

CHEMISTRY

**\$8,500 in Fellowships
Given by Lalor Foundation**

FOUR fellowship awards for researches in chemistry and biochemistry were announced by Dr. C. Lalor Burdick, secretary of the Lalor Foundation, maintained through funds contributed by the Lalor family.

Three of the fellowships, for \$2,000 each, were granted to Frederick W. Barnes, Jr., for studies on intermediary metabolism with the aid of isotopes to be made at Columbia University; to Robert B. Carlin, for work at the University of Illinois on the chemical structure of poisons extracted from certain "loco weeds"; and to William W. Rice, to work at Harvard University on adsorption of gases by various materials.

In addition, A. Calvin Bratton was given \$2,500 for a two-years' research at the Johns Hopkins University Medical School on the curing effects of drugs like sulfanilamide.

The four appointees were selected from a group of 30 qualified applicants. Since the Foundation was established in 1935, 30 fellowship awards, totalling \$63,500, have been made.

Science News Letter, May 31, 1941

ENGINEERING

**15,000 Volts of Static
Formed On Automobile**

CHARGES of static electricity amounting to 12,000 volts or more are formed on automobiles driving along a dry road, Prof. Robin Beach, electrical engineer of the Polytechnic Institute of Brooklyn, has found by actual measurements in his own car, equipped as a travelling laboratory.

Possible danger from this source, in starting a fire of gasoline vapor if a spark is discharged, is indicated by his finding that, even with a stop of 20 minutes, there was sometimes no apparent decrease, indicating that many hours might be required before the charge was completely dissipated.

He also found that a "drag" chain, like that which dangles from the rear of a gasoline truck and supposedly prevents a dangerous charge from accumulating, had no noticeable effect.

"Since the pavement was not grounded but rather comprised a most excellent insulator, the drag chains, obviously, could not be expected to discharge the car," he declares in a report to the technical journal, *Electrical Engineering*.

The charge comes, apparently, from the transfer of electrons in two materials that are in "contact," but really separated by a hundred millionth of an inch or less. This occurs between the tires and the road surface, as well as between one's shoes and a heavy carpet, when one's body can accumulate a charge sufficient to make a sizable spark when a finger is brought near a grounded metal object. In the latter instance, he says, a charge of as much as 10,000 volts may be accumulated. Voltages up to 75,000 have been recorded, he says, in the case of gasoline and other liquids passing through pipelines, making a potential source of great danger.

The friction of rubbing does not produce the charge, Prof. Beach states, but merely establishes more extensive contact between the two materials.

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MEDICINE

**Bigger "Catastrophe Units"
For New York City Urged**

ATOTAL medical defense plan for New York City which would enlist every available physician in its new "catastrophe units" is urged by the Medical Society of the County of New York. (*New York Medical Week*.)

Greater New York has already been divided into 12 medical defense areas, each with a hospital as its master unit center, and with physicians and nurses trained and equipped to handle any medical or surgical emergency which air raids or other disaster might bring. Other hospitals in the zone will cooperate with the master unit, furnishing ambulances and other service in the event of need.

The catastrophe units according to present plans would have a team of four to 12 physicians, captained by a surgeon, for each of the 12 units.

"In the event of an aerial bombardment or other large-scale catastrophe the present disaster crews would be a drop in the bucket," the medical journal declares. "Every medical man in the city would be required to cope with the situation.

"In case of a disaster many practitioners would be called upon to perform tasks beyond the scope of their present training and experience. If we are serious in our preparations for a possible danger, every physician available for home medical defense should be trained in the correct principles of emergency repair."

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IN SCIEN

GENERAL SCIENCE

**Magnet Device Stops
Balance From Swinging**

A DELICATE balance for weighing minute quantities in the chemical laboratory has a magnet device to stop it from swinging. This is done with a copper plate moving between the poles of a powerful permanent magnet. Because of eddy currents set up in such a plate, and their reaction with the magnetic field, it moves through the field like a knife in cheese. With the balance device, the amount of slowing, or damping, may be carefully adjusted. (*Scientific Glass Apparatus Co.*)

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ENTOMOLOGY

**Great Migratory Flight
Of Butterflies Seen**

ONE of Nature's most mysterious phenomena, a mass migration of butterflies, has just taken place over thousands of square miles in Colorado.

For several days, over a front extending at least from Denver to Colorado Springs, or about 80 miles from north to south, the butterflies have been drifting steadily and irresistibly east by millions into the Great Plains from the direction of the Rocky Mountains.

Victor F. Lotrich, state archaeologist of Colorado, and also a skilled entomologist, drove from Denver to Colorado Springs, and saw the butterflies everywhere. He caught a couple on the outskirts of Denver, and identified them as the Painted Lady or thistle butterflies, one of the most common varieties, reddish-brown with white-spotted wings.

When he released his little prisoners near Colorado Springs, 75 miles to the south they fluttered for a moment, then headed east again, Mr. Lotrich said. He thinks they may have come from the western slope of the Rockies. Several years ago he saw millions of the butterflies crossing Monarch Pass, 10,800 feet high on the Continental Divide from west to east. He thinks they were so numerous then because they sought this gap in the mountains, between 14,000-foot peaks that barred their passage.

