

## PHYSICS

## Physicist Receives \$50,000 Fermi Award

► ON THE fifteenth anniversary of the first self-sustaining nuclear chain-reaction, fathered by Enrico Fermi, Dr. Ernest O. Lawrence, director, University of California Radiation Laboratory at Berkeley, received the second Enrico Fermi Award.

In a simple ceremony, Dr. Lawrence, Nobelist and inventor of the cyclotron, was presented with a medal, a citation and \$50,000.

Dr. Lawrence, the second recipient of the Atomic Energy Commission Award, was named for "his invention and development of the cyclotron and for his many other contributions in nuclear physics and atomic energy."

When Dr. Lawrence was named, AEC Chairman Lewis L. Strauss said that "if one of his contributions is to be singled out as having paramount importance, it is the invention, in 1929, of the cyclotron, and its subsequent development into the most effective tool for nuclear research. Without the cyclotron, it is hard to see how the development of nuclear physics to its present advanced state could have taken place."

The first Enrico Fermi Award was bestowed on the late Dr. John Von Neumann, noted scientist and a member of the Atomic Energy Commission, in April, 1956.

Under the Atomic Energy Act of 1954, which authorizes the award, Dr. Fermi himself was honored by the AEC's Advisory Committee.

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## PUBLIC HEALTH

## Cancer Society Issues Smoking-Cancer Leaflet

► "TO SMOKE or Not to Smoke?," a leaflet about smoking and the dangers of lung cancer, has been released for national distribution by the American Cancer Society.

The leaflet points up the evidence against smoking and cites the results of several studies, including the famed Hammond-Horn four-year study of 187,783 men between the ages of 50 and 70.

This revealed that lung cancer death rates are ten times higher among regular cigarette smokers than among those who have never smoked. Among two-packs-a-day smokers the rate is more than 60 times higher.

"Those who have given up smoking have a lower risk of death: those once smoking a pack or more a day, who have given up smoking for at least one year, have a death rate less than half of those who have continued to smoke," the leaflet states.

Also, the over-all death rates from a number of causes, particularly cancer and coronary heart disease, rise with the number of cigarettes smoked.

"It is estimated that a man who smokes two packs of cigarettes a day has about one chance in ten of developing lung cancer, while a non-smoker has only about one chance in 270 of having this disease."

"To smoke or not to smoke is a personal decision. This pamphlet was prepared to give you the information available as of today."

The leaflet concludes with the statement that no one can predict what will happen to an individual, but, in general, those who smoke less are those who live longer.

Distribution of 200,000 copies of the publication is being made through the American Cancer Society's 60 divisions and more than 3,000 units throughout the country.

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## BIOLOGY

## Substance in Cells May Explain Cancer

► INJURED cells in the body appear to give off a growth-promoting substance which may be involved in the production of cancers, Dr. Valy Menkin, Temple University School of Medicine, Philadelphia, has found.

The growth-promoting factor was obtained from fluid taken from the inflamed lung cavities of dogs and caused a marked overgrowth of cells when injected into the breast tissue of rabbits.

The existence of the substance may help explain why long-standing irritation and inflammation has been associated with the production of cancer.

The growth substance is believed to be discharged by the cells as a means of damage repair in the inflamed area. None of it created definite cancers, but some of the lesions it created can perhaps be considered as pre-cancerous, Dr. Menkin says.

The wide range of methods causing cancer suggests that a common denominator, like a growth-promoting factor, may be liberated by cells mildly injured by such things as inflammation, a virus, or hormonal imbalance.

Then, either in the presence of a carcinogen or, perhaps, of an inborn genetic factor, the growth-promoter would favor the development of a cancer, Dr. Menkin reports in *Cancer Research* (Nov.).

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## AGRICULTURE

## Radioactive Coating Shows Tomato Ripeness

► RADIOACTIVITY has been put to work on the tomato vine.

It is a well-known fact that a tomato is ripe when plant sugar has stopped moving into the fruit. Scientists were able to determine when this movement stops by coating tomato plant leaves with a mixture of sugar and radioactive carbon. The radioactive carbon made it possible for the scientists to trace sugar movement through the leaf into the fruit.

