BACTERIOLOGY

Bacteria of Legume Roots Attacked by Bacteriophage

BACTERIA that live in nodules on the roots of plants of the pea family and capture nitrogen from the air seem to be preyed upon by a bacteriophage, or group of bacteriophages, of their own.

H. Katznelson of the State College of Washington, tried producing bacteriophages from several different kinds of legume root nodules. Several of his plants, including clover, alfalfa and Austrian lentil, did not do very well and yielded nothing. But a good strong "phage" was obtained from the nodules of vetch plants. Thinned out in water to one-billionth of full strength, it could still dissolve the bacteria from which it had been derived.

Bacteriophages are a strange group of invisible germ-dissolvers that may be living organisms and may be merely complex "almost-alive" chemical compounds. First discovered some years ago by the Canadian bacteriologist D'Herelle, they are still a great riddle to biologists.

Mr. Katznelson's studies on this new type of bacteriophage were reported before the annual meeting of the scientific honor society Phi Sigma.

Science News Letter, February 8, 1936

PHYSICS

Astronomers and Cooks Profit From Same Research

ASTRONOMY and cooking marched hand in hand during the three years' research which led to the development of the ultra-low expansion type of glass that was used in the great 200-inch diameter disk of glass for the new telescope of California Institute of Technology. The story is now told by officials of the Corning Glass Works.

Astronomy obtained the disk for the telescope mirror out of investigations in which 1,500 different kinds of glass was studied. Housewives will benefit from the same work, for one of the new glasses is now being used for a new type top-of-the stove glass cooking utensil.

The new style glassware has a still lower coefficient of expansion than the well-known oven glassware already manufactured by the glass company. The new glass, which can be placed right over a flame on the stove, is designed to supplement rather than replace the present oven-type glassware.

What makes ordinary glass crack when heated suddenly or unevenly, indicates Dr. J. C. Hostetter, who had charge of making the great telescope disk, is the large coefficient of expansion which sets up unequal stresses that finally pull the glass apart.

For glassware used directly over a flame the minimum coefficient of expansion is a desirable characteristic but it must be coupled with other factors such as mechanical strength and length of useful life.

For the great telescope mirror disk low expansion was also a major requirement. Thus the search for the proper glass had the two objectives, with astronomers and the housewife jointly benefitting.

Science News Letter, February 8, 1936

RADIO

Noises "Commit Suicide" In New Radio Device

MAKING the troublesome popping and cracking line noises in a radio receiver set commit suicide is the newest method of attack on eliminating the sounds that appear when lights in the home are switched on or off, or the vacuum cleaner put into operation.

James J. Lamb, technical editor of the American Radio Relay League's magazine QST, describes how noise suicide works. (*QST*, February.)

Many of the popping and cracking sounds that come out of the loudspeaker are due to very quick acting disturbances in the radio receiver circuit which would be fairly harmless except that the loudspeaker picks them up, starts vibrating and keeps it up for an appreciable length of time because of its inertia.

Mr. Lamb's method, which is described in full detail for his technical audience, is based essentially on the following line of reasoning. He says:

"Why not amplify the noise peaks extending above the desired signal amplitude at radio frequency, rectify them, and use the rectified voltage to control the gain of a subsequent radio-frequency stage, automatically and instantaneously?"

Which says essentially that the quick-acting noises will be turned into a form of current that can be used to increase the amplification of the receiving set and thus raise the sought-for program signals to a loudness that will mask the popping. In a way the method is a type of automatic volume control that acts before the loud speaker can become aware of the oncoming noise.

Science News Letter, February 8, 1936

IN SCIENC

ZOOLOGY

White, Pink-Eyed Elephant Reported Killed in Africa

WHITE elephants are no longer a Siamese monopoly; Africa can claim at least one. A white elephant with pink eyes—a true albino animal—was killed not long ago by a game warden on the plains of Laikipia, in Kenya Colony, Africa. Like all "white" elephants, the animal was in reality only a dirty gray in color, but every hair on its body was white.

The Kenya Game Warden's report relates terrible effects on wildlife of three years of drought. There are records of elephants falling into wells and perishing because they were too weak to get out again. A number of rhinoceroses and many buffalo have also died in their frantic efforts to get water. In northern Kenya, herds of wild elephants hid behind cattle while natives dug for water, and when it was found stampeded forward to get the first drink.

Science News Letter, February 8, 1936

ENGINEERING

Research on Wire Strength Promises Safer Elevators

A NEW machine for testing the strength of wires, which whirls the material under test like egg beater blades, has been developed by John N. Kenyon, testing engineer of Columbia University.

Safer elevators and decreased cable rope failures on hoisting apparatus should result from the new invention because it can study wires whose thickness is only twenty-four thousandths of an inch—the type used in making hoisting cable.

The wire under test is bent in the form of an arc and whirled at from 5,000 to 10,000 revolutions a minute in a bath of oil. Tiny cracks which develop in the wire surface are opened and closed each revolution and eventually the wire breaks. The machine thus ascertains how long a wire may be submitted to this type of stress which is similar to that of stopping, starting and jerking in elevator operation.

