

## MINERALOGY

## Find Uranium Mineral Coffinite, in New Zealand

► COFFINITE, the highly radioactive uranium mineral, has been discovered in rocks of the Buller Gorge region of the South Island of New Zealand, J. J. Reed and G. G. Claridge of New Zealand report in *Nature* (March 9).

The uranium mineral, first discovered in 1955 on the Colorado Plateau in the United States, has also been made in the laboratory. Coffinite is a uranous silicate with the chemical formula  $USiO_4$  and contains as much as 61% uranium. Highest amounts of uranium in minerals are found in the uraninites, with about 85%.

Science News Letter, March 23, 1957

## MEDICINE

## New Thyroid Drug More Effective Than Old Ones

► A RECENTLY DISCOVERED THYROID HORMONE called sodium liothyronine works faster and more effectively than those presently used, Dr. Elmore M. Fields, Hempstead, N. Y., reported in the *Journal of the American Medical Association* (March 9).

In a trial on 100 children, the hormone produced none of the side effects noted with other thyroid gland substances and worked in illnesses where these other preparations were only partly effective.

The hormone was used to treat both hypothyroidism and metabolic insufficiency. The first condition is underactivity of the thyroid gland and the other is thought to be caused by the body cells' poor use of thyroid products. Children suffering from them do not grow normally.

Both of the conditions are often satisfactorily treated with presently used hormones, but in some children they cause such side effects as headaches, increased irritability and abdominal pain, Dr. Fields reported.

In almost all those treated with liothyronine, there was a striking improvement in behavior, circulation and appetite. During the original three-month test period, bone growth in many increased as much as 200% beyond that expected for normal children of the same ages, he said.

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## CHEMISTRY

## Synthetic Fibers Promise Inflatable Buildings

► A FUTURE FULL of inflatable plastic municipal buildings and springless automobiles was forecast for the synthetic fibers industry by Frank J. Soday, the Chemstrand Corporation, Decatur, Ala., in a report to the American Institute of Chemical Engineers meeting in White Sulphur Springs, W. Va.

Right now, these inflatable buildings are essentially balloons permanently attached

to the ground, but they offer an almost unlimited field for industrial expansion, he said.

They were first used to house large radar installations in Canada and Alaska and, by using lightweight fabric supported by only a few ounces of internal air pressure, could withstand winds up to 150 miles per hour. The air pressure inside is not high enough to be uncomfortable and can be maintained with a small air pump, he said.

Synthetic fibers also promise to replace the springs used in today's automobiles, Mr. Soday reported. A new suspension system using a coated synthetic fabric bellows of compressed air instead of the present metal springs is already in use on trucks and buses and will be put in passenger cars in the very near future. The motoring public will then be literally riding on air, he said.

Radiation is being used by the industry to produce synthetic fibers with better strength and heat resistance. The process promises to make available an entirely new series of fiber types with many applications.

In another new process, smooth synthetic fabrics are being given the same textured effect as spun yarn. A stream of air moving at high speed causes the formation of tiny loops at irregular intervals along the yarn and breaks up its smooth surface.

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## BIOCHEMISTRY

## Develop Fast Method for Blood Protein Analysis

► A QUICK and simple way to determine the kind and quantity of proteins in human blood has been developed by scientists at the Detroit Institute for Cancer Research and the Henry Ford Hospital, Detroit.

The technique has already been used to measure the quantities of nine distinct proteins, to detect the presence of many others, and may give doctors an important new diagnostic tool for many diseases.

Devised by Drs. Morris Goodman, David S. Ramsey and William L. Simpson of the Institute, and Drs. Donald G. Remp, Daniel M. Basinski and Michael J. Brennan of the Hospital, the new method uses blood serums obtained from chickens.

Each specific human plasma protein is injected into chickens, which produce antibodies against it. The antibody-loaded serum is then extracted ten days later and used to test small samples of human plasma.

The chicken antiserum will then precipitate out of the sample the same protein against which the chicken developed the antibodies. By measuring the amount of precipitation, the quantity of the protein present in the sample can be determined.

The new technique is faster and more sensitive than the standard electrophoretic method, in which plasma proteins are identified by the speed with which they travel across electrified paper.