Prof. J. P. McCollum, University of Illinois agriculturist, and Dr. John Skok, Argonne National Laboratory, Lemont, Ill., found a tomato makes the best eating "about six days after the first appearance of color."

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# IN SCIENCE

## GENETICS

## Yellow Merino Wool Believed Possible

► SCIENTISTS of Australia's Council for Scientific and Industrial Research are trying to breed a merino with a yellow fleece.

Scientists have mated merinos which are mutations from the established strain. Ewes and lambs show similar variations from normal merino characteristics, including the yellow wool.

After the first lambs are born, scientists will test the wool and compare it with other merino fleeces.

A scientist of the department of sheep biology at Prospect, N. S. W., said the scientists would not know what they had bred until they saw the lambs.

The yellow coloring in the parents' wool was not important in itself, but the scientists were proceeding on the logical assumption that if the mutation wool differed from normal in one characteristic, there would be grounds for investigating other variations.

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## FORESTRY

## Christmas Tree Standards Announced by USDA

► THIS YEAR Christmas trees can be bought like beef steaks, U.S. Premium, and U.S. No. 1 and No. 2, graded according to quality.

For the first time Government inspectors will, at the request of either the dealer or the grower, judge trees according to the new U.S. standards for taper, density, balance, freshness and freedom from deformity.

U.S. Premium is the grade given the tree most shoppers would consider perfect. It must be evenly tapered to the top and have four complete "faces," that is, be symmetrical, with well-filled branches.

U.S. No. 1 is approximately equivalent to the premium quality except that the tree need have only three complete faces. However, this makes it a fine tree for putting in a corner or against a wall where a flat side will not show.

U.S. No. 2 is a lighter tree with fewer branches and need have only two complete faces. All trees carrying U.S. grades must be fresh and free from an excess dropping of needles.

The handle or bare trunk "stem" of a graded tree must be about one and one-quarter inches long for each foot of tree height; in addition, the butt or end must be smoothly cut and all side branches below the first whorl must be removed.

The U.S. Department of Agriculture's Agricultural Marketing Service will provide a tree dealer with a certification of inspection at minimum cost.

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# CE FIELDS

## EDUCATION

### Establish Registry of Many Retired Teachers

► A NEW source of old wealth is being tapped to meet the shortage of college teachers. A retired professors registry has been established in Washington, D. C.

The registry is designed to establish liaison between retired faculty members and colleges in need of additional staff, according to Dr. Robert K. Carr, general secretary of the American Association of University Professors.

Retired college teachers constitute a significant manpower resource badly needed to meet mounting school enrollments, Dr. Theodore A. Distler, executive secretary of the Association of American Colleges, pointed out. A recent survey by New York University, for example, indicated that more than one-half of a group of retired professors had obtained employment in higher education.

The registry, to be headed by Dr. Louis D. Corson, presently dean of men at the University of Alabama, will be headquartered in Washington, D. C. After supplying factual information and references, the registry will leave the negotiations of employment up to the candidates and the institutions concerned.

The Association of American Colleges and the American Association of University Professors are co-sponsoring the registry under a grant from the Ford Foundation.

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## NEUROLOGY

### Discover Brain Area Unlocking the Past

► THE BRAIN has locked within it a complete record of all events seen at the time they occurred.

Discovery of that area of the brain which unlocks the past, allowing it to flash into consciousness again, was reported to the National Academy of Sciences meeting in New York by Dr. Wilder Penfield, director of the Montreal Neurological Institute in Canada.

This same brain area also provides information for comparing the past with the present. It is opened by direct application of a tiny surge of electricity, Dr. Penfield reported at the Academy's public lecture, the first to be held in Rockefeller Institute's Caspary auditorium.

He described how research to find out which part of an epileptic's brain should be cut out to relieve his illness led to the discovery of the brain's "interpretive cortex." This is the name Dr. Penfield suggests for the newly discovered area, to distinguish it from the motor, sensory and speech areas of the brain.

Previously no function was assigned to

this part of the brain. It covers most of the superior surfaces of the temporal lobe as well as the lateral and probably interior surfaces, Dr. Penfield's studies show.

