

## PHYSIOLOGY

## New Trypsin Crystals Have Great Digestive Power

**P**ROTEIN crystals of great digestive power have been isolated from commercial preparations of trypsin, digestive ferment secreted by the pancreas, by Drs. John H. Northrop and M. Kunitz of the Rockefeller Institute for Medical Research, Princeton, N. J.

This discovery is considered to be an important step in the understanding of the chemical mechanism of digestion. Until recently, the digestive ferments or enzymes, of which trypsin, pepsin and rennin are familiar, were matters of mystery to scientist and layman alike. Research such as that of the two Rockefeller Institute scientists is helping to clear up the mystery and is giving the practicing physician new weapons with which to fight disease in the human body.

Dr. Northrop has previously crystallized pepsin, the digestive ferment of the stomach.

Considerable interest, for the scientist at least, attaches to the fact that these two ferments, pepsin and trypsin, are now known to belong to the protein class of substances, to which also belong such foods as meat and nuts.

"The digestive power of the crystals is about ten times that of the most active commercial preparations," the investigators have reported of the trypsin crystals. They digest casein, principal protein of milk, and gelatin, another protein, in neutral solution. They are very unstable and lose some of their activity easily.

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## ZOOLOGY

## Teasing Otters Play Tag With Hungry Coyote

**A**N INTERESTING tag game between a coyote and two otters occurred in St. Mary's Bay in Yellowstone Lake not long ago.

Several airholes in the ice, caused by hot spots on the bottom of the lake, were used as winter quarters by otters. One day Park Ranger F. Sheldon Dart observed a coyote chasing madly back and forth between two of the airholes, about 25 feet apart. Approaching closer, he discovered that an otter occupied each of the holes. First one would appear at the opening in the ice, attracting the attention of the coyote

and drawing him near the hole. Then, when the coyote came within three or four feet, the otter would dive back into the water and disappear.

By that time the other otter would appear at his hole, snarling to attract the coyote, which then would run after him, only to have him disappear upon close approach. Again the first one would go through his performance, and upon his disappearance into the water the second would appear. This kept up for about five minutes, the coyote racing back and forth from one hole to the other, until a gust of wind warned him of the proximity of a human being.

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## NUTRITION

## Anti-Rachitic Vitamin To Be Baked Into Bread

**A** METHOD of incorporating the anti-rachitic vitamin D in bread has been developed by the Pediatric Research Foundation of Toronto.

The method makes use of the fundamental process of incorporating vitamin D into the food in the form of irradiated ergosterol, which was developed by Dr. Harry Steenbock of the University of Wisconsin. A baking company with nation-wide distribution in the United States has been licensed under the Steenbock patents to make bread in which vitamin D is incorporated by the Toronto scientist's method. Irradiated ergosterol fat is mixed with the shortening used in the bread.

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## ENTOMOLOGY

## Fat Helps Insects To Withstand Cold

**I**NSECTS that survive from one warm season to the next, sleeping through the winter like bears, prepare for the winter very much as bears do, by increasing the body store of fat. They further insure survival by getting rid of as much water as possible, making their body fluids difficult to freeze to the point of crystal formation, which would have fatal effects. Hibernating insects will freeze to death if their environmental conditions are disturbed, whether they are prepared for the cold or not. These are, in skeleton outline, the results of experiments by N. L. Sacharov of the agricultural experiment station at Saratov, U. S. S. R.

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# IN SCIENCE

## CHEMISTRY

## Odorless Varnish Is Recent Invention

**A**N ODORLESS varnish that can be used in close proximity to foodstuffs without damaging their flavor has been developed commercially. In a report to the American Chemical Society, Arthur J. Norton of North Tonawanda, N. Y., states that the new varnish makes possible the use of laminated board in the manufacture of refrigerators.

Although the use of laminated board has been steadily increasing in other industries because of its lightness, cheapness and durability, refrigerating companies were unable to take advantage of the new construction material because of its faint phenol odor, which is readily absorbed by almost any type of fatty product, such as butter.

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## ANTHROPOLOGY

## Amputated Toes Foiled Spooks of Stone Age

**H**OW TO KEEP the dead from walking abroad after a burial was one of the problems of New Stone Age Europeans, 7,000 or more years ago. This is the explanation offered by Henry Field, curator of physical anthropology at the Field Museum of Natural History, to account for the condition of a prehistoric skeleton which has just been received at the Museum.

Toes of the skeleton were cut off at the first joint before burial. Since several other skeletons taken from the same burial mound, in Hungary, were similarly mutilated, Mr. Field suggests that the Neolithic people of that region tried to make it impossible for the dead, or the spirits of the dead, to walk.

Excavators who discovered the skeleton bared only a small part of it, and then cut out the solid block of earth containing it and sent the block to the museum. Mr. Field and an assistant have now completed the excavation, and pronounce the skeleton to be that of a man about 35 years old.

