

## GENERAL SERVICE

## Progress in Peaceful Uses for Atomic Research

► MUCH PROGRESS was achieved in atomic energy research during 1960 in the life and physical sciences, the Atomic Energy Commission reported in Washington, D. C.

More accurate detection of human tumors by a new radioisotope, and the attainment of a proton beam of more than 30 billion electron volts at Brookhaven National Laboratory were two notable events in the life and physical sciences respectively.

The radioisotope, iodine 125, emits soft or low energy X-rays instead of gamma rays, and is cheaper and more convenient to use than other radioisotopes. It can also be used to pinpoint certain tumors more accurately than present methods.

The high energy attained by the Brookhaven accelerator permits scientists to study nuclear reactions with energies greater than ever before attained by man-made machines. Scientists are trying to learn more about nuclear structure by studying the many kinds of particles produced when atomic nuclei are bombarded by high energy particles.

Two other multi-billion electron volt machines are scheduled for operation this year.

Other new developments during 1960 include development of a compact radiation detection instrument, improved radiation treatment for cancer victims and use of radioactive tracers in studying drug addicts.

About \$186,000,000 was spent on atomic research in the life and physical sciences during the 1960 fiscal year, the report said. Physical sciences received \$137,000,000, and the life sciences, which include the medical and biological fields, were awarded \$49,000,000.

• Science News Letter, 79:120 February 25, 1961

## MEDICINE

## Surgeons' Exchange Urged for Russia, U. S.

► CONGRESS SHOULD GET an exchange fellowship program started as soon as possible between young Russian and American surgeons, Dr. Henry Swan of the University of Colorado Medical Center, Denver, advises.

"I, for one," he reports in the American Medical Association's Archives of Surgery, 82:175, 1961, "would be delighted to participate in such a program by exchanging research fellows or residents for a year with any of the teaching institutes."

The Soviet Union is graduating doctors at a rate that exceeds the increase in its population, Dr. Swan says, in contrast to the United States where the ratio is declining.

There are more than 360,000 physicians in the Soviet Union and physicians are graduating from medical school at the rate of over 17,000 a year. This means one

physician for every 575 Russian citizens. Seventy-five percent of the graduates are women.

By contrast, the United States has 250,000 physicians, with 7,400 graduating last year, including 470 osteopaths. This means one physician for every 708 American citizens.

Dr. Swan states the extra Russian doctors might be sent as medical missionaries to neighboring countries that are backward in health facilities.

He believes that such a use for doctors might become "a powerful tool in foreign relations."

• Science News Letter, 79:120 February 25, 1961

## PUBLIC HEALTH

## Mental, Physical Stress Can Cause Hair Loss

► IF YOU ARE LOSING more than 75 hairs a day, something is wrong.

However, it would take nearly a year at this rate for your friends to notice it. The average person's number of hairs on his head is estimated at 100,000, so it would require a loss of 25,000 hairs to be noticeable.

Mental or physical stress can cause temporary hair loss of 100 to 1,100 or more hairs a day, Dr. Albert M. Kligman of the University of Pennsylvania Medical School reported in the Archives of Dermatology, 83:175, 1961, published by the American Medical Association. But this does not mean you will be noticeably bald. Women, especially, can stand to lose an astonishing amount of hair before their closest acquaintances observe any thinning.

Fever no longer causes as much hair shedding as formerly because such febrile diseases as typhoid, scarlet fever and pneumonia are no longer so common or of long enough duration to affect the follicles, or depressions in which the hair grows.

But drug treatment for cancer and Heparin as anticoagulant therapy produce hair loss. One boy lost 86% of his scalp hairs following X-ray treatment.

Anxiety with profound depression caused hair thinning in several patients studied, and a prisoner under the death penalty lost 1,100 hairs a day on an average for three weeks (he counted them). Strangely, this patient had a complete regrowth of hair, nevertheless, before he was pardoned.

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## MEDICINE

## Fewer Heart Attacks In Higher Income Group

► THE LOWER the salary, the more likely the worker is to have a heart attack. In a three-year study of 653 employees who had their first heart attacks, Drs. Sidney Pell and C. A. D'Alonzo of the E. I. du Pont de Nemours and Company, found that the attacks occurred least often among highest salary groups. Only 5.4% of the attacks occurred when the patients were indulging in unusual physical exertion. Thirteen of the 653 employees studied were women.

