PUBLIC HEALTH

Milk Industry Initiates Ban on Radioactive Milk

➤ THE BAN on radioactive milk in Utah was undertaken voluntarily by the milk producers in the area. It was not recommended or initiated in any way by either state or Federal public health authorities, SCIENCE SERVICE learned.

This is the first countermeasure in the United States against radiation in foods. It was undertaken by the milk industry when levels of iodine-131, a known cause of thyroid cancer to which children are most susceptible, reached levels more than 20 times the limits deemed acceptable by the Federal Radiation Council. The rise in radiation is blamed on the recent nuclear weapons tests in Nevada, those underground as well as explosions in the atmosphere. The President announced at his recent press conference that there would be no further atomic tests in Nevada.

Similar voluntary bans on milk may follow in other states in the West and Midwest, where, according to the radiological health department of the U.S. Public Health Service, radiation levels in milk samples from the northern parts of these states have been high.

The PHS, however, refused to release the figures on radioiodine in milk "until they had been checked out further."

Even if the levels elsewhere should be as high as those in Utah, it is unlikely that the Government will take any action to ban milk sales anywhere in the United States. The PHS has no program for countermeasures. Congress has failed to appropriate the additional $11,000,000 for such action recommended several weeks ago by the National Advisory Committee on Radiation.

The present budget of $15,000,000 was not sufficient to provide funds to implement a modest program to work with the states to reduce radiation exposure from medical and dental X-rays, deemed necessary by the radiological health division.

• Science News Letter, 82:104 August 18, 1962

MEDICINE

Protective Blanket Covers Spread Infection

➤ THE CLEAN white coverings used over blankets in hospitals actually help to spread sometimes deadly bacterial staphylococci infections, three Australian scientists report in the authoritative British Medical Journal, Aug. 4, 1962.

Staphylococci are the pus-forming bacteria that cause carbuncles and wound infections and may lead to serious or fatal blood infections. They are particularly dangerous in hospitals.

The Australian scientists studied how staph infections spread in a hospital ward by using a marked, harmless kind of staph bacteria. Within three hours after the marked bacteria were introduced into the ward, all bedding was contaminated with the organism.

Because the coverings are called counterpanes, the scientists term their finding the "counterpane effect," which was found whether the blankets were woolen or cotton, although more bacteria were detected in the air when cotton blankets were used.

The counterpane effect is probably due to friction between the covering and the blanket, resulting in more air-borne bacteria.

Dr. Sydney D. Rubbo and Shirley Dixson of the University of Melbourne, and Dr. Bryan C. Stratford of St. Vincent's Hospital, Melbourne, suggest that not using counterpanes would reduce staphylococcus infections in hospitals.

Also reported is another, six-year study of how staph spread showing that isolating patients could reduce the infections among patients after operations by half.

Since isolation is not often possible, the scientists conclude that hospitals in the future should be constructed so that as many patients as possible are isolated from one another.

Drs. R. E. O. Williams, M. Patricia Jevons and O. M. Lidwell, with W. C. Noble, all of the Public Health Laboratory Service, Colindale, London, collaborated in the study with Drs. R. A. Shooter, B. T. Thom, and R. G. White and G. W. Taylor, all of St. Bartholomew's Hospital, London.

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HORTICULTURE

Chemical Reduces Size Of Ornamental Plants

➤ THE TREND toward miniaturization has hit the flower industry.

After generations of agricultural research aimed at making things grow bigger, scientists have now come up with a compound which enables nurserymen to make certain plants grow smaller.

Trademarked Cycocel, the new product being introduced by American Cyanamid Company can reduce the size of ornamental plants by one-third to one-half without materially affecting size or time of bloom.

Initially the chemical is being used on red poinsettias, the traditional pot plant for Christmas. Some six to seven million poinsettias are purchased each year at Yule time by Americans.

Poinsettias are an extremely difficult plant to cultivate. One of the major problems has been the plant's tendency to grow excessively large.

Red poinsettias properly treated with Cycocel not only make a shorter, sturdier plant but have a greater resistance to wilting. Foliage of treated plants is greener and the red bracts are a deeper, richer color.

Cycocel has been tested successfully also on other ornamentals including azaleas, lilies, chrysanthemums, camellias and carnations. The growth retardation on these plants has proved similar to that noted on poinsettias.