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# E FIELDS

BOTANY

## Mushrooms' Sudden Growth Follows Long Preparation

See front cover

**Q**UICK as a mushroom's growth, is the phrase we like to apply to sudden and unexpected developments. An oil town, a stock-market fortune, the reputation of the writer of a "hit," are all referred to the mushroom standard of comparison.

Yet the mushroom is no creature of magic, not here yesterday and here today. The sudden manifestation that startles and fascinates us is only the fruition of months, perhaps years, of unseen preparation under ground, like the age-old waiting oil pool, the slow ripening of economic forces, the years of obscure labor behind the composer or playwright. A cluster of mushrooms can easily be as old as a forest of trees. Only until its time comes, it lives wholly as a concealed mass of white threads in the dark mold.

The picture on the cover of this issue of the SCIENCE NEWS LETTER, made by Cornelia Clarke, betrays a bit of the mushrooms' secret. It was taken in natural size just at the dramatic moment, when the "buttons," slowly swelling after weeks of feeding by the mycelial mass, are ready to leap forth and claim a place in the sun.

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MEDICINE

## Discovery May Bring More Knowledge of Tumors

**D**ISCOVERY of an inhibiting substance occurring in the tumor filtrate or extract of dry tumor material which is the causative agent of a chicken tumor has just been reported by Drs. James B. Murphy, O. M. Helmer, Albert Claude and Ernest Sturm of the Rockefeller Institute for Medical Research, New York.

The discovery was made in the course of investigations on animal tumors. Immediate application of the discovery to human tumors or cancers is not possible, but the method of investigation may point the way to valuable dis-

coveries in the field of human tumors.

Attempting to purify the causative agent of this type of chicken tumor by adsorption with aluminum hydroxide resulted in a much less active agent in the purified substance. The fluid left after removal of the purified agent, however, proved to be far more active than the original extract. This fact, together with results of other investigations, led the scientists to conclude that both tumor-producing principle and some substance or condition inhibiting its activity existed in the fluid prior to adsorption with aluminum hydroxide. The absorption process removed far more of the inhibitor than of the principle, is the explanation of the greater activity of the supernatant fluid after removal of the purified agent.

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OPTICS

## Frameless Eyeglasses May Replace Spectacles

**A** NEW TYPE of eyeglass which may replace spectacles in time is reported in a current issue of the scientific journal, *Discovery*. The new glasses, called contact glasses, are thin shells made of optical glass which can be worn under the eyelids and in contact with the eyeball.

They were originally invented for the correction of a certain condition of the eye known as keratoconus, in which the shape of the cornea is changed. The first contact glasses were made by Dr. A. E. Fick of Zurich in 1888. Recently Prof. Leopold Heine of Kiel has been experimenting with their use to correct visual disturbances as well as keratoconus. Shortsighted persons were helped by them, he found.

Some of the advantages of these glasses are that there is no restriction of the field of view; the axis of the glasses will always coincide with the axis of the eye, thus giving an equally sharp picture in all directions; and they cannot be distinguished, so that there is aesthetic advantage particularly pleasing to actors and women.

These glasses cannot be worn for long periods, as the pressure of the glass on the sensitive surface of the eye may be uncomfortable or even painful after a time. In the beginning they must be put in place and removed by the eye specialist. Above a certain strength of lens they would be too heavy and too thick to be worn.

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RADIO—ASTRONOMY

## Radio Reception Worse as Sunspots Grow Plentiful

**R**ADIO reception has been noticeably impaired coincidentally with the appearance of plentiful spots on the sun, Dr. Harlan T. Stetson, director of the Perkins Observatory, Ohio Wesleyan University, Delaware, Ohio, has observed.

Previous to the recent rise in sunspots, radio reception was the strongest ever recorded in several years of research undertaken by Dr. Stetson and his colleagues.

The recent rise in sunspots reported by Mt. Wilson Observatory in California was anticipated by Dr. Stetson on the basis of the 15-month cycle in spots that he recently discovered. The increase arrived exactly on schedule.

Dr. Stetson expects the sunspots to decrease after about April first and then radio reception will become as good or better than it was before the present sunspot outbreak.

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MINING

## Commercial Potash Mining Begun in Texas Field

**T**HE first commercial shaft ever sunk in the United States for potash has now reached a depth of a thousand feet, and potash minerals are ready to ship, the U. S. Geological Survey has been informed.

The shaft has been sunk by a firm formed to develop the great potash fields in Texas, recently explored by the Geological Survey. After government scientists had put down about twenty test holes the company drilled an equal number, and then began sinking its shaft. This has now passed through several workable beds of potash minerals, the best of which consists of a salt known as silvite.

Although this is the first deep mining operation for potash in the United States it is not the first time that this necessary fertilizer material has been produced in this country. In the arid regions of the West there are a number of highly saline lakes whose waters contain economic concentrations of potash salts. One of these, Searles Lake in California, has been actively worked for several years by a commercial firm.

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