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# IN SCIEN

## AERONAUTICS

## Life-Saving Book For Pilots Issued

► A HANDBOOK for private pilots on terrain flying is a new Government publication that is expected to save lives.

"Terrain Flying" originated about 15 years ago as a pocket-sized collection of do's and don'ts on flying over various areas in the United States. A revised second printing by the Federal Aviation Agency contains new flying facts and illustrations, such as strip maps of the best routes.

Written in down-to-earth pilot language, advice given includes:

"Lost in Florida? Fly due east or west. In one hour, you reach a coast."

"In desert areas, birds ride for sport on small twisters of winds. Don't you try it."

"There is no safe way to fly over swamps—at least the big ones. The real hazard is survival and rescue."

The book does not advise against flying in any particular section of the United States. You can fly almost anywhere safely, "if you take the good advice of those who have flown before where you are flying now."

Edited by Finis L. Barrow and John W. Patterson of the FAA's Pilot Examination Branch, it is obtainable for 40¢ from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

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## NUTRITION

## Nonsmokers Like Sweets But Smokers Eat More Fat

► NONSMOKERS EAT MORE cakes, sweets and chocolate than heavy smokers, but smokers eat a slightly more fatty diet.

Findings from a survey of 156 individuals' food preferences further showed that the percentage of fat derived from cheese, butter, milk and cream combined is almost constant for the two groups.

Salty and spiced food, along with meat and eggs were preferred by smokers, whereas nonsmokers preferred bland food.

Meat and eggs are savory foods, often cooked with additional fat, and it has previously been shown that these foods elevate the serum cholesterol levels more rapidly and to a greater extent than most other fats.

A comparison of taste perception in smokers and nonsmokers showed that smoking decreased sensitivity to bitter taste, but sweet, sour and salt perceptions were about the same in both groups.

These findings were reported in the British Medical Journal, Feb. 11, 1961, by Dr. B. Bronte-Stewart, Monica J. Perrin and L. H. Krut of the University of Capetown, Capetown, South Africa.

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# CE FIELDS

## AGRICULTURE

### Radioactive Tracers Find Deficiency in Soybean

► THE YELLOWING DISEASE of soybeans, known as chlorosis, is due to iron deficiency, the U. S. Department of Agriculture has found.

Dr. L. A. Dean of USDA's Agricultural Research Service in Beltsville, Md., reported at the Southeastern Seminar on Atomic Progress in Agriculture in Clemson, S. C., that the disease is due to a hereditary defect that results in inefficient use of iron in certain soybean strains. The cause and source of the disease, he said, were determined by putting radioactive iron, isotope 55, into the soil and tracing the path of the radioactivity through the plant.

Radioisotopes, Dr. Dean noted, have been used in the United States and abroad for some 1,000 USDA-sponsored studies of efficient fertilizer use.

Although phosphate is an essential plant nutrient, phosphate fertilizers are notoriously inefficient because they react with the soil and lose potency. The radioisotope tracer studies have given researchers a better idea of how much fertilizer is needed, when to apply it and where to put it.

A valuable, yet simple, application of atomic age principles to farm problems is the neutron meter. The meter is no sensitive instrument stuck away in a laboratory. It is a soil moisture measuring device that does its job while sunk down six to eight feet in the middle of a field. The principle behind it is that neutrons are slowed down by water.

• Science News Letter, 79:121 February 25, 1961

## IMMUNOLOGY

### Live Polio Oral Vaccine Increases Immunity

► PERCENTAGES of antibodies, or protective substances, have been found greater for 350 New Haven preschool children receiving Sabin oral live poliovirus vaccine than when they received Salk killed vaccine.

The Yale Poliomyelitis Study Unit tests demonstrated that the Sabin oral poliovirus vaccine is effective and acceptable.

The 350 preschool children given oral Sabin vaccine were followed for six months following the trial period, and no illnesses or any reactions were caused by the type of immunization.

Despite prior immunization with Salk vaccine, tests on a few drops of blood from the finger showed 22% were still lacking antibodies against all three poliovirus types, and the number of children protected against any one type ranged between 39% and 57%. All had received at least one Salk injection, and 80% of the children had received three or more doses before receiving the oral vaccine.

