

GEOLOGY

Young Scientist Repeats Evolutionary Step in Lab

► AN important step in evolution, that may have taken place spontaneously many millions of years ago, was repeated under laboratory conditions in experiments carried out in Galveston, Texas, by 16-year-old Robert Anigstein, a senior at Ball High School. He induced a one-celled animal species that normally lives in sea water to acclimate itself to life in water with considerably lower salt content.

Mr. Anigstein isolated one species of single-celled animals (technically, ciliate protozoans) from the saline water of Galveston Bay, and kept cultures of it going in laboratory dishes full of sea water, observing its normal rate of reproduction under these conditions. Then he diluted the sea water to various lower salt contents, from 80% down to 10%, maintaining one set of cultures at full 100% sea-water concentration, as controls.

"With the exception of one culture," he reports, "ciliates in concentrations above 50% multiply at much the same rate as the ones in the accompanying control cultures. The ciliates transferred to 50% sea water reproduce very rapidly for the first one or two days after transfer; then the rate drops. At 30%, the rate was high the first two days, after which reproduction temporarily ceased. The ciliates surviving the transfer to the 40% sea water began to multiply at nearly the rate of the controls after the third day."

In dilutions of less than 20% sea water the animals slowly sickened and died. The experiments therefore proved ability on the part of this primitive animal species to adapt itself to brackish water, but not to a close approach to fully fresh-water conditions.

Mr. Anigstein is one of 40 winners in the nation-wide Eighth Annual Science Talent Search. He will be in Washington, D. C., for the Science Talent Institute, held March 3 through 7, at which time \$11,000 in Westinghouse Science Scholarships will be awarded.

Science News Letter, March 5, 1949

BACTERIOLOGY

Test for Disinfectants Devised by Student

► A NEW test for germ-killing chemicals, in which volunteer human guinea-pigs can be used without harm or danger to themselves, has been devised by John W. Kimball, 18, a senior at Phillips Academy in Andover, Mass. In his experiments he had the help of his classmates, who loaned him the use of the skin on their forearms in the interests of research.

Present testing methods, Mr. Kimball points out, are based either on the use of

the chemicals against bacterial cultures in test tubes or on the injection of the germs into the bodies of mice or other live animals. The first method, he feels, is unrealistic, while the second is often difficult and slow, and may be costly besides. It does, however, measure the effectiveness of the compounds when used against bacteria actually in contact with living tissue, which is lacking in the test-tube method.

Mr. Kimball's new method consists in swabbing a sample of the solution to be tested on a patch of relatively hair-free skin in the presence of bacteria. After a measured time interval, to give the compound a chance to act, the same area is mopped up with a moistened sterile cotton swab. The swab, with the germs it has picked up, is then thoroughly shaken out in a sterile salt solution, from which a measured sample is extracted for culturing in an incubator by standard bacteriological methods. The number of germ colonies resulting is an inverse measure of the effectiveness of the compound under test.

In one of the test series, the relatively new disinfectant, merthiolate, was found more effective against bacteria on human skin than the old stand-by, tincture of iodine. This is the reverse of results obtained by the U. S. Food and Drug Administration test-tube method. Mr. Kimball believes the discrepancy is due to the fact that iodine combines with the albumin of the skin, thereby losing effectiveness against the bacteria, whereas the merthiolate is not affected by the presence of the skin and is thus free to do the work for which it is intended.

Mr. Kimball is one of the 40 winners of the Eighth Annual Science Talent Search.

Science News Letter, March 5, 1949

BACTERIOLOGY

Disease-Bearing Villians Make Debut in New Movie

► A NEW movie with the worst villians in screen history has had its premiere in Baltimore.

Living cancerous tissue in a mouse and *Endamoeba histolytica*, a one-celled organism that causes amebic dysentery, are the villians of one of the first motion pictures of living cells ever produced.

The new film, shown at a meeting of the Society of American Bacteriologists at the Johns Hopkins University, uses magnifications of up to 1,000-power through a Bausch and Lomb phase contrast microscope.

Not all the stars of the movie are villians. If the disease-bearers are the villians, then the hero is probably a human sperm.

