

## MEDICINE

**Lung Cancer Patient Survives Seven Years**

► AT LEAST one lung cancer patient is alive and healthy after seven years following a combination treatment of preliminary radiation and surgery.

The upper tip of the lung was affected, a type of lung cancer that does not respond well to treatment by either surgery or radiation alone.

Dr. John T. Mallams, director of radiation therapy and cancer research at the Baylor University Medical Center in Dallas, told the annual meeting of the Radiological Society of North America in Chicago that 27 months was the longest reported survival before 1956.

The radiation therapy is used before surgery to sterilize the edges of the cancer in the hope that spread of cells will be prevented when surgery is done.

A dosage of 3,000 roentgens given over ten to 12 days tends to shrink but not destroy the cancer, Dr. Mallams said.

No biopsy is done on a lung segment because this would mean a serious surgical procedure that could work against treatment. As a result of omitting the biopsy, the Dallas surgeon said only five wrong diagnoses were made, three of which proved to be chronic tuberculosis, and two of which were other types of cancer.

Thirty-three of 42 patients, including the five wrong diagnoses, were operated on. Of the 28, eight are still alive after two years or more. Sixteen have died of cancer or other causes, and four have survived less than two years to date.

Dr. Mallams and his collaborators, Drs. Donald R. Paulson, Richard E. Collier and Robert R. Shaw, all of Dallas, recommended the combined procedure of preoperative radiation and surgery as the "treatment of choice" for upper lung cancers. The upper tip of the lung is called the superior sulcus.

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## PUBLIC HEALTH

**Space Age Schools Have Shop Health Hazards**

► PUBLIC SCHOOLS are keeping abreast of the Space Age, but educators are warned to watch out for health hazards in high school shops.

Pupils are exposed to the same dangers of dusts, fumes, gases, vapors and mists that are found in industry, Cincinnati public health officials told the American Public Health Association in Kansas City, Mo.

The short exposure time of pupils to health hazards is in itself a protection, but careless work habits and lack of knowledge concerning the dangers of exposure should be stressed by the teacher, they urged.

In an auto repair shop, for example, hazards include lead dust during valve grinding, carbon monoxide gas during tune-ups, solvent vapors from cleaners and lacquers. Also a hazard are chromic acid mists encountered by pupils when they are electroplating bumpers and other metal parts.

Skin contacts with epoxy resins used as auto body fillers can cause dermatitis.

Here are some suggestions for control of hazards:

1. Substitute nonpoisonous petroleum solvent in place of carbon tetrachloride for a cleaning agent.

2. Separate electric arc or acetylene gas welding operations from the rest of the class area to protect others besides the operators.

3. Use an auto tail pipe exhaust system to protect students from carbon monoxide, and use local exhaust hoods as ventilators to remove gases, fumes and smoke produced by foundry furnaces and glazing kilns.

4. Use protective respirators, goggles, face shield and clothing, but emphasize that respirators should not be relied upon unless other control measures are impractical.

5. Emphasize good housekeeping. Cleanliness, both of the work area and the body are important. Washing the hands frequently with warm water and soap (not solvents) will reduce the hazard of dermatitis.

School Shop Health Hazards is the title of a chapter in the revised manual on health and safety aspects of school shops to be available at the end of this year. The chapter was written by Andrew D. Hosey, who collaborated in the report made by Dr. Kenneth I. E. Macleod, health commissioner, and Dr. Mitchell R. Zavon, assistant health commissioner.

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## NUTRITION

**Irishmen Can Eat Fat, Have Low Blood Pressure**

► YOU CAN EAT all the bread, potatoes, butter and fat you want and still have lower blood pressure—if you live in Ireland.

Three Harvard doctors and one Irishman compared physical, biochemical and dietary findings of first generation Irishmen living in the United States and brothers born in Ireland, one of whom migrated to Boston. The study revealed a higher mortality rate from atherosclerotic heart disease in Boston, the 46th annual meeting of the American Dietetic Association was told in Philadelphia.

The Irish brother ate a higher percentage of animal fat and twice as much butter as his Boston brother, including larger amounts of bread and potatoes. Yet his serum cholesterol level was lower.

The American Irish-born man weighed more, had more body fat and consumed more calories. But his amount of physical activity was lower, and he ate his main meal at night instead of at noon like the Irish.

The study also included first generation Neapolitans and Americans who were born in Naples.

