

## PSYCHOLOGY

**Concentration Important For Success in Biology**

► **SUCCESS** in biological science depends more on ability to concentrate personal forces than on sheer intellectual capacity, Dr. Anne Roe, of New York City, discovered in a clinical psychological study of 20 of the country's most eminent research biologists. All of the biologists, she stated, are active in research and all but three are members of the National Academy of Sciences or the American Philosophical Society.

These men of science are either disinterested in other persons or ill at ease with them. Their sex development is retarded. They are not inclined to fight, but they are stubborn.

Many are suffering from deep-seated anxieties and many have had painful experiences in childhood. Research has proved to be emotionally satisfying and relieving to them. The educational and occupational level of their parents was generally superior and at least one parent has valued education as good in itself. Dr. Roe reported her findings to the American Psychological Association at Denver, Colo.

Science News Letter, October 29, 1949

## AGRICULTURE

**Fertilizer Output Hits World Record, FAO Says**

► **WORLD** production of commercial fertilizer of more than 11,500,000 tons sets an all-time record high, the Food and Agriculture Organization of the United Nations reported.

These figures, which exclude Russia, compare sharply with the 1938 total of 9,000,000 tons. The increase represents the sustained high levels of fertilizer production achieved in the Western Hemisphere plus the recovery of war-damaged areas to pre-war levels and higher.

Essential to the efficient agriculture needed to feed an increasing world population, commercial fertilizer is required in even larger quantities. Although the rate of production continues to increase, the FAO foresees that demand will continue to exceed supply for some time to come.

Science News Letter, October 29, 1949

## BIOCHEMISTRY

**Basic Cellulose Particles Of Plants Discovered**

► **DISCOVERY** of the real elementary particles of cellulose, one of the basic substances of all plants, including wood, cotton, etc., was revealed in a paper by Dr. The Svedburg, Swedish chemist, upon the occasion of the award of the famous Franklin Medal, highest honor of the Franklin Institute in Philadelphia.

Consisting of equal-sized rods of small size, visible by means of the electron microscope but far beyond the reach of the ordinary microscope, these cellulose particles or molecules seem to be the same whether they are in wood closely bound to lignin or in the fine hairs on cotton seeds. Dr. Svedberg's communication, sent from Sweden, explained that these and other giant molecules can be sorted out in the ultracentrifuge, a research upon which he has spent nearly half a century and which has brought him world recognition.

The way in which the cellulose in plants is formed is different than the way other big molecules are synthesized in non-living matter. This may give useful hints toward understanding living processes.

Science News Letter, October 29, 1949

## ENGINEERING

**Gas Escape Reduces Oil Flow to Output Wells**

► **IT IS** gas released from petroleum deep underground that reduces or prevents the flow of the crude oil through the oil-bearing rock into the well bore which leads to the surface of the ground, according to Dr. Donald L. Katz, professor of chemical engineering at the University of Michigan.

This belief was recently discussed by him at a San Antonio, Texas, meeting of the American Institute of Mining and Metallurgical Engineers. Rapid decrease in the fluid output of some oil wells may now be explained, he said. The low production is mainly due to phenomena occurring when the pressure of the oil is reduced to a point where the gas escapes from the petroleum.

The gas is then absorbed by the porous sandstone rock, thereby reducing the ability of the oil-bearing rock to conduct the liquid to the well. The rate at which the oil pressure drops is dependent upon the type of sandstone configuration that contains the oil deposit. When oil passes from a large pore in the sandstone bed to a smaller pore, the velocity increases and the pressure drops, he stated. The gas then escapes.

When oil wells gradually stop pouring forth crude oil the only solution has been to shut the wells down until the pressure increases. In this period the liberated gas is reabsorbed by the liquid and the crude oil can then flow quite freely. With a clearer understanding of the activity occurring when oil pressure is reduced, petroleum engineers can now work more effectively to prevent the slowing down of production.

