

## DENTISTRY

## Underactive Thyroid Gives Rats Tooth Decay

► AN UNDERACTIVE THYROID gland causes an increase in tooth decay in rats, it is reported in the *Journal of the American Dental Association* (Dec.).

Prior tests on the thyroid's effect on dental caries showed that, when additional thyroid was fed to a group of experimental animals, there was a significant reduction in the amount of decay.

In the present study, thyroid functioning was stopped altogether by injecting radioactive iodine in the rats. When 500 microcuries of the iodine were given, thyroid function was halted and there was a 25% increase in dental caries.

By spacing the shots of the radioactive substance, it was also found that the amount of thyroid activity is related to an increase in tooth decay. As the thyroid became less active, a greater incidence of new dental caries was noted.

One group of animals received two doses of 250 microcuries each over a short period of time, and another got five doses of 100 microcuries each over a longer period. The first group had only seven percent more caries than a normal group, and the second showed no change from normal.

The researchers also made a comparison between the effectiveness of fluoridated water and the addition of thyroid to the diet. Both slowed down tooth decay.

With animals that received fluorine alone, the decay rate was 29% less than for those that did not get it. When desiccated thyroid was added to the diet, new dental caries decreased 39%.

The research was conducted by Drs. David Bixler, Joseph C. Muhler and William G. Shafer of the University of Indiana.

Science News Letter, December 15, 1956

## BIOCHEMISTRY

## Find Chemical Kills Normal Connective Cells

► A CHEMICAL that kills normal connective tissue cells, but has almost no effect on human cancer is being tested for use in obtaining strains of pure cancer cells in tissue culture.

Scientists at the Sloan-Kettering Division of Cornell University Medical College report their experiments in the *Journal of the American Chemical Society* (Nov. 5).

In connection with the extensive inquiry being undertaken in many laboratories for substances that will affect cancer cells differently from ordinary cells, several purine chemicals were investigated.

The hope is that there will eventually be found a chemical that can be administered to those who have cancer and result in killing the cancer or at least a reduction in its growth rate.

What the Sloan-Kettering group has found now is somewhat the reverse of this. They prepared a chemical similar to one

that has been shown to stimulate the division of some plant cells in tissue culture. This preparation was 6-furfurylamino-9-beta-d-ribofuranosylpurine.

When this was used to treat, in the test tube, adult human fibroblasts, which are normal cells, 99% of these cells were killed. However, the chemical was without effect on the rate of cell division in three strains of human carcinoma cells.

Studies are now underway to test the usefulness of this chemical for ridding human cancer biopsy cultures of connective tissue cells. This might be an aid to cancer diagnosis and further research on other compounds possibly useful in treating cancer.

The team of scientists connected with the Sloan-Kettering Division of Cornell University Medical College consisted of Drs. Alexander Hampton, John J. Biesele, Alice E. Moore and George Bosworth Brown.

Science News Letter, December 15, 1956

## MEDICINE

## Drug Lowers Blood Pressure and Anxiety

► ANOTHER DRUG to combat high blood pressure, said to offer advantages over older drugs, was announced by Dr. Karl J. Brunings, director of chemical research for Chas. Pfizer & Co., Inc., Brooklyn, N. Y., at the American Chemical Society meeting in St. Louis.

The new drug, trade-named "Moderil," reduces blood pressure by cutting communications between selected nerve centers and the arteries they serve.

It is extracted from the Indian snake root, *Rauwolfia*, source of many of today's tranquilizing drugs. The drug seems to control anxiety and tension as well as high blood pressure, Dr. Brunings said.

This relief of anxiety often associated with high blood pressure is believed to be an added advantage of the drug.

"It has been given to hundreds of patients with hypertension and anxiety and has been found to be highly effective," it was reported.

Science News Letter, December 15, 1956

## NATURAL RESOURCES

## Timber Money to Go To Schools and Roads

► NATIONAL FORESTS in the United States yielded a record amount of commercial timber during the year ending June 30, 1956, the U. S. Department of Agriculture has reported.

The timber harvest, nearly 7,000,000,000 board feet, was valued at \$97,619,518, an increase of more than \$26,000,000 over the value of the preceding year's cut.