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CI FIELDS

PLANT PATHOLOGY

Disease of Cherry Trees Appears in Oregon

A NEW disease of cherry trees, which causes a loss of green color along the leaf veins and a general mottling of leaf surfaces, has been detected by S. M. Zeller and A. W. Evans of the Oregon Agricultural Experiment Station. (*Phytopathology*.)

Prunes as well as cherries, both important commercial crops in the Pacific Northwest, are attacked, the two plant pathologists report. The disease has also been found on ornamental flowering cherry trees, on Italian prunes, and on several species of wild cherry.

Cause has been identified as a virus, which can be transmitted along with grafts from diseased stocks.

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PHYSICS

Invisible Tattoo Marks Revealed Only by X-Ray

INVISIBLE tattoo marks, which appear under the influence of X-rays, may aid in the identification of soldiers killed in future wars. They might be used to "brand" habitual criminals or sex offenders, or placed near surgical scars to enable a physician to determine accurately the case history of a patient without relying upon his own statements.

Such marks can be made with compounds known as phosphors, which shine with various colors when activated by X-rays. Ordinarily, when tattooed into the skin, they would be completely invisible, say the inventors of the method, Dr. Henry C. Dake and Jack De Ment, of Portland, Ore. Phosphors such as cadmium borate, which glows red, and zinc orthosilicate, which gives off bright green light under the X-rays, are said to be especially effective on the skin of Negroes.

So long as the skin remains on the body, the marks can be detected, it is stated. Ordinary methods of removing tattoo marks, by injecting zinc chloride, making them slough away, are not effective for these, Dr. Dake and Mr. De Ment declare, for even minute

amounts of the pigment remaining in the skin are clearly revealed by the X-rays. Only a surgical operation, completely removing a section of the skin, will eradicate them.

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RESOURCES

Central America to Supply Much of Quinine Needs

QUININE, like rubber, is coming back home to the Western Hemisphere. Paul C. Standley, herbarium curator at the Field Museum of Natural History, has just returned from an expedition to Guatemala, and reports that large plantations of cinchona trees, source of quinine, have been set out, financed by American capital. They will be able to produce a large supply of the best grade of quinine.

Tea, native to the Orient, has become a naturalized Central American citizen, Mr. Standley states. The only commercial tea plantations in the New World are in Guatemala, and they are capable of great expansion if need arises.

Mr. Standley's principal task in Guatemala was the collecting of specimens of the native flora, to serve as material in the preparation of a new monograph on the plant life of that country, which he is preparing in collaboration with his colleague, Dr. Julian A. Steyermark. He has brought back with him about 30,000 pressed plants, which will be added to the Museum's already great collections of Central American flora.

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AGRICULTURE

Peru Joins Ranks of Flax-Raising Countries

FLAXEN cords are strengthening the bonds of good neighborhood between the Americas. Peru is the newest South American country to join the ranks of fiber flax raisers, with a crop of about 500 tons now being harvested, the U. S. Department of Agriculture states. Seed from the United States and Canada has been purchased for next year's sowing.

Although considerable flax is now being grown in this country, the domestic crop comes nowhere near supplying the demand, which amounts to as much as 7,000 tons a year. Since most of this came from Europe, there is a wide market for South American replacements in this commodity.

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PLANT PATHOLOGY

Calomel Found Preventive Against Crown Gall

CALOMEL, standby of old-fashioned medicine chests, has been found an excellent preventive of one of the worst of plant diseases, crown gall, by E. A. Siegler and J. J. Bowman of the U. S. Department of Agriculture. Crown gall is a germ-caused cancer-like growth that afflicts roots and stems of plants, and has long been a cause of serious loss in young nursery stock.

The two scientists first found calomel effective against crown gall in peaches. Now they report that plum and cherry seedlings can be protected by dipping the pits into water containing calomel before planting. A similar treatment protects the cut surfaces on root-pruned young trees kept in storage over winter.

Calomel's effectiveness is presumably due to the fact that it contains mercury, which in compound is a good disinfectant. Since calomel is insoluble in water its action is slow, extending over a considerable period of time. In using, it is shaken up in water to form a cloudy suspension, rather than a true solution, and the seeds or root surfaces to be protected are given a thin coating of solid calomel particles.

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BIOLOGY

3-Day-Old Chick Embryos Foster-Mothers to Mice

MOUSE embryos in the seventh and eight days of prenatal development were "adopted" by chick embryos of less than half their age, and lived for 48 hours on the nourishment supplied by these strange foster-mothers, in experiments in the zoology laboratories of Columbia University, reported (*Science*, May 23) by Dr. S. Gluecksohn-Schoenheimer.

Windows were cut in the incubating eggs, exposing the embryos within. Tiny, week-old beginnings of mice were removed from their mothers' bodies, and by an almost unimaginably delicate operative technique planted upon the chick embryos. Forty-eight hours later they were seen to have become nearly normal mouse embryos of typically ninth-day stage of development, with normally beating hearts.

Further experiments are now in progress.

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