The conclusions of Dr. Katz are based on investigations conducted to study the permeability of sandstone samples when oil at different pressures was passed through the material.

Science News Letter, October 29, 1949



## MEDICINE

**Rapid Thawing Found Best for Frostbite**

► **FAST** thawing gives best results in treatment of frostbite. Experiments showing this, which is contrary to previously held views, were reported by Drs. Joseph C. Finneran and Harris B. Shumacker of Indiana University Medical Center at the meeting of the American College of Surgeons in Chicago.

The "ideal temperature" for the rapid thawing is one slightly above body temperature, they found. Too much heat is bad, they cautioned.

The rapid thawing is effective in part at least, the experiments suggested, because it shortens the period during which tissues are frozen and temporarily bloodless.

Anti-blood clotting drugs and measures for dilating the blood vessels gave variable results but seemed generally beneficial, especially when combined with rapid thawing.

Science News Letter, October 29, 1949

## ENGINEERING

**Aluminum and Electric Industry Closely Related**

► **THE** close relationship that exists between aluminum production and the electrical industry was pointed out at the meeting in Cincinnati of the American Institute of Electrical Engineers by Donald M. White, secretary of the Aluminum Association, New York City.

The present cost of aluminum, 15 to 17 cents a pound, is due to the availability of cheap electricity, he said. Some 1,250,000,000 pounds of aluminum are produced annually, and in its production some 12,500,000,000 kilowatt hours of electricity are used.

New uses of aluminum are developing daily, Mr. White added, and more and more electrical energy will be required to produce it. Aluminum now has more than 4,000 applications.

History and growth of the aluminum industry have closely paralleled those of the electrical industry. Electrical progress has brought cheaper electric power; cheaper power has meant cheaper aluminum; and cheaper aluminum has led to new uses and mounting demands for the metal.

Electric energy is an essential ingredient of aluminum, Mr. White stated, and represents some 20% of its total cost.

Science News Letter, October 29, 1949

# CE FIELDS

## MEDICINE

### Polio Cases Expected To Be High Next Year

➤ NEXT year will be another big infantile paralysis year. There may be more big years to follow.

"The end is not in sight" to the upward trend in this disease, Surgeon General Leonard A. Scheele of the U. S. Public Health Service declared at a conference of health officers in Atlanta, Ga.

He predicted that there will be between 40,000 and 45,000 cases by the end of this year, making 1949 "the most devastating year in the history of the disease."

The "marked upward trend" of the disease has been continuing since 1943. Before that there was a period of about 10 years when the number of polio cases was "moderate."

"New knowledge is urgently needed so that steps can be taken to control poliomyelitis," Dr. Scheele declared.

Whether the virus of the disease is spread through the air, or in food or by flies are questions to which answers are now being sought by scientists at the U. S. Public Health Service's Communicable Disease Center.

A definite relation between deaths of infants from diarrhea and the degree of fly control in the community has been found, he reported.

"If fly control can be attained under certain conditions," he said, "from one-third to one-half of all the intestinal dysentery can be prevented."

Science News Letter, October 29, 1949

## METEOROLOGY

### Better Weather Forecasts By New German Methods

➤ IMPROVED wind and weather forecasts may result from weather analysis methods developed in Germany during and since the war, H. Dean Parry of the U. S. Weather Bureau said.

The German technique consists, in part, of dividing the upper air for analysis purposes into four equal layers up to a height of 72,000 feet. Usual practice divides the air into four unequal layers to a height of 53,000 feet. The equally thick layers in the German method, Mr. Parry said, "result in a building block arrangement making it more convenient for the meteorologist to integrate the surface and upper air charts into a single unified picture."

Another difference, Mr. Parry noted, is that the German air charts give a better picture of air movements over areas where data are sparse, such as over oceans. The

German technique could result, he said, "in more accurate wind forecasts for aircraft over oceanic areas or in an improvement in particular cases of the forecast of general weather conditions."

