

GENERAL SCIENCE

Earmark \$9,500,000 For Science Teachers

► HIGH SCHOOL SCIENCE and mathematics teachers recently received a big helping hand from the House of Representatives. The House passed an appropriations bill for the National Science Foundation that clearly earmarks \$9,500,000 for these teachers.

Aimed at alleviating the scientific manpower shortage in the nation, the money must be used by the Foundation, the country's official science arm, for tuitions, grants and allowances to be made to teachers for supplemental training.

It was included in the total appropriation to the Foundation of \$35,915,000, a cut of \$5,385,000 from the President's budget. The \$35,915,000, nevertheless, more than doubled the funds appropriated for fiscal year 1956, \$16,000,000.

During hearings on teacher-training work by the National Science Foundation, Albert Thomas (D.-Texas), chairman of the subcommittee, told Dr. Detlev Bronk, chairman of the Foundation's National Science Board, "you are going right at the fundamental thing, this shortage that is created by a lack of high school teachers. When you start doing work like that, you are really striking something that is of value to the whole nation."

Science News Letter, March 17, 1956

MEDICINE

Relaxing Drug for Stiff, Aching Muscles

► A NEW RELAXING DRUG, for muscles rather than minds and emotions, has shown promise of helping patients suffering a variety of ailments, reports in the *Journal of the American Medical Association* (March 3) show.

The drug is zoxalolamine, trade-named Flexin. Its chief effect seems to be in making patients more comfortable and more able to benefit from exercise and other forms of physical therapy.

It was especially effective in relieving stiffness and aching from rheumatic diseases, Drs. Richard T. Smith, Kenneth M. Kron, William P. Peak and Irvin F. Hermann of Philadelphia reported. They got excellent or good results in 85 of 100 patients. Some had complete relief within 30 minutes after swallowing the pill. Stiffness after a night in bed was relieved in half, and in some cases in a fourth, the usual time.

Patients with spastic muscles were relieved of discomfort and inconvenience, but did not have better voluntary control of their limbs and complained of greater weakness so they could not get around as well, Dr. William Amols of New York reported.

Encouraging results followed use of the drug in 15 of 28 cerebral palsied children, but the long range effectiveness is not yet

clear, Drs. Edwin H. Abramson and Henry W. Baird III of Philadelphia reported.

Burning taste, loss of appetite, vomiting and too much relaxation were among unfavorable effects in some of the children.

The drug was tried in patients with spasticity and other forms of uncontrolled muscular activity from damage to the spinal cord and brain. Results were best when the cause of the muscle trouble was disease in the spinal cord, rather than in the brain, Drs. Manuel Rodriguez-Gomez, Antonio Valdes-Rodriguez and Arthur L. Drew of Ann Arbor, Mich., found.

Further study of this new drug will be needed, the doctors pointed out, to determine the extent of its usefulness.

Science News Letter, March 17, 1956

MEDICINE

List Three Top Drugs For Seasickness

► THE TOP THREE DRUGS for checking seasickness are, by trade name, Bonamine, Phenergan and Marezine, according to findings of an Army, Navy and Air Force motion sickness team reported in the *Journal of the American Medical Association* (March 3).

When given three times daily, these three topped a list of 26 drugs tested among almost 17,000 servicemen during routine transport crossings of the Atlantic between November and April.

Effective, but less so than the top three, are by trade name Dramamine, Parsidol, Benadryl and Trimeton.

Bonamine had the longest lasting action, making it the "drug of choice" for long sea voyages where it may be necessary to continue using anti-seasickness medicine for several days, the military medical men report. For shorter voyages and most air travel, Phenergan and Marezine should be equally as useful as Bonamine.

Fear, anxiety and other psychological factors play a minor role in causing seasickness, it appears from the fact that reserpine and chlorpromazine, famous for banishing anxiety, showed no value in stopping or preventing seasickness in the conditions of the study.

Science News Letter, March 17, 1956

PUBLIC SAFETY

Home Greater Hazard To Men Than Women

► HOME is a more dangerous place for men than for women, figures released by the Metropolitan Life Insurance Company in New York show.