By contrast, after receiving the Sabin vaccine, no children remained who lacked antibodies to all three types, and the range of response was 95%, 98% and 87% for the three poliovirus types, respectively.

Dr. John R. Paul of Yale University School of Medicine, and Drs. Dorothy M. Horstmann, Mary Godenne McCrea, James C. Niederman and other members of the department of epidemiology and public health at Yale directed the project.

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## PUBLIC HEALTH

### President Boosts Plans For Health Care Program

► PRESIDENT KENNEDY has called for a \$700,000,000 aid program to medical and dental schools. He also has outlined a plan for 20,000 federal scholarships during the next four years. The President hopes by these means to help end the shortage of physicians and dentists.

The President has also asked Congress to put through a program of medical help for persons of all ages. A proposal for health care of the aged under social security would cover more than 14,000,000 persons who are 65 or older by January, 1963.

For the improvement of children's health, the President announced plans for a federally supported Child Health Center to be established within the Public Health Service. This spells hope for parents of the 400,000 babies born each year with congenital malformations.

• Science News Letter, 79:121, February 25, 1961

## MEDICINE

### Hay Fever Preparation Contains Pollen Oil

► A PREPARATION to combat hay fever, which can be injected or taken in pill form, aroused considerable interest among specialists attending the American Academy of Allergy meeting in Washington, D. C.

The substance is known as "alum precipitated pyridine-ragweed complex" or allpyral, for short, and is used to desensitize patients who react to ragweed pollen before the hay fever season hits. It differs from standard aqueous pollen extracts in that it contains the pollen oils as well as the proteins.

Because of a particular type of chemical linkage, allpyral is absorbed slowly by the body. Much larger doses can be given at one time and the number of injections can be reduced drastically. Present indications are that one injection of allpyral every four to six weeks will suffice. With the aqueous solutions, patients usually need at least one injection per week.

So far, tests of some 500 patients injected with allpyral have shown good results. In various investigations throughout the country, 89% to 93% of the patients have improved. With standard aqueous solutions, the improvement is about 80% to 85%.

The research was reported by Dr. Louis Mamelok, Brooklyn, N. Y., Dr. Murray L. Maurer and Margaret B. Strauss of New York University, New York, and Dr. Everett Gaillard, White Plains, N. Y.

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## GENERAL SCIENCE

### Scientific Support Estimated \$9.1 Billion

► THE UNITED STATES Government will spend an estimated \$9.1 billion for supporting scientific research and development during the 1961 fiscal year, the National Science Foundation has reported. The estimate is a half billion dollars greater than last year's figure.

About \$8.5 billion is earmarked for actual research and development, and \$600,000,000 is allocated for construction of physical facilities. Basic research will account for 10% or \$850,000,000 of the actual research and development funds.

Three agencies, the Department of Defense, the Atomic Energy Commission, and the National Aeronautics and Space Administration will administer an estimated 90%, or \$7.6 billion, of the actual research and development budget.

A copy of the report, Federal Funds for Science, IX: The Federal Research and Development Budget, Fiscal Years 1959, 1960, and 1961, can be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for 50 cents a copy.

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## MEDICINE

### Female Hormones Used For Uterine Cancer

► USE OF FEMALE HORMONES for six patients with advanced cancer originating in the lining of the uterus resulted in regression lasting from nine months to four and a half years, it has been reported.

Drs. Rita M. Kelley and William H. Baker of the Massachusetts General Hospital, now celebrating its 150th anniversary, reported their findings in *The New England Journal of Medicine*, 264:216, 1961.

They said that although removal of the uterus or treatment of uterine malignancy by irradiation had been successful in a large percentage of cases when the tumor was confined to the uterus, if the growth spreads outside the organ, the outlook is less optimistic.

Pulmonary, or lung, metastases of the original uterine tumor diminished in five of the six cases, and one also showed regression of the uterine disease.

Hormones have previously caused regression in tumors of the breast and the prostate gland, but the use of female hormones for treatment of uterine cancer has been debatable.

The patients treated had previously had either hysterectomy or radiation treatment or both, and their ages ranged from 55 to 68.

The hormones used were progesterone, progesterone in oil and, for three of the patients, 17-alpha-hydroxyprogesterone caproate, a synthetic, long-acting female hormone.

"Many of the patients reported a sense of well-being, appetite increase and increased vigor while undergoing treatment," the physicians said.

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