Mr. Parry spoke before the District of Columbia branch of the American Meteorological Society. He has recently returned from a three-year assignment in Germany where he was chief of the Meteorological Branch of the Office of Military Government.

In addition to these methods of analyzing and charting the weather data, a "teachable procedure" for applying these data to "tomorrow's weather map" has also been developed, Mr. Parry said.

Science News Letter, October 29, 1949

## VETERINARY MEDICINE

### Canned Reducing Diet Is Available for Dogs

➤ IF your dog is too fat for his health, you can now buy a special canned reducing diet on veterinarian's prescription.

And when Suzette is going to have puppies, she can have a diet scientifically designed for her best nourishment while she is expecting. The same diet may be given the pups when they are born.

These diets, together with one for mature dogs and dogs with kidney disease, and another for dogs with intestinal diseases have been developed by Dr. M. L. Morris, a practicing veterinarian and specialist in animal nutrition, of New Brunswick, N. J.

Science News Letter, October 29, 1949

## ENGINEERING

### Photo Copying Device Makes Print of Book Page

➤ A TIME-SAVING tool to serve in scholarly research by making hand-copying from library books unnecessary was revealed by Yale University. It is a compact photographic copying device, usable by anyone and small enough to fit into a briefcase.

This device, developed by Frederic G. Ludwig, Yale Library photographer, is dubbed the "Contoura" because it can snap a contact photo of a book page even where the paper curves into the binding. It produces reversed negative prints, but these can be read by a built-in mirror or positives can be made from them.

The apparatus is in a light metal case but has a bottom of what Mr. Ludwig calls a light equalization mask and a translucent inflated cushion. The equalization mask, he says, is the secret of the Contoura's compactness. Without it, the lights within the device, six electric bulbs, could not be brought so close to the subject matter being copied. The cushion can be inflated and deflated as needed.

Science News Letter, October 29, 1949

## MEDICINE

### Crystalline-Like Form of Skin Tumors Discovered

➤ CRYSTALLINE-like clusters of particles, arranged somewhat like plant virus particles, have been discovered in wart-like tumors of human skin, four Yale University medical scientists reported at the meeting of the Electron Microscope Society of America in New Haven, Conn.

The skin tumors they studied are called papillomas.

The common wart and normal skin, when prepared for electron microscope study, showed no uniform particles but instead seemed to be merely shapeless, scattered clumps of matter, collagen fibers and spherical particles of varying diameter.

Characteristic brick-shaped particles, called elementary bodies, were seen in preparations from another skin ailment, *molluscum contagiosum*, which is caused by a virus.

The scientists reporting these studies are Drs. Joseph L. Melnick, Maurice J. Strauss, Henry Bunting and Ernest Shaw.

Science News Letter, October 29, 1949

## AERONAUTICS

### Fewer Runways at Airports New Federal Policy

➤ ONLY one runway in the future will be built with federal financial aid at Class I (Personal) airports, the Civil Aeronautics Administration has announced. These are small airports designed to serve small planes and with landing strips less than a half-mile in length.

The new policy applies to construction or improvement in both new and existing airports in this classification. In addition, the new policy states that on all other classes of airports the construction of an additional runway or runways will be approved only for the purpose of handling traffic volume, and that runways on which Federal funds are expended will be non-intersecting with any existing runway and must be either parallel or diverging.

In making the announcement of the new policy, D. W. Rentzel, CAA administrator, pointed out that single-runway airports can be located closer in to the communities to be served and with less cost of construction. In addition, traffic patterns are simplified and safety increased.

The CAA has encouraged single-strip airports ever since the Federal Aid program went into effect. This federal office, which administers the aid program, has now gone one step forward from mere "encouragement." Deviations from the new policy will be permitted only when approved by the Washington office, after being justified by exceptional conditions other than wind coverage.

Science News Letter, October 29, 1949