

## PUBLIC HEALTH

**AMA Polio Vaccine Stand Challenged by Scientist**

► SALK VACCINE has reduced polio to a minor health problem that does not justify mass vaccination programs proposed by the American Medical Association as a result of licensing the Sabin live poliovirus vaccine, a Johns Hopkins University professor believes.

Dr. David Bodian, director, department of anatomy, states in *Science*, the journal of the American Association for the Advancement of Science, 134:819, 1961, that there is a place for both types of vaccine, however, and that in a democratic society, a choice should be offered.

He is challenging the "inevitable" change-over predicted by the AMA that would relegate the Salk vaccine to the discard.

Widespread use of the Sabin vaccine in the United States is still some distance away in spite of the recent licensing of Pfizer, Ltd., Sandwich, England, by the U. S. Public Health Service to manufacture Type I of the live oral vaccine. American distribution will be by Chas. Pfizer Co., Inc.

Surgeon General Luther L. Terry of the PHS has emphasized that until Types II and III of the oral vaccine are licensed, the Salk vaccine remains the recommended choice.

In spite of this, Dr. Bodian points out, the AMA Council on Drugs has proposed a mass vaccination program, involving those who have previously been vaccinated as well as unvaccinated individuals.

This premature proposal "contains the seed of futility and embarrassment," Dr. Bodian states, adding that "such a procedure would eliminate the possibility of a definite evaluation of either vaccine in this country," and is unlikely to accomplish more than a conservative approach would do.

Even after licensing, he says, a new vaccine product must be considered to be on trial. Whether polio is now a significant health problem in the U. S. is debatable, he believes.

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## GENERAL SCIENCE

**Failure to Communicate Seen as Science Crisis**

► SWAMPED with a steadily increasing flood of scientific and technical information, America's scientists and engineers are failing to communicate clearly and adequately with themselves and the public.

The result is a serious slow-down in important research and development work, a conference in Philadelphia on "The Crisis in Technical-Scientific Communications" was told.

Inadequate communications were blamed for causing millions of dollars worth of information to be lost or withheld from workers who need it. Thousands of valuable professional man-hours are lost because of "obscure, wordy, pompous, frag-

mentary, disorganized, incorrect, misleading linguistics."

A scientist or engineer must write in a style that can be readily understood and absorbed by his chosen audience, said Irwin Hersey, publications director for the American Rocket Society, New York.

The writer, Mr. Hersey said, must be clear in his own mind as to which of his three main audiences he is addressing—workers in his own field, workers at the same professional level but in different fields, and the general public.

Dr. Eugene Garfield, director of the Institute for Scientific Information in Philadelphia, compared scientific information to "any other product which must be manufactured, packaged and sold. . . . It is a useful product if it receives proven consumer acceptance. If its acceptance declines, the consumer is ready for a change."

Dr. Thorrel B. Fest, University of Colorado Communications consultant, said scientists "unintentionally may be contributing to the development of unrealistic and even dangerous attitudes" because they do not know how to tell the public what they are doing.

Beverly Dudley of the Laboratory for Electronics, Boston, Mass., said a research worker and a skilled science writer can form "a highly effective team to interpret the significance of research in a stimulating manner."

Pointing out that motion pictures and technical photography are powerful tools for rapid interchanges of information, Charles O. Probst of Cook Technological Center, Chicago, paraphrased Confucius to comment that "a ten-minute motion picture can be worth ten thousand words, and communicate ten times as much."

The conference was sponsored by the Institute of Radio Engineers through its professional group on engineering writing and speech.

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## PSYCHOLOGY

**Bitter Taste Sensitivity Linked to Food Dislikes**

► THE HIGHER a person's sensitivity to the taste of bitter substances, the more foods he is apt to dislike, tests conducted by four Ohio researchers show.

Forty-eight persons were asked to name their dislikes and aversions from a list of 118 foods. The highest percentages of rejected foods were reported by those who were later shown to have a low taste threshold, indicated by extreme sensitivity to bitter compounds such as quinine.

The tests were made at Ohio State University Health Center, Columbus, and Fels Research Institute, Yellow Springs, Ohio. The work is reported by Dr. Stanley M. Garn, R. Fischer, F. Griffin and S. England in *Nature*, Sept. 23, 1961.

