PUBLIC HEALTH

Hothouse Oats Fed Cows Reduce Radioactivity

COWS WHO EAT hothouse crops grown in nutrient chemical solutions, rather than soil, produce milk with reduced radioactive fallout content, research indicates.

Dr. Robert H. Fetner and Randall W. Carter of the Georgia Institute of Technology, Atlanta, Ga., studied two groups of cattle to see if modified feeding procedures could reduce the content of potassium-40 and cesium-137 (isotopes occurring in radioactive fallout) found in milk.

They grew oats in "incubators" as big as a house and fed 20 pounds of it each day to 10 cows. Then other cows were allowed to graze in an open field. Both groups were fed their usual hay and grain diet.

Over a seven-week period, milk from the incubator-oats group averaged 38% lower cesium-137 content than that from the grazing group. Findings for potassium-40 were "insignificant or inconsistent."

The Georgia Tech scientists, reporting in Nature, 185:858, 1960, said that the difference was even more significant in view of the fact that the substituted incubator feed "comprises only a part of the total diet."

Other research groups are studying large-scale use of a filtering technique which is said to remove up to 94% of the strontium-90 from skimmed milk.

Maximum permissible concentration of radioactive elements found in milk have been set by the National Committee on Radiation Protection and Measurement. Samples taken from time to time show that levels so far have been below these limits.

Science News Letter, April 2, 1960

MEDICINE

Aminotriazole Promising In Antithyroid Treatment

AMINOTRIAZOLE, the weed killer that sparked the "cranberry crisis" last November, shows promise of becoming a useful medicine for humans, it has been reported from Chicago.

Currently, Dr. E. B. Astwood, professor of medicine at Tufts Medical School, Boston, is receiving results from experiments that lead him to speculate that the weed killer can help victims of overactive thyroid. In a letter to the editor of the Journal of the American Medical Association, 172:1319, 1960, he pointed out that he and his associates had been looking for an antithyroid compound. They wanted one that would have a longer lasting action than those now used to treat goiter such as thiouracil or mercaptoimidazole. They suspected that aminotriazole might be such a compound.

It was the discovery of traces of this compound in certain cranberry crops that prompted the Government to issue a warning to consumers last fall. Aminotriazole was at that time labeled a cancer-causing agent.

It is misleading to refer to an antithyroid compound such as aminotriazole as a carcinogen because this term implies such locally acting irritants as coal tars, which when painted on the skin of animals, induces cancer, he explained. Furthermore, the so-called carcinogenic action of the weed killer and related compounds in rats results entirely from the antithyroid effect, he added.

Several antithyroid drugs have been widely used in the treatment of hyperthyroidism in the past 17 years, and no instance of cancer has been associated with their use, Dr. Astwood said. The doses used for this purpose were much larger than the quantity of aminotriazole that would derive from the most highly contaminated cranberries.

It seems inconceivable that an antithyroid compound, no matter how potent and however prevalent in food, could ever lead to the development of the sort of thyroid nodules that were elicited in rats, he said.

Science News Letter, April 2, 1960

MEDICINE

Level of Cholesterol Differs Among Monks

TRAPPIST MONKS, who are strict vegetarians, have less cholesterol in their blood than Benedictine monks, who do eat meat, a study reveals.

A study of the blood-cholesterol levels of members of the Trappist and Benedictine monastic orders shows that, on the average, Trappists derive only 26% of their calories from fat, while Benedictines obtained 45% of their calories from fat.

Animal fats, such as those in eggs, cream and butter, account for only 43% of the fat in the Trappist diet. The same foods, plus meats, account for 75% of fats in the Benedictine diet.

The study was made by a group of researchers from the Georgia Department of Public Health and was reported from Philadelphia in the journal Annals of Internal Medicine, 52:368, 1960, publication of the American College of Physicians.

The study also revealed a difference in the percentage of total calories obtained from carbohydrates. Trappists obtained 64% of their calories from carbohydrates, whereas Benedictines received only 42%. Proteins were found to comprise 10% of the Trappist diet and 13% of the Benedictine.

The study aims at discovering whether one of the two groups develops atherosclerosis at a faster rate than the other or suffers more from coronary disease.

The stability of monastic life and the similarities between the two communities, the researchers reported, make these two groups suitable subjects for comparison in such a long-range study. But there are also differences between the two.