One-fourth of this, about \$24,404,879, will be used for roads and schools in national forest areas. One-tenth will be used for construction within the national forests themselves. The remainder will go to the United States Treasury.

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# IN SCIENCE

## SURGERY

## X-Rays Used to Find Left-Over Gallstones

► X-RAYS are now being used to spot gallstones missed during surgery.

Called cholangiograms, the X-ray pictures are made after the injection of a radio-opaque fluid and help to reveal stones left after gall bladder operations. They are also used on "poor risk" patients where unnecessary surgery should be avoided.

The new diagnostic technique was reported to the American Medical Association clinical meeting in Seattle by Drs. William E. Sullens and George A. Sexton of the Northwest Medical Group, Great Falls, Mont.

Cholangiograms have been used before to show up gallstones after other examinations had failed, the doctors said, but this is the first time they have been used to spot the many stones left after surgery.

The problem is a major one, they said, with left-over stones remaining in up to 26% of patients after operation.

Science News Letter, December 15, 1956

## GEOPHYSICS

## Late Bathers on West Coast May See Satellite

► LATE SEASON BATHERS along southern California beaches next year may be the first Americans to spot the earth satellite in flight.

John V. Sigford, an aeronautical engineer for Minneapolis-Honeywell, said this is because the satellite will be sent spinning around the earth in a west-to-east direction in order to take advantage of the earth's rotation.

After the satellite-carrying rocket is launched from Cape Canaveral, Fla., and settles in its orbit, it is expected to take about an hour to whirl past Africa, the Far East and the Pacific Ocean before passing over California on its first lap around the earth.

Mr. Sigford pointed out that sharp eyes and good seeing conditions will be needed to spot it, however, since its expected magnitude will be that of a sixth magnitude star, the faintest visible to the unaided human eye. To the naked eye, it will look like a golf ball headed for the pin on a green ten miles away, Mr. Sigford calculates.

"If everything goes right," Mr. Sigford said, "the satellite should circle the earth every 90 minutes, or about 450 times while the moon is loafing around once."

Minneapolis-Honeywell is building the guidance system for navigating the 20-inch sphere into its proper earth-circling orbit.

Science News Letter, December 15, 1956

# CE FIELDS

## ASTRONOMY

### A Million Tons of Cosmic Matter Fallout Yearly

➤ ONE MILLION TONS of cosmic material smaller than four-thousandths of an inch in diameter rain on the earth annually, a U. S. scientist has found.

Dr. Paul W. Hodge of Yale University Observatory, New Haven, Conn., said a year-long survey of atmospheric dust falling at three stations in isolated areas showed the fine particles are probably meteoritic debris. Somewhat larger particles, although also very tiny, are found in densely populated areas.

The two kinds of spherules seem to be of an entirely different nature, Dr. Hodge reports in *Nature* (Dec. 1).

The yearly world-wide fallout of one million tons for the smaller particles is based on the assumption their density is the same as iron.

The principal collecting sites were the Smithsonian Astrophysical Observatory's Table Mountain Station above the Mojave Desert of California, a field site of the Geophysical Institute in central Alaska, and the Meteorological Observing Station of the Canadian Meteorological Service at Resolute, on Cornwallis Island in the Arctic.

Science News Letter, December 15, 1956

## MEDICINE

### Studies of a Tapeworm Give Clues to Immunity

➤ STUDIES OF A TAPEWORM, found both in mice and men, are furnishing science with new information on the general problems of immunity.

Dr. Donald Heyneman, zoologist at the University of California at Los Angeles, is studying the unique life cycle of the dwarf mouse tapeworm and the immunity of its host.

"Most people are aware of immunity induced by bacteria and viruses, but few know that it is possible to produce immunity to a ten-inch tapeworm," he said.

When a mouse swallows a tapeworm egg, the egg hatches into a larva, which invades the intestinal lining. The larva emerges from the intestinal wall and then becomes an adult. However, the eggs of this adult worm are incapable of developing within this host, apparently because of an immunity produced in the intestinal wall.

On the other hand, if a previously uninfected mouse swallows the tapeworm larva, the resulting adult worms can reproduce within the animal in one prolific generation.