The work was supported by the American Cancer Society and the Kresge Foundation.

Science News Letter, March 23, 1957

# IN SCIEN

## PHYSICS

## City Dwellers Safer From Atomic Fallout

► IF you live in the city you are safer from atomic fallout, except from a direct hit, than those who live in the country, Dr. Herman A. Heise and Eugenia R. Heise, Milwaukee, Wis., reported in the *Journal of the American Medical Association* (March 9).

From a study of pollen and mold fallout over Milwaukee, the researchers found that the warmer air existing over cities causes an upward air current which carries solid particles aloft and keeps them there. They fall to the ground when there are no upward currents, especially when the air nearer the earth is cooler than that above it, they reported.

This knowledge could prevent the hysterical exodus from a city to a more dangerous rural area in the event of an atomic attack, they suggested.

To make the city even safer, its naturally higher temperature could be artificially increased. Houses could be heated, street lights left on, and windows opened on the leeward side. Even an isolated house might get some protection by lighting fires on the windward side to produce upward moving air currents.

The researchers tested their theory by building a small model city and above it they scattered mold spores in a powder that resembled a cloud.

When the miniature city was warmed slightly to a temperature above that of the surrounding air, the clouds over the city billowed noticeably but kept their distance from the ground. They finally dispersed over the rural areas of the model.

Science News Letter, March 23, 1957

## ELECTRONICS

## Electronic "Brain" Tracks Army Supplies

► AN ELECTRONIC "BRAIN" is being used in Detroit to keep tabs on Army Ordnance Corps supplies, saving taxpayers millions of dollars.

The giant computer, known as Bizmac, is the first of its kind in full operation. Built by the Radio Corporation of America, the electronic whiz covers about 20,000 square feet of floor space and is believed to be the world's largest "brain."

It keeps track of more than 100,000,000 facts about the Army's vast inventory of tank and automotive spare parts throughout the world. Using the computer, months of paper work have been reduced to minutes of push-button operation.

Science News Letter, March 23, 1957

# CE FIELDS

## METALLURGY

### Metal Alloy Makes Powerful Magnets

► A SUPERIOR magnetic alloy, called Supermendur, has been developed from iron, cobalt and vanadium, H. L. B. Gould and D. H. Wenny of Bell Telephone Laboratories, Inc., Murray Hill, N. J., report in *Electrical Engineering* (March).

Its exceptional physical and magnetic properties were shown in standard tests in which the alloy established six new records for high magnetic characteristics, the engineers report.

It can increase the power output of a transformer coil by 30% and promises to be of value for transformers, high temperature applications, memory devices and telephone receiver diaphragms, they state.

Magnetic amplifiers using the alloy can be reduced in size by 20% and still furnish the same output. In high power electronic circuits the new material will, in some cases, reduce the number of amplification stages from two to one, and make further miniaturization possible.

The alloy is particularly valuable because it can be cold rolled like other soft magnetic materials into the thin gauges that are so vital to modern requirements, the engineers said.

Science News Letter, March 23, 1957

## MEDICINE

### Large Number of Dope Addicts Among Doctors

► ENOUGH DOCTORS to equal the entire output of one of the country's 76 medical schools turn into dope addicts every year, Dr. J. DeWitt Fox, Detroit, Mich., reports in the *Journal of the Michigan State Medical Society* (Feb.).

Warning all doctors not to overlook the menace in their own medical bags, Dr. Fox quotes Dr. Harris Isbell, director of the U. S. Public Health Service Hospital for addicts in Lexington, Ky., as saying that scarcely a week passes when a "physician who is a Demerol addict is not admitted to our institution."

Since Demerol, a newer pain killing drug, made its appearance, most new doctor addicts take to it rather than morphine, Dr. Fox reports.

Physician addicts fall into three classes: there are alcoholic physicians who relieve hangovers with opiates; tired doctors who habitually blot out fatigue with a narcotic; and doctors suffering pain from disease, who overdose themselves with opiates.