Trappists are withdrawn from the world, devoted to contemplation, prayer and physical labor, and neither smoke nor drink. Benedictines are teachers and preachers and are not prohibited from smoking or drinking.

The scientists involved in the study are Drs. J. Gordon Barrow, Carroll B. Quinlan and Gerald R. Cooper, and Virginia S. Whitner and Mary H. R. Goodloe, all of Atlanta.

Science News Letter, April 2, 1960

IN SCIEN

SEROLOGY

Blood Type May Tell Racial Origin of People

THE BLOOD TYPE of a person living today might give a clue to his racial origin if compared with blood types of the ancient dead.

Paleoserology has long sought to determine the blood types of ancient dead people in an attempt to establish whether the different races have predominant blood type traits.

Blood stains of mummified tissue and bones have been studied to determine blood types of people who lived in past ages. This blood typing is based on the standard test and has been made possible by the discovery that the blood-group substance is not only in the blood but distributed throughout the body.

Anthropologists trained in these blood typing techniques are now working in two laboratories in Britain and two in the United States. They hope to relate their information to the distribution of blood types in modern peoples.

It has been found that type O blood is predominant among the people now living on the American continent. This is more generally true in South America. However, the incidence of type A increases with the increase in latitude in North America. The scientists offer no explanation for this.

The work was reported in Science, 131:699, 1960, by Dr. Madeleine Smith of British Museum, London.

Science News Letter, April 2, 1960

ARCHAEOLOGY

Indians Lead Students To Mayan Paintings

FRIENDLY Mexican Indians showed two U.S. students how to find the ruins of a Mayan temple. This is the first ruin discovered in 15 years with painted religious symbols intact.

The find is outstanding as the paintings are in good condition although painted on the outside of the walls where they would ordinarily be exposed to water erosion from torrential rainfalls that in this region average up to 12 feet a year. The parts of the paintings found intact were sheltered by an overhang.

John P. Milton, an archaeology student of the University of Michigan, and Gene Dursin, a student of the Uiversity of Oregon, made the discovery in the jungle southwest of Lake Laconha in the state of Chiapas in southern Mexico.

The Lacandan Indians, called the last of the Mayas, led the two students to the ruins which they called Yatoch Ku, the house of God. Five different ruins were found, including three pyramids.

Science News Letter, April 2, 1960

CE FIELDS

MEDICINE

Increase in Carbon Dioxide Intoxication

CARBON DIOXIDE intoxication, often unrecognized but serious nevertheless, may be on the increase.

This is suggested by Dr. Ronald J. O'Reilly, radiologist at the University of California Medical Center, Los Angeles, whose recent review of the disorder appears in Diseases of the Chest, 37:185, 1960.

Carbon dioxide intoxication may occur when lungs, weakened by chronic diseases, such as emphysema, are unable to get rid of carbon dioxide properly.

As a result the gas builds up to abnormally high levels in the blood, an imbalance which in turn affects the control of breathing. Initially one may overbreathe but the end point is underbreathing.

Symptoms of the disorder are drowsiness or actual coma and a blue color from lack of oxygen in the blood.

A standard treatment for patients with an apparent lack of oxygen is to place them in an oxygen tent. But in patients suffering from carbon dioxide intoxication this may initiate a vicious circle. As more oxygen comes in, breathing may be depressed and more carbon dioxide "piles up" in a system which cannot properly rid itself of the gas. Sudden death may follow.

Carbon dioxide levels in the blood may be determined by relatively simple tests, Dr. O'Reilly points out. If there is carbon dioxide intoxication, the patient may be placed in an iron lung, which will do the breathing for him. In this manner, oxygen can be administered moderately without risk to the weakened patient who might otherwise stop breathing.

Science News Letter, April 2, 1960

PUBLIC HEALTH

Computer Spots Springs Pouring Salt Into Rivers

AN ELECTRONIC brain has helped U.S. Public Health Service engineers to pinpoint natural springs that pour up to 15 trainloads of salt per day into the Arkansas and Red Rivers.

The computer enabled the engineers to survey the 5,000-mile, eight-state river systems without time-consuming footwork and juggling of huge amounts of statistics.

Some of the springs, often hidden beneath the waters of the sprawling rivers and tributaries, were found to flow ten times saltier than the Atlantic Ocean.

Sen. Robert S. Kerr (D-Okla.), head of the Select Committee on National Water Resources of the U.S. Senate, hopes the Army Corps of Engineers will be able to build shut-off works, or divert spring flow to areas where it can do no harm, at a reasonable cost.