C. G. Grand of New York University directed the scientific motion picture which was photographed by Jack Godrich of Memorial Hospital, New York.

Science News Letter, March 5, 1949

IN SCIEN

GENERAL SCIENCE

Highest Laboratory Is Subject of Controversy

► SCIENTISTS have a new not-very-scientific controversy going. It's over world's highest laboratory.

The journal, *SCIENCE*, started it last fall when it referred to a laboratory on the summit of Mt. Evans, Colo., as the "highest laboratory in the world."

This statement was disputed by Dr. Alberto Hurtado of Lima, Peru, Dr. Hurtado, now visiting medical centers in this country, explains that the Institute of Andean Biology at Morococha, Peru, is the highest. Altitude of Peruvian laboratory is 14,900 feet, compared with a mere 14,156 feet for Mt. Evans.

But there is evidence that neither one of these is the literal top of scientific pursuit on the earth's surface. Two University of Chicago physicists, Albert B. Weaver and Marcel Schein, recently described how they dropped laboratory equipment near the top of Mt. McKinley in Alaska and then climbed up the mountain to use it.

Mt. McKinley is North America's highest peak, and the laboratory was at an altitude of some 18,000 feet. The Chicago scientists made cosmic ray observations at the laboratory which was higher than, though not so permanent as, the high-altitude scientific centers in Peru and Colorado.

These laboratories, of course, are just the earth-bound ones. Flying laboratories, made from B-29 bombers, have carried cosmic ray scientists and their instruments up to altitudes of 40,000 feet. And unmanned "laboratories," carrying scientific apparatus, have reached altitudes greater than 100,000 feet with balloons and higher than 250 miles with rockets.

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GENERAL SCIENCE

Scientists, Too, Object To Those Big \$10 Words

► EVEN scientists sometimes get fed up with the \$10 words in their vocabularies. Latest sign of this is the suggestion from Ruth S. Bittner of the Medical College of Virginia's department of bacteriology. In the journal, *SCIENCE* (Feb. 18), she says:

"I have listened to numerous lectures in which the speaker mouthed the 10-syllabled word desoxyribonucleic acid from five to 25 times."

She wants it shortened to "dorna."

The acid is an important chemical constituent of the nuclei of cells.

Science News Letter, March 5, 1949

CE FIELDS

CHEMISTRY

Nazi Poison Gas Checked By American Gas Masks

► THE Soviets, as well as the Army's Chemical Corps, have the Nazi's famed poison gas, tabun, but this fact isn't greatly disturbing officials of the National Military Establishment.

Gas masks issued during World War II, as well as today's models, are adequate protection against tabun, contrary to some reports. And the chemistry of the gas, although a military secret, is thoroughly understood, Chemical Corps spokesmen emphasize.

Tabun is a potent war gas. It is difficult to detect as it is practically tasteless and odorless, particularly in contrast to some types of war chemicals. It will not, however, penetrate clothing or gas masks.

Nazi plants for producing the gas were located in areas now in the Soviet Zone in Germany.

Best bet why the Chemical Corps has let out the secret of the Nazi's tabun: we have something more deadly.

Science News Letter, March 5, 1949

METEOROLOGY

New Instrument Measures Temperature of Rainfall

► HOW cold is a cold rain?

You can't get the answer to that one by reading a thermometer outdoors, or even by calling up the Weather Bureau. For such thermometer readings give you the temperature of the air between the raindrops, not the temperature of the rain itself.

To arrive at a correct answer, three meteorologists working on the U. S. Weather Bureau Thunderstorm Project have built a special instrument that collects samples of the falling rain as rapidly as possible, and automatically measures their temperature with a carefully insulated electric thermometer.

In one type of rainstorm, they found, the first-falling drops are likely to be somewhat cooler than the air near ground level. This is due at least partly to the fact that the drops have been losing water by evaporation during their fall; as is well known, evaporation produces chilling. So the farther the drops have fallen, the colder they are.

In a second type, the raindrops are much colder than the surrounding air. These seem to be drops that began their fall as hail but have thawed as they came near the ground.