Science News Letter, February 8, 1936

E FIELDS

ETHNOLOGY

Devilfish and Barnacles Eaten by California Indians

PEOPLE will eat queer things, if they have to—or if they happen to like them. The diet of the Pomo Indians of the California coast once included such marine delicacies as devilfish, barnacles, sea-urchins, sea-anemones, sea-cucumbers and various kinds of seaweed, besides such more familiar items as lobsters, crabs, mussels and abalone.

Altogether, fifteen seashore animal species and three kinds of marine plants were eaten by these Indians, Omer C. Stewart of the University of California has learned. His investigations included questioning aged members of the tribe, and digging in the refuse mounds left by many generations of feasters.

Science News Letter, February 8, 1936

ARCHAEOLOGY

First "Newspapers" May Have Been Stone Scarabs

EGYPT flashes a gleam of light on the beginnings of newspaper history.

It seems that a pharaoh wishing to send important news of his reign to far-flung cities and provinces, might order the news inscribed on scarabs. Scarabs were amulets or other objects in the shape of the sacred Egyptian beetle, symbol of resurrection.

That the inscribed scarabs were actually distributed as newsletters is indicated by translation of a scarab acquired by the Metropolitan Museum of Art in New York. The scarab is one issued by Egypt's resplendant young "Golden Emperor," Amen-hotpe III, in 1422 B.C.

Five different news scarabs of this pharaoh are known to Egyptologists. Amen-hotpe used scarabs as one way of announcing his wedding, or rather one of his weddings. He used this method of proclaiming his score of killing ten lions a year, average, in the hunt. The lion-hunting item is a scarab record of which no less than forty copies are preserved in collections today. Another royal press dispatch from Amenhotpe told that an artificial lake a mile long had been dug for his Queen Teye and completed in fifteen days, which would be a rare engineering feat.

In fact, all of the events that the Pharaoh ordered recorded on scarab newsletters would rate as front page news today, and must have been absorbing to the subjects of the Golden Emperor.

That Amen-hotpe issued these commemorative scarabs has been well known. But heretofore the articles have been generally considered as tokens or ornaments, rather like medals, given to those whom the king delighted to honor and who were aware of his doings.

Says Ambrose Lansing, Egyptologist of the Metropolitan Museum of Art:

"It has been supposed that these scarabs were presented by the king to the courtiers in the palace, and this may be the case, although their weight is rather against their having been worn as ornaments."

But a line of hieroglyphics on the newly acquired scarab suggests to an expert eye the widespread "publication" of the king's great days. The significant line stands by itself, not on the under side of the scarab where the news story is told, but on the top side where the oval object is cut to resemble the beetle. The line names the king as beloved of the god Horus of Buhen.

Mr. Lansing explains that Buhen is an ancient Nubian city in the Sudan, far from Egypt proper. The Metropolitan has reason to believe that the scarab was found in Nubia.

Mr. Lansing concludes: "It is, in fact, most likely that our scarab was sent to this outlying city as a 'newsletter' to tell the priesthood and officials there what was going on in the court at the capital."

Science News Letter, February 8, 1936

ZOOLOGY

Giraffes Not Mute, African Hunter Finds

GIRAFFES are not mute. The annual report of the Kenya (Africa) Game Warden contains the newest challenge of an old belief that giraffes make no sound.

A hunter in the British-held territory of Kenya, who was given permission to thin out a herd of giraffes in a farming district by capturing specimens alive for export to museums, states that a young giraffe, when separated from its mother, bawls and lows pathetically, like a calf taken away from the cow.

Science News Letter, February 8, 1936

INVENTION

Cement-Coated Shingles Safer, More Economical

CEMENT-coated asphalt shingles will soon go on the market. Better fire resistance, less erosion, greater insulation properties and fewer shingles per roof are among the advantages claimed for them.

Conventional asphalt shingles are given an extra coating of special formula hydraulic cement to form the new product. The increased rigidity attained makes it possible to expose a greater area of each shingle; an ordinary asphalt shingle is exposed five inches—the cement-coated ones may be exposed seven inches. The cement coating; it is also claimed, will take a variety of permanent colors not heretofore usable.

Science News Letter, February 8, 1936

ENGINEERING

Second Highest Dam Built in France

FRENCH engineering skill recently completed the second highest dam in the world.

It is the Sautet Dam, at the headwaters of the Rhone River in the French Alps. The structure, a thin wall of concrete 414 feet high, blocks the narrow canyon of the Drac River. (*Engineering News Record*, Nov. 21, 1935.)

Though second to Boulder Dam in height, it is by far the highest in the world to be built upon tricky limestone. As at the Tennessee Valley Authority's Norris Dam in this country, extreme precautions have been taken to fill the caves and hollows through which water might leak around the dam. Hundreds of holes were drilled into the limestone near the structure — their combined depths total 20,000 feet—and 3,000 tons of cement were pumped into them under pressures as great as 500 pounds per square inch.

Engineers were spurred to conquer extreme difficulties in building Sautet Dam because the structure will store water until needed by several power plants downstream. It is also similar to Norris Dam in this respect.

Sautet's power plant is wedged into the bottom of the narrow canyon. Space there is so scarce that the plant's six 13,000 horsepower generating units are controlled by cables from the top of the dam.

Science News Letter, February 8, 1936