

MEDICINE

Heart Beat Can Restart After Several Hours

► HEARTS THAT have stopped dead for several hours can be made to beat again, Dr. Theodore R. Sherrod of the University of Illinois College of Medicine, Chicago, reported at the meeting of the Federation of American Societies for Experimental Biology in San Francisco.

The essential chemical machinery for starting the heart beat seems to remain intact even after several hours of no beating, Dr. Sherrod said.

He kept rabbit hearts beating outside the body for one or two hours by using oxygen and a fluid containing the essential minerals found in the blood. Then he let the hearts "die" and remain inactive for one to two hours.

Then a fluid containing a heart stimulant, either serotonin or ouabain, was used, and the hearts began to beat again. Serotonin, normally found in the body, appears to be especially effective in keeping the heart beating normally as long as six hours.

The strength of the beat of the restored heart was as strong as, if not stronger than, the beat of the heart before arrest, Dr. Sherrod said. Responses of the heart to temperature changes, depressants and stimulants were identical to that seen before the heart was allowed to die.

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CHEMISTRY

New Poison Ivy Poison Causes Albino Cells

► A NEW plant growth regulator which promises to wipe out poison ivy and other pest plants can be recognized by the white growth tips of the plants to which it has been applied.

Known chemically as 3-amino-1,2,4-triazole, the new compound can also be used as a defoliant for cotton plants, to help in harvesting cotton by machine. Experiments with the chemical were reported by Dr. Kenneth A. Sund of American Cyanamid Co., Stamford, Conn., before the division of agricultural and food chemistry of the American Chemical Society in Cincinnati.

Whether sprayed on the plant or mixed into the ground, the triazole compound is taken up by either leaves or roots and carried to the parts of the plant where most rapid growth is taking place. Dr. Sund discussed the particular reactions which bleach the green cells at these sites, causing albinism in the plant.

So many weed control chemicals have been described in recent years that one session of the chemical meeting was devoted to exchange of information on the best ways to keep up with the announcements of them in scientific literature.

Insecticides related in structure to the "nerve gases" developed during World War II have been increased in number by chemi-

cal rearrangement of similar organic compounds, as reported by Dr. W. F. Barthel of the U. S. Department of Agriculture at the meeting.

A new phosphorus chemical for control of the housefly was reported by Dr. F. A. Gunther of the University of California Citrus Experiment Station, Riverside, Calif. This substance is called Diazinon, a shortened form of its 25-syllable chemical name. Methods were reported to chemists for its determination in milk, to make sure that its use to kill flies in dairy barns does not result in any contamination of the milk supply.

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ASTRONOMY

Comet Discovered Near Big Dipper

► A FAINT comet near the Big Dipper has been discovered by Dr. George O. Abell of Mount Wilson and Palomar Observatories in California.

The new stellar object is of 15th magnitude, too faint to be seen without a large telescope. It is located near the last star in the Big Dipper's handle and is moving south and west toward the spiral galaxy, M-51, which is visible with a small telescope. M-51 is almost directly overhead at midnight.

The comet is in the constellation of Canes Venatici, the hunting dogs. It was spotted on a photograph taken April 13 with the 48-inch Schmidt telescope as part of the National Geographic Society-Palomar Observatory sky survey.

Dr. Abell was co-discoverer with Robert G. Harrington, also of Mount Wilson and Palomar Observatories, of another, fainter comet (see SNL April 9, p. 237). Details of the new comet's discovery were sent to astronomical observatories by Harvard College Observatory in Cambridge, Mass., clearing house for astronomical information in the Western Hemisphere.

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ANTHROPOLOGY

African Ape-Men Show How Man Became Biped

► THE AUSTRALOPITHECINES, or South African ape-men, were definitely not human. But their bones provide new evidence on how man first came to walk on two feet.

This conclusion was reported by Dr. F. Clark Howell, Washington University School of Medicine, St. Louis, to the American Association of Physical Anthropologists meeting in Philadelphia.

Australopithecus, earliest of the ape-men, who lived in early Pleistocene times, had a fairly erect posture and true two-footed walk, Dr. Howell found from a study of their pelvic bones. But these creatures lacked a number of human features in their bones.