The scientists believe that this chemical may be a step toward the long-sought goal of developing chemicals which will control growth in certain food and fiber crops.

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IN SCIENC

SPACE

Shelter Program Has Future Out in Space

➤ THE ADMINISTRATION'S fallout shelter program, currently collapsing from lack of popular support on earth, has a bright future in outer space, SCIENCE SERVICE learned.

A fallout shelter probably will be an essential part of every well equipped manned U.S. spaceship destined for long voyages. Some type of shelter will be necessary to protect both man and electronic equipment from the fallout of highly radioactive energy from solar flares which might burst forth during flight, an Atomic Energy Commission expert explained.

The size and shape of the shelter will depend a great deal on propulsion capability; but it is unlikely that luxury-type shelters will be designed for early pioneer voyages to Venus or Mars. Early space shelters will be small, a little larger than a good-sized coffin. Weight considerations imposed by heavy shielding to protect the astronaut from solar flares will necessarily limit the size of the shelter.

A signal system of flashing light and sound will warn the astronaut when he is reaching an area in space where cosmic radiation levels are dangerously high. He will immediately jump into the shelter and remain there until his spaceship's all clear has sounded. The spaceship, of course, will continue its course by automatic control.

The astronaut will further fortify himself with special anti-radiation pills, which scientists hope may be developed in the next few years. However, even if such pills are developed, they alone would not provide sufficient protection against the heavy radiation from solar flares. Shelters in space will be required; and, therefore, current fallout shelter builders would do well to look up and out for a future market for their products.

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ENGINEERING

Engineers Add Portable Computer to Equipment

➤ ADD a personal portable computer to the usual "slipstick" or slide rule of engineering students. Engineering students at Case Institute of Technology this fall will be using self-powered analogue computers that will integrate and add, substract and multiply, carrying the computing laboratory to wherever the young engineer does his work. The apparatus consists of six cigarette-package-sized units. Cost: $300 each set. A National Science Foundation grant of $60,000 is financing the experiment.

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E FIELDS

TECHNOLOGY

Deep Sea Drilling Deck Reaches New Depths

➤ A GIGANTIC triangular air tank floating far beneath the ocean surface supports the new British "Triton," a drilling deck which can anchor in 600 feet of water and withstand 50-foot waves and 120-mile-an-hour winds.

Triton overcomes 120-foot-depth restrictions of present marine platforms, allowing safe working conditions at the edge of the continental shelf, some 30 miles out at sea. It can be used as a helicopter landing site, offshore ship terminal and radar station, as well as for the prime purpose of drilling for oil. The biggest potential application is in oil-drilling, which with platforms resting on stilts on the ocean bottom becomes very expensive at depths of more than 80 feet, and prohibitive at 120 feet. Thus deep water oil drilling has been confined even though oil fields in deep waters are known to exist.

Designed by two British firms and tested at the Imperial College of Science and Technology in London, Triton has its above-water platform fastened to the air tank 50 to 60 feet below the ocean surface. Cables from the angles of the chamber hold rigidly to sinkers and anchors on the sea bottom. Its cost should be similar to that of conventional platforms on piles.

The "Triton" was developed by Intercontinental Marine Development Ltd., in association with Cammell Laird and Co., shipbuilders, of Birkenhead, Cheshire, England.

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PHYSIOLOGY

Science Probes World Of Unborn Baby

➤ SCIENCE is penetrating the mysterious world of the unborn baby without disturbing the normal course of pregnancy.

For example, a research project under the direction of obstetrician Dr. Donald L. Hutchinson of the University of California, Los Angeles, Medical School is expanding the meager knowledge of the systems supporting the normal growth and development of the fetus.

It is also furnishing clues to events which lead to congenital disorders and the complications of pregnancy.

Subjects of the study are rhesus monkeys from the nation's largest primate colony devoted to obstetrical research. The female monkeys have 25- to 28-day menstrual cycles, have single babies just as human females, and anatomically are little different.

One of the techniques of the study involves placing a tiny tube through the uterine wall and into a blood vessel connecting the fetus and placenta, the structure that nourishes the fetus.