Immunity occurs during the second gen-

eration when the hatched larvae attack the intestinal wall.

The key to the immune process in this case is the penetration of intestinal tissue cells by the larvae. Some sort of local antibody reaction apparently is brought about by the biochemical changes resulting from the temporary occupation of the intestinal cells by the larvae.

These particular tapeworms are commonly found in man, Dr. Heyneman said. Up to two percent of the population of the United States may have them. They usually pose no serious problem, but occasionally children may become seriously ill from toxic by-products of a large mass of tapeworms.

Science News Letter, December 15, 1956

## PUBLIC HEALTH

### Atomic Radiation Proofs Food Against Insects

➤ STORES OF FOOD, clothing and wood, can be made proof against insect damage by use of radiation from waste radioactive fission material from the nation's atomic power plants, Dr. Charles C. Hassett of the Army Chemical Center, Md., reports in *Science* (Nov. 23).

Promising to allow the stockpiling of critical defense materials as well as material for commercial use, the method recommended by Dr. Hassett would use cesium 137, mixed fission products or spent fuel rods from nuclear reactors as the radioactive sources.

The material to be processed would be wrapped in insect-proof covers and then irradiated with rays that would kill all existing insects. The taste and vitamin content would not be affected, and the radiation would not induce radioactivity.

The cost of the treatment is estimated to range from 75 cents to \$10.00 per ton of material treated, depending upon the radiation source used.

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## TECHNOLOGY

### Radar Meter Catches Only Speed Violators

➤ SPEEDERS may soon be caught by a radar set that spots violators only.

The device can be pre-set from 25 miles per hour to any limit. It then only registers the speed of vehicles, passing in either direction, that are exceeding the limit.

A camera can be attached to the radar set to record on film the car's license number and the speed reading on the meter. By the same token, a tape recorder can be attached to the device to record the speed reading and traffic officer's verbal description of the car, driver and license number.

The meter can also be synchronized with a remote portable traffic light set to stop a speeding car.

The new radar traffic aid was developed by Admiral Corporation in Chicago.

Science News Letter, December 15, 1956

## PSYCHOLOGY

### Mental Illness Strikes More Women Than Men

➤ THE CHANCES for good mental health are best for a middle aged man, it was reported to the National Association for Mental Health meeting in Washington.

Dr. George S. Stevenson, medical consultant for the association, said that mental illness strikes the young adults and the aged much more frequently than those of middle age, and more women than men.

Reporting on a 40-year study of mental disease, Dr. Stevenson said that schizophrenia, a mental disorder accounting for half of all mental hospital patients, usually strikes those in the 20- to 35-year bracket. In new cases the ratio of women to men is 3 to 2.

The other two of the three big mental cripples are cerebral arteriosclerosis and senile psychosis, both of which claim most of their victims after 60, he said.

Although comparatively free from mental illness now, Dr. Stevenson said, middle age is beginning to look like a danger area again because of the increase of involutional psychosis. This disease claims most of its victims between 48 and 58 and now ranks fourth as a contributor to mental hospital patients.

Dr. Stevenson said the study exposes as a "gross exaggeration" the common belief that "our mental hospitals are filled with old folks who have nothing wrong with them, but who are dumped there by relatives who do not want to be bothered with them."

Science News Letter, December 15, 1956

## MEDICINE

### Divorced Women Suffer Most From Arthritis

➤ ARTHRITIS is more common among married women than it is among single ones, but is even more prevalent among divorced women.

Dr. Sidney Cobb, University of Pittsburgh School of Public Health, reported a long-range study of the disease to the American Rheumatism Association meeting in Bethesda, Md. He said that although it has been known the disease strikes more women than men, the new study showed prevalence of the disease increases in women after they get married.

Dr. Cobb also found that women who are separated from their husbands or have been divorced or widowed suffered more from the disease than those who remained married.

The possible reason for these findings, he said, may be that emotional factors play a major role in triggering the start of the disease. Single women perhaps do not experience the emotional problems that come with marriage and raising a family.

Dr. Cobb based his findings on a study of 80,000 people in Pittsburgh.

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