Drs. Martha F. Trulson, associate professor of nutrition, Robert E. Clancy, research associate, and F. J. Stare, nutrition department head, all of the Harvard University School of Public Health, and Dr. W. J. E. Jessop, dean of the School of Medicine, Trinity College in Dublin, Ireland, reported their findings.

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**IN SCIEN**

## TECHNOLOGY

**Payday Minus Paycheck Result of 'Datamation'**

► PAYDAY without a paycheck and buying or selling goods without money may be a future result of "datamation," data transmission via computer, the National Automation Conference was told in Chicago.

Computers will transfer credit to the bank, take over the bookkeeping, pay the bills and advise the wage earner to economize, Joseph W. Halina, a communications scientist of International Telephone and Telegraph Corporation, New York, reported.

Also foreseen by Mr. Halina is a bank-approved credit card that would be accepted by a clerk as payment; the transaction would be transmitted to the bank, and accounts adjusted instantaneously.

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## MEDICINE

**Use X-Rays for Cancer, Not Plantar Warts**

► X-RAYS SHOULD NOT be used on plantar warts or painful bursitis of the shoulder.

If they are, you may trade the benign condition for something worse, Dr. Bradford Cannon of Harvard Medical School warned at the International Congress of Plastic Surgery in Washington, D. C.

A study of more than 200 cases of patients who had been treated as long as 28 years ago for some benign condition, before radiation treatment had been perfected to the degree it is today, showed a resulting variety of painful, disfiguring, or even life-endangering conditions. The following cases illustrate mistreatment by X-rays:

An overweight man whose father-in-law treated a plantar's wart on the bottom of his foot is now hobbling around on a painful ulcerated hole in place of the wart, which disappeared as promised.

Another young man who was heavily bearded now has a hairless spot to disfigure him.

A woman who had a bony spur on her ankle traded it for an ulcer that had to be grafted and is still painful and unsightly.

A cell on a woman's face is now carcinoma of the cheek.

A man's shoulder skin became extremely irritated as a result of treating bursitis.

One condition that used to be treated with X-rays is acne, but dermatologists rarely use this treatment now, Dr. Cannon said.

In the United States there is no restriction on sale and use of X-ray machines. As a result, some inexperienced and unqualified persons are using X-ray treatment that should be saved for much more serious conditions.

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# CE FIELDS

## ZOOLOGY

### Sharks Attracted by Low Pulsing Sounds

► IF YOU WANT to keep that shark away, don't make any low, throbbing noises.

Large sharks quickly come to inspect low-frequency, pulsating noises, but seem to be unaffected by high-frequency or high-pitched noises, as well as by continuous low noises.

In a series of underwater experiments, the reactions of sharks to different sounds were recorded by Donald R. Nelson and Samuel H. Gruber of the Institute of Marine Science, University of Miami, Florida.

Tape recordings were made and analyzed of a struggling black grouper fish. Then various sounds were played underwater where sharks could be attracted, the scientists reported in *Science*, 142:975, 1963.

Three types of sounds were used: 1. low-frequency pulsed sound, consisting of noise passed through a 60-cycle per second low-pass filter, 2. low-frequency continuous sound, similar to the first sound but not pulsed, and 3. high-frequency pulsed sound, for which a filter band of 400 to 600 cycles per second was used. The sounds were put on tape and played back.

The sounds were played for periods of 15 minutes with the intensity being varied every 10 or 15 seconds, except for the low-frequency continuous sounds.

During a nine-day period, 18 sharks were observed inspecting the low-frequency pulsed sound, including bull, hammerhead, lemon and tiger sharks. In nearly all instances, they swam directly toward the transducer, then veered away and finally departed. It appears, conclude the scientists, that low-frequency pulsed noise may attract sharks from relatively long distances, but they will not feed unless their visual or olfactory senses are stimulated.

The low-frequency continuous sounds did not attract sharks. Two sharks were attracted to the high-frequency pulsed sound, but this may be because some low-frequency noises were also on the tape, the scientists said.

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## MEDICINE

### Drug-Treated Cancer Victims Bear Children

► ANTICANCER DRUGS have allowed three women who formerly had cancer of the womb to bear children.

Before the advent of these new drugs the standard treatment for the disease was an operation to remove the uterus, the organ that contains the young before birth.

Dr. Roy Hertz of the National Cancer Institute at Bethesda, Md., described cautious tests of drug therapy for uterine cancer to members of the American College of Surgeons in San Francisco.

First, he said, the therapy was tried on 111 cases in which the cancer had spread from the uterus to other parts of the body, making surgery useless. Seventy-two of these cases were completely cured.