Radioactively tagged substances can thus be introduced into the system. This enables the investigators to trace pathways of nutrient supply to the fetus, the disposition of its waste products, and the source and turnover of amniotic fluid, which surrounds the fetus in the uterus.

From the research has come important new information on several problems of pregnancy. One of these concerns a rather common condition of pregnancy involving an excess of amniotic fluid. There are indications that specific abnormalities in the fetus result in predictable changes in fluid volume.

The UCLA research has suggested that growth hormone may also originate in the placenta as well as the pituitary gland. The amount of radioactive strontium that can cross the placental barrier and be deposited in the baby's bones has also been measured.

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MEDICINE

Mother's Milk Protects Against Staphylococcus

➤ BREAST-FEEDING of babies will protect them against prevalent staph infections which are increasingly a problem under some hospital conditions, if experiments on mice given human milk are borne out in human babies.

A group of medical scientists, Drs. Paul Gyorgy, Sakorn Dhanamitta and Edward Steers of the Philadelphia General Hospital and William Pepper Laboratory of Clinical Medicine, Medical School, University of Pennsylvania, Philadelphia, made the tests on mice given small sublethal doses of virulent *Staphylococcus aureus* while they were injected also with human milk.

When conducted over periods of five days or more, a subsequent injection of a lethal dose of the same staph germs resulted in a lower death rate for those treated in this way than for control animals that did not have the pretreatment.

The experimenters found that milk and the mild amount of staph infection have effects which together give protection against larger amounts of staph infection. They concluded that the effect of human milk in producing immunity is a result of enhancement of antibody production.

The experiments reported in Science, 137: 338, 1962, are expected to give more impetus to breast-feeding of human infants.

Although decline in breast-feeding of human babies has occurred progressively for the last few decades in technically highly developed countries as the result of apparent success of artificial feedings, the scientists note that there have been claims that breast-fed infants show increasing resistance to disease. There were clinical observations on the benefit of human milk in treating chronic staph infections in the days before antibiotics were available.

In technically underdeveloped countries, the experimenters observed, poor hygienic conditions make breast-feeding essential if young infants are to survive.

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SPACE

Inflatable Space Station Unveiled by NASA

➤ A FULL SCALE research model of an inflatable space station was unveiled at the Lewis Research Center of the National Aeronautics and Space Administration in Cleveland, Ohio.

The three-story-high structure, shaped like a huge doughnut with a canister at its core, was designed and built by Goodyear Aircraft Corporation at its plants in Akron, Ohio, and Litchfield Park, Ariz.

A close-up look at the research model was given press representatives prior to a NASA Youth Days exhibition which began Aug. 4.

Constructed of rubberized fabric, the expandable structure is a larger version of a 24-foot model fabricated by the firm for NASA testing purposes at Langley Field, Va. This type of space station could be built 100 feet in diameter, or larger. Mission requirements and human factors would set the criteria for the size of future versions.

One major advantage is that it can be packaged in a relatively small container, thus reducing aerodynamic drag and instability, which are problems when bulky payloads are placed atop the upper stage of booster systems. Resembling a giant circular tube, the space station is connected to its central hub by a tunnel-like spoke.

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PSYCHOLOGY

Delinquency Rate Cut In Half by "Payola"

➤ A "BIG PAYOFF" to juvenile delinquents has resulted in curbing the delinquency rate.

Thirty juvenile delinquents were paid 50¢ to $2 an hour to talk freely to a tape recorder about their lives, opinions and feelings. A three-year follow-up study shows that the delinquency rate of the group, since they left the project, was about one-half that expected for such a group of delinquents. The boys changed through being studied.

The study was a Harvard project called Streetcorner Research. The project director, Ralph Schwitzgebel, made the study for the Doctor of Education degree. He compared the boys who worked for the research project with a similar group chosen from police records and matched as closely as possible in age, nationality, city of residence, age of first offense, type of offense, and time spent in reform school and prison. The results:

Average number of arrests were 2.4 for the "Streetcorner" group and 4.7 for the control group. Total number of months in prison were 69 for the "Streetcorner" group and 134 for the control group.

During the interviews, the delinquents' conversation typically passed through distinct stages, from apathy and despair to insight and transformation.

The study shows that a research program designed to get data on delinquency can at the same time help to cut juvenile crime.

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