At ages 15 through 64, the home accident death rate for men was from one and three-fourths to more than twice that for women, in the 1950-1954 experience of the company's industrial policyholders.

This was the case in spite of the fact that men generally are not around the house as much as women.

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IN SCIEN

ENTOMOLOGY

Insects Threaten Eastern Corn Crop

► EUROPEAN CORN BORER populations have increased in eastern United States since 1954, despite a lower nation-wide average, a survey by the Department of Agriculture showed.

The borer, one of the costliest insect threats to corn in this country, exists in sufficient numbers to damage seriously the 1956 corn crop if weather favors the insect.

Farmers in eastern and northwestern Illinois, southeastern Iowa, and the eastern shore of Maryland can expect the heaviest infestations. South Dakota, Nebraska, Minnesota, Missouri, Ohio, New Jersey and Delaware are also threatened.

The national average dropped from 190 insects per 100 corn plants in 1954 to 164 per 100 in 1955. But in the East the borer population nearly tripled, jumping from an average of 33 borers per 100 plants in 1954 to 90 in 1955.

Greatest increases occurred in Delaware, Maryland, New Jersey and Rhode Island, it is reported in *Agricultural Research* (March).

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METEOROLOGY

Meteorologist Foresees Drought Forecasting

► DROUGHT CONDITIONS will soon be predicted at least two months in advance, a Weather Bureau meteorologist foresees.

Jerome Namias, head of the Bureau's extended forecast section, Suitland, Md., says methods already developed show a "moderate degree of success" for 30 days in the future.

Since drought-producing mechanisms are closely tied to the general hemispheric circulation, he warns in *Monthly Weather Review* (Sept., 1955), correct predictions of that must come first.

Mr. Namias defines a drought as "an extended period characterized by lack of precipitation" affecting the economy. He studied typical weather maps, averaged over a month, for the Junes, Julys and Augusts of 1952 to 1954, and compared them with similar charts for the preceding three years.

He also studied the chart for October, 1952, which on a countrywide basis was the driest month ever observed in Weather Bureau history.

Mr. Namias found that lengthy dry or wet periods have characteristic patterns very different in appearance.

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CE FIELDS

MEDICINE

Thyroid Gland Activity Affects TB Resistance

► THE OLD IDEA that people with over-active thyroid glands seldom have tuberculosis gets support from findings by Drs. Max B. Lurie and George S. Ninos of the Henry Phipps Institute of the University of Pennsylvania.

Rabbits given a hormone to increase activity of their thyroids gained a marked degree of protection against tuberculosis germs. Tuberculosis spread rapidly, however, in rabbits given a drug to lower activity of their thyroids.

The thyroid-stimulating drug is triiodothyronine. The thyroid-slowing drug is propyl thiouracil.

The explanation, the scientists believe, is that active thyroids increase the activity of the phagocytes, scavenger cells of the body, in which the TB germs take up residence. This enhances destruction of the germs. Low thyroid activity may reduce the activity of the phagocytes and thus hinder destruction of the germs.

Cortisone, famous arthritis remedy that is bad medicine for TB patients, probably "exerts its baneful influence on tuberculosis in part by suppressing thyroid function."

The findings are reported in the *American Review of Tuberculosis and Pulmonary Diseases* (March), Journal of the American Trudeau Society, medical section of the National Tuberculosis Association.

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MEDICINE

"Frozen Twitch" Upsets Muscle Work Theory

► A "FROZEN TWITCH" is giving scientists new information about how muscles, including heart muscle, get energy for their work.

It seems already to have upset a previous widely held theory of muscle energy source.

The frozen twitch is the twitch of a turtle muscle. The technique for catching and freezing the muscle in the act of twitching was worked out by Dr. Wilfried F. H. M. Mommaerts of Western Reserve University, Cleveland, with support from the American Heart Association.

The previous theory about how muscles get energy runs like this:

Food is broken down by the body in various ways, all of which lead to synthesis of a special energy-containing compound. The energy compound is adenosine triphosphate, or ATP for short. From ATP comes energy for the body's muscle activity, heat and nerve transmission. This

theory has been based on strong but indirect evidence. No one has yet proved that ATP is the immediate source of energy in a contracting muscle.