They raise the possibility of curing food aversions by using compounds from which thyroxine is formed. Some of these compounds are known to be effective in changing taste thresholds. Thyroxine is the fundamental active substance in the thyroid gland.

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**IN SCIEN**

## SURGERY

**Split-Skin Grafting Helps Wounded Finger-Tips**

► GRAFTING of split skin from other parts of the body is the recommended method of repairing workmen's finger-tip injuries in Guy's Hospital, London, it is reported in the *British Medical Journal*, Sept. 23, 1961.

Workmen who snip off pulp and bone from the ends of their fingers make up a majority of those who come to the emergency room for surgical treatment, Dr. F. J. Moynihan, senior registrar of the hospital's orthopedic department, reported. Non-specialists can best perform the split-skin type of grafting.

The operation is performed under local anesthesia, administered to the part of the body from which skin is taken for grafting as well as to the finger area. The graft is sewed in place and a non-adherent dressing is applied.

In 100 cases of split-skin grafting, 80% were successful.

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## PHYSICS

**Theory on Radioactive Fallout Is Developed**

► A NEW THEORY for predicting the amount of radioactive fallout from nuclear blasts has been developed by a United States scientist. The accurate method is limited to surface explosions.

With the United States steering away from surface blasts, a computer "model" of the method is now being used to predict fallout dosages from large and small nuclear weapons. The data will be helpful in planning shelter programs and determining how long contaminated areas remain "hot" with radioactivity.

Dr. Albert D. Anderson of the U. S. Naval Radiological Defense Laboratory in San Diego, Calif., based his method on the following assumptions:

1. Fallout begins soon after detonation and before the mushroom cloud reaches its maximum altitude.

2. The radioactive particles are uniformly scattered throughout the cloud.

3. The speed of a radioactive particle depends on the difference between the cloud's rising speed and the pull of gravity.

4. The time of a rising or falling particle to travel through a given layer is inversely proportional to the rate of rise or fall of the particle.

Fallout properties computed from the resulting formula compared very favorably with observed data from nuclear explosions conducted a few years ago, the scientist reports in the *Journal of Meteorology*, 18:431, 1961.

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# CE FIELDS

## MEDICINE

### Oxygen Amount Affects Cancer X-Ray Treatment

► BY PLACING cancer patients in an atmosphere of increased oxygen pressure, victims of malignant tumors should have a much better chance of avoiding X-ray damage to normal tissues while their cancer growth is being reduced.

This is because the amount of oxygen surrounding a cancer increases the amount of damage by X-rays, Drs. James Nickson of New York's Memorial Hospital for Cancer and Allied Diseases and Titus C. Evans of the State University of Iowa reported.

They told a forum sponsored by the American College of Radiology in New York that radiation biologists have found many factors determine the "extent of damage a living cell will undergo from a given dose of radiation."

The first "clinical fruit" of this research was the discovery that the amount of oxygen surrounding a cell very significantly affects that cell's radiosensitivity.

The basis of the use of oxygen in X-ray treatment of cancer is the two-fold supposition that cells in tumors are protected from irradiation damage by the low oxygen concentration around them, and that this protection can be abolished by increasing the partial pressure of the respired oxygen.

First applied to animals, this hypothesis has now been shown applicable to humans.

"The radiation therapist," the scientists said, "can now be given tools which have immediate great promise for sharp improvement in the assistance of patients with cancer, by ionizing radiation."

The forum was held at the New York Academy of Sciences.

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## VITAL STATISTICS

### Health Insurance Cuts Poland's Infant Deaths

► POLAND credits a system of universal insurance against sickness as one of the chief factors in a "remarkable" decline in infant and child death rates since World War II, delegates to the International Population Conference in New York were told.

Since 1950, infant death rates from all causes except congenital malformations have decreased substantially, Z. Padowicz, head of the central statistical office at Warsaw, said.

He pointed out that health insurance coverage for workers and their families is supplemented by free medical care for all infants less than one year old, insured or not.

In addition, dispensaries have been established for mothers and children, and hospitals and delivery rooms have been brought

to rural areas. For insured persons, the price of medications has been reduced to 30% of the usual sale price.

In the last 60 years, Mr. Padowicz said, Poland has cut its infant mortality rate by two-thirds and its child mortality rate by almost 95%. The life expectancy rate, which was 31.9 years 120 years ago, had increased by 1956 to 61.8 for men and 67.8 for women. In 1931-32, it was 48.2 for men and 51.4 for women.