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IN SCIENCE

MEDICINE

Antidote to Radiation Sickness Coming Closer

► SCIENTISTS ARE coming closer to having a specific medicine for radiation sickness. The latest step was reported by Leonard J. Cole and Marie E. Ellis of the U. S. Naval Radiological Defense Laboratory in San Francisco at the meeting of the Federation of American Societies for Experimental Biology in that city.

The progress is still in the laboratory mouse protection state. It consists in separation from mouse spleen of a chemical which saves immature mice from death by ordinarily lethal doses of radiation.

The chemical has properties which place it in the class of biologically important substances termed desoxyribonucleoproteins, the Navy scientists explained. The substances are giant molecules which are found exclusively in the chromosomes and appear to be the carriers of cell heredity. Although the isolated fraction is not completely cell-free, the experimental results indicate that the protective effect of the fraction is due to the nucleoprotein and not to the cells.

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MEDICINE

Anti-Rheumatic Drug Produced in Body

► NEW DRUG for gout and rheumatoid arthritis is a chemical produced by the body itself. It is called G-27202 and is now being made synthetically.

Discovery of this new anti-rheumatic drug was announced by Drs. Bernard B. Brodie and J. J. Burns of the National Heart Institute, Bethesda, Md., at the meeting of the Federation of American Societies for Experimental Biology in San Francisco. Collaborating with them were Drs. Alexander B. Gutman, T. S. Yu, Bruce Paton, J. Murray Steele and Mr. James Perel of Goldwater and Mt. Sinai Hospitals, New York City.

Preliminary tests at the National Heart Institute show the new drug may be effective. It is a by-product of the body's attempt to break down another, highly effective anti-rheumatic drug, phenylbutazone.

Such a by-product of the body's attempt to modify a drug is known as a drug metabolite. Rarely, say the scientists, does the body provide a drug metabolite as active and potentially valuable as this new phenylbutazone derivative.

Phenylbutazone itself unfortunately has undesirable side effects in some individuals. Only extended clinical testing of the new compound will reveal whether or not it has inherited the side effects of phenylbutazone.

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CE FIELDS

AGRICULTURE

Pest Losses 30 Times Chemical Control Costs

► DISEASES, INSECTS and weeds cost the farmer more than 30 times as much money each year as he pays out for chemical controls.

The three pests are responsible for an estimated annual loss of more than \$7,500,000,000. The farmer, on the other hand, spends only \$241,000,000 each year to combat them with chemicals.

The annual crop pest ledger was compiled by the U. S. Department of Agriculture from more than 23,500 farmers, queried in a nation-wide survey. In addition to the totals, the survey also showed:

1. Only one-sixth of the nation's cropland is treated.

2. Farmers treated as many acres for weed control, 31,000,000, as they did for both insects and diseases, 29,000,000. Duplication was found in less than 3,000,000 of the treated acres.

3. Of the \$241,000,000 spent, \$193,000,000 went for insect and disease control and the remainder for weeds. This does not include cost and up-keep of farm control equipment, nor seed treatment, control of rats, mice and insects in stored grains, soil fumigation or insecticides mixed with fertilizers.

4. Farmers do most of their own spraying. Six times bigger than before the Second World War, production of sprayers and dusters is now a \$35,000,000 a year industry.

5. The frequency of chemical use varies with purpose, with crops and other factors but, nationally, one application is made per season for weed control and three for insects and diseases. Potatoes get more treatments than any other crop: five per season.

A full report of the survey was made in *Agricultural Research* (April).

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BOTANY

American Plants Reached China in 16th Century

► THREE AMERICAN plants—the peanut, the sweet potato and corn—have a long history in China but they were not introduced there until after America's discovery by Columbus.

Historical evidence to settle the recent dispute over whether these plants might have been introduced through pre-Columbian contacts between America and the East was presented by historian Dr. Ping-Ti Ho of the University of British Columbia, Canada, in the *American Anthropologist* (April).

The peanut, known in China by the descriptive name "seeds born from flowers

fallen to the ground," was introduced into China early in the sixteenth century by way of the sea, this investigator found. It was taken there either by the Portuguese or by Chinese merchants of the South Sea Islands.

