

## PHYSIOLOGY

# Ferment in Digestive Fluid Purified for First Time

**T**HE DIGESTIVE ferment of the stomach, that dissolves the starch in foodstuffs and makes it available for the energy needs of the body, has been prepared in the pure state for the first time in the chemical laboratories of Columbia University.

This marks an important step towards finding out what these complicated ferments really are, a problem that has hitherto remained unsolved because they could not be obtained pure.

Prof. H. C. Sherman, who is well known as an authority on the vitamins, and two associates, Prof. M. L. Caldwell and L. E. Booher, announce their accomplishment in a report to *Science*.

The crystals of diastase or amylase, as the starch ferment is called by chemists, were obtained from solutions of pancreatic extract in a mixture of alcohol and water. The crystals show resemblances to proteins, those nitrogen-containing compounds which form so large a part of the stuff of the body. Because of this the crystallization must be carried out with very slight changes in temperature and the amount of acid in the solution controlled accurately.

This is the third digestive substance to be isolated. Protease, also found in digestive juice, which digests proteins like gelatin or the casein of milk, was recently crystallized by Dr. John H. Northrop and Dr. M. Kunitz at the Rockefeller Institute for Medical Research at Princeton, N. J.

Urease, the enzyme that transforms urea into ammonium carbonate for

## FORESTRY

## Sunlight on Logs Cooks Beetles to Death

**D**IRECT RAYS of the sun are being utilized by forest service entomologists in exterminating destructive beetles which in recent years have killed millions of board feet of timber near Diamond Lake, just north of Crater Lake National Park. The treatment is applied by felling beetle-infested trees and exposing the trunks to the sun in forest clearings.

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plant use, was first made crystalline in 1926 by Dr. James B. Sumner at the Cornell Medical College.

The enzymes or ferments play a very important part in the life processes of plants or animals. They accelerate chemical reactions without themselves being used up in the process. Chemists call such substances in general catalysts; though enzymes are very special kinds of catalysts which are extremely unstable and therefore difficult to handle in the laboratory.

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## MEDICINE

## Common Chemical Bath Ends Ringworm Epidemic

**A** BATH with a common chemical, sodium thiosulphate, effectively wiped out ringworm of the feet in the Albany Junior high school, where hundreds of the pupils representing at least half of the total enrollment had the disease, Dr. William L. Gould of

## PHYSICS

# Air Vibrations in Organ Pipes Revealed by Pattern in Smoke

See Front Cover

**M**AKING smoke rings in organ pipes, to show up the little cyclones that whirl in them when obstacles are placed in the openings, is the curious mode of research adopted by a London physicist, Prof. E. N. da C. Andrade of University College. These little cyclones, or vortices, have important effects on the tones of the pipes. By photographing them in smoke, Prof. Andrade is able to check up the accuracy of mathematically calculated theories never before tested.

His smoke method is an improvement on the one previously in use, which was devised by a German scientist named Kundt. The Kundt method employs dust, but since dust particles are much bigger and heavier than

Albany has reported to the American Medical Association.

Ringworm, also known as toe itch, toe scald, fungus foot, athletic foot, Hongkong foot and Shanghai foot, is very common, very old and very widespread.

It is an infection with a fungus. Healthy carriers of ringworm exist just as in the contagious diseases. These people have the disease without symptoms, but are a source of danger as they may at any time acutely affect themselves or others. Peeling of the skin between the toes or around the nails, the formation of watery blisters, cracking of the skin, itching and burning are found in various types of ringworm.

Measures such as excluding the children from gymnasium classes and swimming pool, and swabbing with iodine and mercurochrome, were tried without success. Then the sodium thiosulphate bath was installed between the locker and the shower rooms. Each pupil on the way from shower to locker room immersed his feet in the chemical bath.

The sodium thiosulphate solution is colorless and nearly odorless, so there is no objection to its use. If the bath is not convenient, a 20 per cent. powder of sodium thiosulphate in boric acid may be successfully used, Dr. Gould reported.

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smoke particles, the older method is less sensitive.

Prof. Andrade is engaged in an investigation of what happens to the air in such musical tubes as the pipes of an organ when they are producing their tones. He has found that the smoke particles show by their motion the exact motion of the air. The circulation of air in such tubes had been predicted by the late Lord Rayleigh but was never shown before.

The most beautiful photographs are obtained when a small obstacle is placed in the path of the air currents. New vortices are formed in the neighborhood of a cylindrical barrier in a way that is very striking and can not be easily shown by any other kind of experiment.

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