Deaths among Poland's urban population from tuberculosis and other respiratory diseases have been reduced by 75% during the past 35 years, he said.

The conference, organized by the International Union for the Scientific Study of Population, was held at New York University.

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## BIOCHEMISTRY

### Miners' Flotation Used on Bacteria

► AN IMPORTANT technique of the mineral and chemical engineer, flotation, may also prove helpful to the biologist and food-processing engineer.

Prof. Antoine M. Gaudin, Richards professor of mineral engineering at the Massachusetts Institute of Technology, pointed this out at the celebration in Denver, Colo., of the 50th anniversary of froth flotation in the United States. Speaking at a meeting arranged by the American Society of Mining Engineers, he reported the findings in work done under contract with the U.S. Army Chemical Corps at MIT. It indicated that microorganisms could be separated by differential flotation.

In experiments with cultures of *Escherichia coli*—a readily available, hydrophilic, non-toxic organism, which would not float—it was found that by adding salt to the concentration the number of organisms in the tailing from flotation could be reduced to the vanishing point. And in experiments with another microorganism, the researchers found that its spores could be separated from vegetative cells of the same organism by flotation. They succeeded, too, in floating a contaminant from a mixture of organisms of this type.

Hence, Prof. Gaudin suggested, flotation may be helpful in such projects as the treatment of soils for the isolation of various strains of antibiotic-producing organisms.

Ore pulps are commonly described in terms of the percentage of the pulp that is fine enough to pass through a 200-mesh sieve. The microorganisms with which Prof. Gaudin has been dealing could pass through a 20,000-mesh sieve, and are so light that their settling velocity in a liquid is vanishingly slow. They are, moreover, living, reproducing and dying things, rather than inanimate particles, which makes the striking of a balance of materials very difficult. Nevertheless, the experiments showed, they can be floated from one another, or concentrated in a portion of the aqueous phase, and the operation can be both simple and rapid.

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## ASTRONOMY

### Super-Giant Galaxies Send Out Radio Signals

► THE SUPER-GIANT galaxies, huge star systems containing millions upon millions of stars, are believed to send radio waves forth into space for only a very limited part of their lifetime.

Although all large clusters of star systems contain super-giant galaxies, only very few of them are radio-galaxies, the Russian astronomer, Dr. V. A. Ambartsumian, incoming president of the International Astronomical Union, reported to the Union in Berkeley, Calif. He said the radio-emitting activity of such galaxies must be a short phase in the evolution of such systems.

The material causing the radio emission from the systems is apparently part of the outflow from the center, or nucleus, of energy masses even more powerful than the super-giant galaxies at a certain stage in their life cycle, Dr. Ambartsumian said.

He added that observations of huge bursts of energy from one giant galaxy do not conform to the information astronomers now have about the shapes of the nuclei of galaxies. What goes on in other radio galaxies is even more difficult to interpret.

"The few facts at our disposal show that these data may come in conflict with the law of conservation of energy (and matter) as it is in its present form and perhaps require a generalization of this law," he said.

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## PHYSIOLOGY

### Recover Sense of Smell After Vitamin A Shots

► A LOST SENSE of smell was recovered by 48 of 53 patients given large intramuscular injections of vitamin A.

Drs. M. H. Briggs and R. B. Duncan of Victoria University of Wellington, Wellington, New Zealand, report in *Nature*, 191: 1310, 1961, that animals raised on diets free of carotenoid (group of yellow, orange, red and purple pigments) will have an impaired sense of smell.

Experiments on the olfactory areas of the heads of freshly killed cows indicated that these tissues contain free carotenoids and free vitamin A.

It has been known for years that the soft membranes of the olfactory areas are yellow whereas areas not related to the sense of smell are not. These yellow areas are known to contain carotenoids, which in experiments can be liberated by acetone from combination with proteins.

The scientists believe it is reasonable to assume that protein-bound carotenoids of the olfactory membrane receive energy from the olfactant molecules entering the nasal cavity.

The fact that patients treated with vitamin A recovered their sense of smell is probably related to interaction of carotenes (capable of conversion into vitamin A) and simple carotenoids in the olfactory area.

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