffodils, godetias, gladioli and chrysanthemums simultaneously in the same hydroponic basins. The different plants kept out of each other's way through differences in height, sequence in harvesting times, etc. Sometimes a little human aid was called in, as in pruning the tomato vines so that they would bear their fruit above the level of the potato leaves.

In one experimental planting of potatoes and corn, in a basin with a surface area of 1/220 of an acre, the harvest was 6.8 bushels of potatoes and 1.11 bushels of corn, which is equivalent to 1496 bushels of potatoes and 244.2 bushels of corn from the same acre.

The hydroponic technique, as developed by Dr. Gericke, is an adaptation to large-scale, commercial production of the solution-culture method used for a century or more in plant physiology laboratories for purely experimental purposes. In it, plants are held suspended in sawdust, excelsior or other non-soil material on wire netting, with their roots dangling in tanks or basins filled with water. In the water are dissolved the same mineral nutrients that plants get from common soil fertilizers, though the combi-

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nations and properties may differ because of the radically different environmental conditions to which the plants are subjected.

While it is possible for the amateur gardener to have a lot of fun with hydroponics if he does not stop to bother about the costs, Dr. Gericke emphasizes that using the system for profit-making purposes is a task for scientific knowledge and practical horticultural experience. He is convinced that hydroponics is destined to play an important part in the

food and flower production of the future, but he feels no less strongly that the important advances will be made by men and women who bring with them not only enthusiasm for a new thing but also hard work and patiently acquired skill.

The name, hydroponics, is a word of Dr. Gericke's own coining. It is formed by analogy with a Greek word, geoponics, meaning earth-working — that is, agriculture. Hydroponics is the liquid analogue of agriculture.

Science News Letter, March 23, 1940

The great artesian springs, some of which on a small scale still remain in the region, may offer a better explanation of the formation of the craters than does the hypothesis of meteorite showers, but Prof. Johnson still does not regard his own theory as perfect.

"I fully realize that some other hypothesis, perhaps one that wholly escaped my search, may prove the key which will solve the mystery of the Carolina craters," Prof. Johnson said.

Admitting that his theory of artesian springs as the cause of the craters is more intricate and complicated than the earlier theory of giant meteorites, Prof. Johnson concluded:

"We can draw some worth-while lessons from our study. One is that the simplicity of an explanation is no guarantee of its validity. The human mind prefers simple explanations of natural phenomena. Yet it remains true that Nature often moves in complex as well as in mysterious ways her wonders to perform."

Science News Letter, March 23, 1940

China's National Geological Survey will shortly issue a report on China's fossil plant life of 25,000,000 years ago, thus continuing non-military scientific work despite war conditions.

CHEMISTRY

Japanese Make Synthetic Fiber From Soya Bean

Yarns Finished to Resemble Either Silk or Wool; Lecithin Used to Prevent Premature Hardening

OUT of the protein in soya beans two Japanese chemists have developed a strong synthetic fiber of high tensile strength which can resemble wool or natural silk, depending on production methods. The process is described in a new patent, No. 2,192,194, just granted by the U. S. Patent Office, to Toshiji Kajita and Ryohei Inoue of Tokyo.

Scientists of the U. S. Department of Agriculture express little surprise that a wool-like fiber can be created from soya beans, for it has been done experimentally, also, in the United States. The claims of a silk-like fiber are novel. While samples of the new Japanese fiber are not available, it is believed that this claim relates to the appearance of one form of the fiber which might be straight without the kink of wool, and which might possess a sheen resembling that of silk.

Chemists, too, are interested in the new patent because it describes the use of the chemical, lecithin, to stabilize the protein solution prior to its ejection into a hardening bath. American investigators have found that with soya bean protein solutions a critical stage is reached where pectin is present. Pectin is often used by cooks to make jelly. If the pectin in the solution makes it gel prematurely the whole batch must be thrown out. If the Japanese can prevent this gelation with lecithin they have made a real advance in the synthetic fiber art.

Italy was the original home of wool-like fibers made from protein and Italian

scientists introduced and perfected Lanital—made from milk. The protein of the casein in milk is the basic starting point for this product.

It has been pointed out many times that the protein of soya beans, or fish, or other sources might also be used for fibers and world-wide research has progressed rapidly to perfect these other possibilities.

In the Orient, where soya beans form such an inexpensive, widely-produced and used commodity, the perfection of methods of making fibers from the protein in the bean represents the East's answer to the West.

Science News Letter, March 23, 1940

GEOLOGY

Giant Artesian Springs Caused Carolina "Bays"

GREAT, bubbling prehistoric artesian springs and not a spectacular shower of giant meteorites from outer space are the most probable cause of the mysterious "bays," or craters, of the central Carolinas, Prof. Douglas Johnson, geologist of Columbia University, told the Sigma Xi chapter of Denison University.

Prof. Johnson told how his continued research and analysis has led him to revise the older theory that a shower of giant meteorites made the craters. He used the Carolina "bays" and their study as an object lesson in scientific research and its methods.

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