"The overly fatigued physician is all too common. He loses sleep several nights, receives another call, which he feels he cannot

make without a 'stimulant' to keep him going. He takes a dose of morphine, methadone, or Demerol, and goes ahead and makes his call. Finding such an escape a great relief he repeats it, until he too falls through the trap door into addiction," Dr. Fox explains.

However, there is always a serious emotional disorder in the background, which can be anything from a marital rift to income tax trouble.

"What every physician must remember is that he is human. Even though in his bag is an escape through a needle, he must never allow himself the pleasure of using it," Dr. Fox warned.

Most doctors need a good night's sleep, more vacation time, and release from tension. Without it, they are in greater danger from temptation than any layman, because of their easy access to the drugs.

"The outstanding feature of these cases of physician addicts appeared to be lacking of warning young doctors before they went out into practice," Dr. Fox said.

Every medical student and intern should have it drummed into him just as tavern owners tell their bartenders they will be useless once they start drinking themselves.

"It is time every doctor—you and me—and every medical student—be told the 'facts of life' when it comes to narcotic addiction," Dr. Fox warns his colleagues.

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## PUBLIC HEALTH

### TB Among Students Shows Sharp Decline

► IN THE PAST 15 years, the incidence of active and arrested cases of tuberculosis among college students has dropped off sharply.

This result is shown in a survey conducted at the University of California at Los Angeles.

The survey was conducted in the Student Health Service under the direction of Dr. Gertrude Huberty through a grant from the Los Angeles County Tuberculosis Association.

Tuberculin skin reaction tests were given to more than 2,000 entering students last spring. Reactions were correlated with chest X-ray results. Nineteen percent of the group had positive reactions. Only two of this group were found to be active cases.

A similar survey in 1940-41 resulted in 40% positive reactions and another in 1946-47 showed 65% positives.

The large percentage of positives in the latter survey was thought to be the result of the large influx of veterans, many of whom served in areas where exposure to the disease was frequent.

"Modern methods of tuberculosis treatment are so effective that students with active disease often lose but one semester," Dr. Huberty says. "They may return the next semester and continue their educations under chemotherapy which maintains them in a non-contagious state."

Science News Letter, March 23, 1957

## PUBLIC HEALTH

### Daily Requirements of Two B Vitamins Change

NEW "minimum daily requirements" for two of the B vitamins were proposed by the Food and Drug Administration in Washington.

The proposed regulation would set a minimum daily requirement for niacin for the first time, at 10 milligrams. It would also reduce the adult minimum daily requirement for riboflavin from two milligrams to one milligram.

The minimum daily requirements help protect consumers from exaggerated and misleading claims of the vitamin content on the labels on foods and drugs. When a manufacturer claims that his product contains a particular vitamin, he is required to show on its label how much of the vitamin it contains and the proportion of the minimum daily requirement it supplies for adults and children.

It was known in 1941 that niacin plays an important role in human nutrition, but until now there has been no general agreement on its minimum daily requirement, Dr. E. M. Nelson, Food and Drug Administration, U. S. Department of Health, Education and Welfare, reported.

The minimum daily requirement of riboflavin was set at two milligrams in 1941, Dr. Nelson said, but this was based upon rather limited evidence in the cure of ariboflavinosis, a disease caused by too little riboflavin in the diet.

Nutrition scientists are now generally agreed that the daily requirement may be met by one-half that amount, he said.

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## MEDICINE

### Temperature Affects Loss Of Injured Nerve Fiber

► A SMALL RISE IN TEMPERATURE can greatly increase the degeneration of animal nerve fibers after they are injured, Drs. H. J. Gamble, F. Goldby and G. M. R. Smith, St. Mary's Hospital Medical School, reported in *Nature* (March 9).

This temperature effect is important because one of the commonest methods for investigating pathways and connections in the nervous system involves studying the degeneration that takes place after experimental injury. It is essential to know how much time must elapse before it can be assumed that the surviving nerve fibers, normal in appearance, cannot have been affected by the injury, the researchers reported.

The effects of temperature were studied in lizard-like animals that adjust their body temperatures to that of the surrounding air. Animals kept at 68 degrees Fahrenheit showed the same amount of degeneration within only three days that was found after three weeks in animals kept 12 degrees cooler.

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