It now appears probable, he said, that in the next two years "we can begin opening up large, new sources of excellent fresh water in the southwestern states, where the salt stream problem is most prevalent."

Spotting the salt sources was done by placing into the computer thousands of of readings gathered from state and local sources and showing the salt content at many points along the streams. From these data the computer compiled a statistical "picture" showing the salt characteristics along the various reaches of the river systems.

Once suspicion was pinned down to a particular area, "conductivity meters" were used to lead engineers directly to the offending springs.

Surprisingly, it was found that springs and salt beds in less than a dozen areas in Texas, Oklahoma and Kansas were the major natural offenders. Sources of salt already found account for about two-thirds of the contamination and the remainder is expected to be relatively easy to locate. Most of the salt in the Red River comes from natural springs and salt beds and the rest from oil fields. The latter, however, causes a large part of the contamination in the Arkansas River.

Science News Letter, April 2, 1960

MEDICINE

Device Brings Patient's Temperature to Nurse

THE FLICK of a switch can now enable a hospital nurse to read a patient's temperature from her office.

The device is a clinical electronic thermometer that operates on transistors and a small battery. It was developed by Dr. D. C. Simpson of the Medical Physics Unit at Edinburgh University. It is already being used in a six-bed ward at the Edinburgh Royal Infirmary.

It consists of a meter, a switch and highly sensitive thermistors, or probes. The probe has a metallic oxide tip. The electrical resistance of this tip changes when heat is applied to it. It can be strapped to the patient and connected by wires to the central temperature reading point. There, resistance of the thermistor is measured and the temperature indicated on a dial.

The number of probes that may be connected to the meter is unlimited, so that by attaching one probe, or more if necessary, to each patient in a ward, the nurse in charge can obtain individual temperatures in both Fahrenheit and centigrade without stirring from her office.

The device may also be capable of locating diseased areas of the body, Dr. J. R. Greening, head of the University Unit, suggested. Diseased areas often impede the the flow of blood which, in turn, lowers body temperatures, he explained.

The device can be produced in England at a cost of less than $60 and will be available through the Wayne Kerr Corporation of Philadelphia.

Science News Letter, April 2, 1960

ROENTGENOLOGY

Isotope Technique Supplements X-Rays

MEDICAL radiograms of diagnostic quality comparable to conventional X-rays are being experimentally produced at the General Motors Research Laboratories, Warren, Mich., by a newly developed low-energy, short-lived radioisotope called Samarium-153. The new technique is expected to pave the way for use of X-rays where operation of an X-ray machine would be impossible—in the field, in emergency or disaster situations, and in remote jungle areas. Samarium-153 would supplement conventional X-ray equipment, not supplant it.

Science News Letter, April 2, 1960

OCEANOGRAPHY

Automatic Pool to Train Skin Diving Scientists

TO HELP TRAIN undersea explorers, a diving pool with automatic controls to imitate ocean conditions will be built at Scripps Institution of Oceanography, La Jolla, Calif. In this new aqualung training facility, Conrad Limbaugh, the head of Scripps diving program, explained, controls will automatically adjust the temperature and turbulence of the pool that will train divers for science.

The pool will be the University of California's only diver training facility. Students from various University of California campuses will use the pool to gain skin diving skill for research projects.

The $160,000 diving facilities, including pool, towing tank and laboratory structures, were designed by Aerojet-General Corporation for the University of California.

Science News Letter, April 2, 1960

ELECTRONICS

Push-Buttons in Planes Will Signal in Seconds

A PUSH-BUTTON system for flashing messages from planes to ground stations is being built for the U. S. Air Force. With this system a plane can signal it is on fire or in distress in five seconds.

The system sends a simple code signal to a receiver on the ground. The receiver's magnetic memory converts the signal to a "canned" message. This is spelled out on a device that looks like the mileage dial on an automobile except that letters replace the numbers and form words. Messages also can be sent from the ground to the plane.

The Air Force expects the simple code system to permit communications at long ranges at which voice conversations might be indistinguishable.

Under an Air Force research and development contract, General Electric's Communication Products Department engineers at Lynchburg, Va., are scheduled to deliver models of the system by summer to the Wright Air Development Division's Communications and Navigation Laboratory at Dayton, Ohio.

Science News Letter, April 2, 1960