The record as it is brought to light by a stimulating electrical pulse can be compared to a version of the event as taken by wire recorder or a continuous film strip with a sound track.

"There is a permanent record of the stream of consciousness within the brain," Dr. Penfield explained. "It is preserved in amazing detail."

This record is scanned whenever the brain finds it necessary in order to interpret the present.

As an example of this action, he cited the case when you meet a nearly forgotten acquaintance unexpectedly on the street. Although a moment earlier you could not have pictured the man, now you can compare the past with the present in great detail. Thus, Dr. Penfield said, you can "detect the slightest change" in face, hair, smile, manner of walking, etc.

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## PSYCHIATRY

### Find Abnormal Hormone Changes in Mentally Ill

► ABNORMAL changes occur in the amount of hormones produced by mentally ill patients, Aniela S. Zygmuntowicz and Dr. Charles C. Colburn of the Veterans Administration hospital, Bedford, Mass., have found.

The finding is considered to be further evidence of the relationship between body chemistry and mental illness.

They studied the quantity of steroids produced by mental patients, and discovered that the amount produced shows no relationship to stress as it does in the normal person.

Steroids are a specific group of hormones excreted in the urine. They can be isolated and measured by a laboratory process. One group of steroids comes from the adrenal gland and is known as the corticosteroids. In well persons, the body produces greater amounts of these when they are under stress of any type. The high production returns to normal fairly quickly as the stress is overcome.

In schizophrenic mental patients the production cycle was completely different. It alternated between high and low but without regard for the stresses and strains on the patient.

In one case, hormone output was low at first and then rose to normal while the patient remained psychotic. About three weeks after recovery from the psychosis, however, the output went way up, continued at a high level for over three weeks, and then returned to normal.

Another experimental finding was that a dramatic drop in the production of ketosteroids, a group containing the male sex hormone, took place in a psychotic patient at the same time he became rational again.

Further and more extensive tests are being made.

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## PHYSIOLOGY

### Deep Scars Treated With Blood Substance

► THE DEEP pitted scars left by acne, chickenpox and other conditions can now be treated by injections of Fibrin-Foam, an extract of human blood.

This was explained and exhibited by Dr. Arthur S. Spangler, Harvard Medical School, Boston, Mass., to the American Medical Association meeting in Philadelphia.

The new scar treatment involves cutting the fibrous strands beneath each scar and then injecting the Fibrin-Foam beneath the scar. This raises the bottom of the scar to the level of the rest of the skin and within several months the Fibrin-Foam has been absorbed and replaced by normal tissue.

The method is good for large and small scars and either shallow or deep ones. It is usually painless, and although the scar area may be black and blue for two or three days, the skin soon resumes its normal color, Dr. Spangler said.

The skin covering the scar sometimes is so thin that even after treatment it is still visible. However, it is much less conspicuous and can easily be covered with make-up, he added.

The method has been used on patients from five to fifty years old who have been carefully watched for as long as three years afterwards. There has been no infection or thickening of the scars and the results have been lasting.

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## PSYCHOLOGY

### Artist's Choice of Colors Influenced by Psychology

► WHAT CAUSES an artist to choose particular colors or tones in his paintings?

According to Gordon M. Nunes, associate professor of art at the University of California at Los Angeles, the choice is dependent largely upon psychological events and traumas in the artist's life.

He outlines this theory in a recent study entitled "Psychoanalysis and Contemporary Painting."

"Color to an artist is like the tone of a voice to the analyst," Prof. Nunes says. "A certain color may be crucially tinged with meaning to one artist, but not to another."

"And while one artist may reveal life material through direct symbols, such as the figure or face of a man, others may do it through colors or other non-figurative pictorial events."

In a study of the lifetime production of one artist known to him personally, Prof. Nunes was able to associate the artist's consistent shunning of dark backgrounds with certain childhood fears.

The primitive school of painting (Henri Rousseau, Grandma Moses), with its direct sensory contact with color, its use of tranquil or festive but seldom disturbing subject matter, represents to Prof. Nunes some regression to certain "conflictless feelings of childhood."

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