Seven of these, he said, have shown no recurrence of the disease for more than five years. Fifty-eight are still free of the disease after one year.

Encouraged by these results, Dr. Hertz and his co-workers tried drug treatment on 28 women in whom the disease was still confined to the uterus. Twenty-five, he reported, were completely cleared of cancer, including the three who subsequently had children.

The drugs used were methotrexate, actinomycin D and vinca leukeblastine, in various combinations.

Dr. Hertz said surgery is still used on more malignant varieties of uterine cancer.

Cancer of the uterus occurs just after pregnancy. Dr. Hertz said the tumors are apparently derived from the tissues of the embryo, rather than those of the mother, and are therefore more readily attacked by the mother's natural immunity.

This may be why they are more susceptible to drugs, he said.

From five percent to 15% of uterine cancer patients can throw off the disease without therapy, he predicted.

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## GENERAL SCIENCE

### Science Youth Activities Part of AAAS Meeting

► THE INTERRELATION of science youth activities, including clubs, fairs, seminars and talent searches, will be presented at the annual meeting of the American Association for the Advancement of Science in Cleveland, Ohio, Dec. 26-30.

Science teachers and club sponsors, supervisors, guidance counselors, science fair committee members, Junior Academy of Science and Science Talent Search cooperators have been invited to attend this special session of the AAAS meeting, to be held in the Embassy Room of the Pick Carter Hotel, Monday, Dec. 30 at 2:00 p.m.

Mrs. Elaine Ledbetter, secretary of the National Science Teachers Association, a member of the Science Fair Council and a science teacher at Pampa High School in Pampa, Texas, will speak on science youth activities and the school program. Intrastate science youth activities will be discussed by Thomas A. Hutto, director of the Missouri State Science Talent Search and assistant professor of biology at the School of the Ozarks, Point Lookout, Mo.

John H. Marean, retiring president of the National Science Teachers Association and a science teacher at B. D. Billingshurst Junior High School in Reno, Nev., will show how national organizations can interrelate their science youth activities.

Dr. Watson Davis, director of *SCIENCE SERVICE* and editor of the *Science News Letter*, will preside at the session.

The National Science Teachers Association and the National Association of Biology Teachers will sponsor other sessions for science educators also.

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## TECHNOLOGY

### Facts on Smell Machines Aired by Scientists

► BIGGER AND BETTER ways to go sniffing into other people's business are being developed by modern scientists.

Not satisfied with the good old "schnozzola," they have designed machines sensitive enough to detect the fragrance of a perfume from across a ballroom or the pungency of frying bacon from around the corner.

One device sniffs out alcohol where the human nose would never find it. Designers, Dr. Henri Rosano and Sheldon Q. Scheps of the City University of New York said the machine is "at least 100 times more sensitive than the human nose" in detecting certain alcohols. Among these alcohols is ethyl alcohol, the drinking kind.

The machine is going to be used for a "drunkometer," Dr. Rosano told *SCIENCE SERVICE*. It will super-smell a person's breath and come up with a reading on the amount of liquor in his body.

The machine works like a battery, on principles of electro-chemistry. It looks like a small glass. Odor-carrying air in contact with the liquid in the glass sets up a reaction that can be measured.

This and other odor-detecting devices were discussed at the Conference on Recent Advances in Odor: Theory, Measurement and Control, in New York, sponsored by the New York Academy of Sciences, the American Society of Heating, Refrigerating and Air Conditioning Engineers, and the Society of Cosmetic Chemists.

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## BACTERIOLOGY

### New Means for Detecting Poisoning in Food

► A NEW means of detecting staphylococcal poisoning in food has been announced by the Food and Drug Administration. For the first time bacteriologists will be able to identify in food instead of animals the specific staphylococcal toxin responsible for most of the food poisoning outbreaks in the United States.

The new test employs a serological method. Minute quantities of staphylococcal poison in food are detected through use of its antibody, a neutralizing agent developed in the blood of an infected animal. The two samples are diffused into a gel medium. As the toxin and its antitoxin meet, a line is formed. By matching the characteristics of this line against a known reference line, bacteriologists can make a positive identification of the poison.

Food poisoning caused by the staphylococcal toxin is generally not fatal to the normal, healthy individual. It may last for only several hours, but is extremely uncomfortable and incapacitating.

The new method was reported by Dr. Ezra P. Casman and Reginald W. Bennett of FDA's division of microbiology to the 91st annual meeting of the American Public Health Association at Kansas City, Mo.

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