Dr. Mommaerts tested this in the following way:

He strung up two equal pieces of turtle muscle in a special apparatus. One piece of muscle was given an electric shock which made it twitch. At this moment, within three-thousandths of a second, both pieces of muscle were slammed into a thermos bottle of liquid propane at minus 190 degrees temperature.

One bit of muscle was thus frozen in the act of twitching. The other was frozen at rest. Each was crushed and the chemical content was compared.

If the ATP theory were correct, less of this compound should have been found in the muscle that had been caught in the twitch. More should have been in the resting muscle that had not needed to use any.

Actually, this did not occur. Dr. Mommaerts and other scientists now suspect that the old theory was wrong. Muscle apparently can do its work without using up ATP.

Dr. Mommaerts' experiments and their implications are reported in a communication from the American Heart Association.

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MEDICINE

Vitamin Finding Points to Anti-Cancer Drug Target

► A NEW POINT in the body's chemistry at which anti-cancer drugs could theoretically be aimed is seen in a vitamin finding by Dr. Albert G. Moat of Hahnemann Medical College, Philadelphia.

The finding is that biotin, a B vitamin, controls production of nucleic acids, chemicals in the nucleus of cells. Specifically, biotin is needed for production of purines, raw materials from which nucleic acids are made.

Dr. Moat's finding, announced by the American Cancer Society, was made with yeast cells and other simple forms of life. The American Cancer Society explained it as follows:

The most malignant cancers have a metabolism more like that of yeast than of normal animal and human cells in that their rates of metabolism and reproduction are much more rapid.

By excluding biotin from the environment of the cells, Dr. Moat found that the nucleic acid precursors piled up in great quantities and growth ceased. Biotin possibly is an essential part of the enzyme which converts the raw materials into nucleic acids needed in cell genes and energy-transmission systems.

"At this stage," the Society said, "one can only guess whether the blocking of biotin, by using a false biotin or by eliminating it from a system, would damage cancer more than normal tissues."

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AERONAUTICS

Automatic Air Traffic Control Is CAA Goal

► A FOUR-POINT PROGRAM aimed toward eventual automatic control of all air traffic is being launched by the Civil Aeronautics Administration, Administrator Charles J. Lowen revealed in Chicago.

Installation of a giant electronic computer at Indianapolis in September is the first step, Mr. Lowen told the Air Line Pilots Association's Fourth Annual Safety Forum.

He announced CAA plans to acquire a B-47 and later a civil jet transport to be used in simulated airline service to study air and ground handling problems of jets.

To give air traffic control needed authority, it will be elevated to the status of a separate office within CAA, Mr. Lowen said.

All airspace at high altitudes, he proposed, should be controlled by CAA. This would require installation of 69 long-range radars by 1961, as called for in President Eisenhower's budget message.

The United States, Mr. Lowen said, "can buy whatever degree of traffic control it is willing to pay for," and American public opinion is awakening to the urgency of the problem.

The computer relieves the human operator of the clerical detail involved in separating traffic in the air, doing this part of the operator's job far more quickly than he can.

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ENGINEERING

Growing Americans Change Car Designs

► TALLER AMERICANS may mean lower cars.

Increases in the average height of Americans in the past decade mean many drivers now need more head room, William M. Schmidt, director of styling of the Studebaker-Packard Corp., Detroit, told a Society of Automotive Engineers meeting.

Conventional 48- to 54-inch high automobiles cramp the big men of the modern generation, Mr. Schmidt said. Lowering the body of the car is one way of solving the problem, Mr. Schmidt suggested, but it would work only on very flat highways because ground clearance on rugged or hilly roads would be insufficient.

Another solution is to seat passengers lower in the body of the car, he said, but that method is limited by "the inflexible human anatomy."

Carl Reynolds, styling representative of Chrysler Corporation, reported that automobile designers are considering manufacturing cars that will fit the owner's exact requirements more closely. Under this plan, two different types of cars would be placed on the market, one for city driving and one for long trips.

Science News Letter, March 17, 1956