Freshly melted ice can be expected to be cold.

The third principal type of rain comes when the storm is growing older, and the air near the ground has already become well chilled and saturated with water vapor. Here there is little difference between the air temperature and that of the falling water.

Participants in this research program were Horace R. Byers, Harry Moses and Patrick J. Harney. Details of the work, together with diagrams of their instrument, were presented in the *JOURNAL OF METEOROLOGY* (Feb.).

Science News Letter, March 5, 1949

HOME ECONOMICS

Girls Should Be Taught Facts of Housing

► GIRLS in home economics classes should be taught the facts of housing so that fewer of them will be disappointed in planning their "dream houses," a home management teacher has advised.

If girls are taught to select food and clothing, why not teach them house selection? asks Grace B. Gerard of Columbia University.

She said that girls should be taught that home ownership is not always possible.

The "dream house" plans may lead only to disappointment and frustration, cautions Miss Gerard in the *JOURNAL OF HOME ECONOMICS* (Feb.).

Among other subjects for a course in housing, she proposes that home economics students study financing, prefabricated houses, and new materials and construction methods.

"We can have better housing in America, if home economists will face facts," declares Miss Gerard.

Science News Letter, March 5, 1949

ENGINEERING

Rubber Insulators Replace Glass on Telegraph Poles

► FUN for boys in throwing rocks to break the familiar glass insulators on telegraph poles is on its way out. Unbreakable rubber insulators are to replace the breakable glass, Western Union engineers have revealed. They have already been installed for field testing.

The new rubber insulators are inexpensive, much smaller and weigh only one-tenth as much as the glass ones, H. H. Wheeler and W. F. Markley, of Western Union, told the American Institute of Electrical Engineers in New York. Many tests had to be made to find a rubber hard enough for use, but soft enough not to break. The small black rubber insulator developed lets drops of water roll off rather than spread out and cause leakage of electric current.

Science News Letter, March 5, 1949

NUTRITION

Birds' Preening Gives Them Their Vitamins

► PREENING, on the part of birds, is more than a beautifying gesture. It is a health measure through which birds get their anti-rickets vitamin D. Cats and other animals that lick their furry coats painstakingly are also probably giving themselves doses of vitamin D, Dr. G. H. Bourne of London Hospital Medical College points out in the scientific journal, *Nature* (Feb. 12).

A Chinese scientist, Dr. H. C. Hou, found by feeding experiments, Dr. Bourne recalls, that the skin and feathers of fowls exposed to the sun had anti-rickets effect, but if the birds' preen glands were removed and vitamin D excluded from their diet they developed rickets.

The birds apparently get their vitamin D from swallowing irradiated preen-gland oil in the course of preening. Furry animals get their vitamin from the oil they lick off their hair, it appears from other experiments of Dr. Hou's.

Science News Letter, March 5, 1949

PSYCHIATRY

Scientists Are Skeptical On Drugging of Mindszenty

► THE IDEA that Cardinal Mindszenty was drugged or electroshocked into his confession to charges against him by the Communist government of Hungary persists although medical scientists are for the most part highly skeptical.

Electroshock treatments, given to mentally sick people, cause a temporary loss of memory. But one psychiatrist questioned does not think the treatment would cause anyone to negate anything he had said in the past.

As to drugs, this psychiatrist said he does not know of any which would produce the effect of making a man negate or recant his previous statements. Other forms of mental torture which are not chemical could produce this effect.

A combination of scopolamine, the twilight sleep drug once popular for relieving childbirth pain, and morphine would make a person forget things or produce pleasurable dreams.

Actedron, known in this country as benzedrine, has been used for its apparently stimulating effects. Under the name of "pep pills," students took it to stay awake while cramming for examinations.

Crazy ideas, hearing voices and acute pain and other symptoms suggesting appendicitis are among symptoms of benzedrine poisoning that have been seen in persons who took benzedrine to get a "lift." Chronic benzedrine addicts showed aggressive and rebellious behavior, poor judgment, lack of self-control and loss of sleep, appetite and weight.

Science News Letter, March 5, 1949