Date for the introduction of the sweet potato was probably "several decades" before the year 1594. In that year there was a widespread crop failure in Fukien. The governor, Chin Hsueh-tseng, issued pamphlets on methods of cultivation of the chin-shu, golden tuber, and urged its extensive cultivation to stave off famine.

Corn was also first introduced in early post-Columbian days. Then, as today, it was not welcome among the people of the southeast coast. It was grown first in the mountainous regions of the southwest, still partially inhabited by aborigines. Corn made its first appearance in Peking as tribute paid by western tribesmen sometime before the middle of the sixteenth century.

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PSYCHOLOGY

Waiting for Dentist Lowers Learning

► ALTHOUGH PATIENTS in a dentist's waiting room, waiting their turn to have their teeth worked on, frequently browse through the ancient magazines on the table, it is unlikely that they learn much from their reading.

The "intelligent functioning" of children deteriorated while waiting to see the dentist. The field of perception narrowed and opportunity for new perceptions or learning decreased, it was shown by tests.

This dulling effect of the threat of the dentist was reported by Dr. Virginia I. Shipman of Pennsylvania State University to the Eastern Psychological Association in Philadelphia.

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MEDICINE

Cough Puts Squeeze on Blood Supply to Brain

► COUGHING PUTS the squeeze on blood vessels in the chest and brain. When the squeeze is sudden enough and intense enough, the brain may be almost bloodless.

This explanation of the mechanics by which coughing can make a person faint was given by Drs. James V. Warren, Henry D. McIntosh and E. Harvey Estes of Duke Medical School and the Veterans Administration Hospital, Durham, N. C., at the meeting of the Federation of American Societies for Experimental Biology in San Francisco.

Prolonged coughing, intense enough to produce fainting, reduced arterial blood pressure in the brain almost to zero for several seconds, the scientists found.

Coughing intense enough to cause fainting generally occurs in muscular men, who often develop violent coughing, the scientists pointed out.

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ASTRONOMY

Venus' Magnetic Pull Five Times Earth's

► VENUS HAS a magnetic field five times as strong as the earth's at a distance of about eight and a half million miles from both planets, Dr. J. Houtgast of Utrecht, The Netherlands, has estimated.

Although scientists have speculated for years about the possibility of a magnetic field for earth's sister planet, Dr. Houtgast is the first to suggest its numerical value. His estimate is based on the marked drop in magnetic activity "from seven days before to one day after" Venus comes between the sun and earth. He studied records of changes in the earth's magnetic activity covering the period 1884-1953, during which there were 44 times when Venus was lined up between the earth and sun.

At this time, the planet acts as a shield, deflecting some of the solar particles responsible for magnetic activity. If these particles move at 300 miles per second, then, Dr. Houtgast calculates, the magnetic field of Venus at about eight and a half million miles is less than two ten-billionths of an oersted, the unit of magnetic intensity.

At the same distance the earth's magnetic field is one-fifth this value, he reports in *Nature* (April 16). At the equator, the earth's field is three-tenths of an oersted, but decreases very rapidly with increasing distance from the earth.

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MEDICINE

Chemical "Fifth Column" Prepares Cells for Cancer

► APPARENTLY NORMAL cells may be invaded by a fast-working chemical "fifth column" which prepares them for invasions by cancer.

This is suggested in research on cancer of the cervix in the department of obstetrics and gynecology at the Medical Center of the University of California at Los Angeles.

Investigators have found that cervix cancer tissue will usually grow vigorously in tissue culture. But normal cervix tissue will grow with much difficulty or not at all.

It was also found that tissue which immediately surrounded the cancer and which appeared to be normal under the microscope grew extensively in tissue culture just as did the cancer cells.

This suggested that apparently normal cell changes, perhaps chemical in nature, may take place long before the cells themselves assume the appearance of cancer cells. These changes which may prepare the way for cancer, perhaps cause the apparently normal cells to grow in tissue culture in a manner similar to the cancer cells.

The tissue culture techniques may prove an effective aid in diagnosing cancer of the cervix in an early stage, the investigators hope.

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