

GENERAL SCIENCE

Czechoslovakian Chemists Begin Study in U. S.

► TWO Czechoslovakian chemists have arrived in this country to begin studies as the first fellows in a program financed by the American Chemical Society through the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Dr. Ivan Vavruch, chief chemist of a government beet-sugar factory at Cerekvice, will study colloid chemistry at the Massachusetts Institute of Technology, while Dr. Milos Hudlicky of the Institute of Organic Chemistry, Prague, will specialize in fluorine chemistry at Ohio State University. The young scientists, both 28, will work in this country six months under terms of the grants.

Funds for the fellowships are provided in a \$25,000 donation to UNESCO made by the American Chemical Society, the first group to make such a contribution to the UN group. Other countries which are expected to send chemists to this country for the six-month study period of the grants are China, Poland, Greece and the Netherlands.

Science News Letter, February 21, 1948

BOTANY

Pollen Grains Measured By High School Student

► POLLEN grains are subjects of exact science to Elmon Lee Coe, 16-year-old senior at North Phoenix High School in Phoenix, Ariz. Not content with sketching them as he observes them through his microscope, he uses a measuring device to obtain an accurate record of their dimensions, in order to make them easier to identify.

Pollens from desert flowers have been his special interest. He has measured and made drawings of grains from several kinds of cactus, including the sahuaro or giant cactus, as well as those of century plant, yucca, palo verde, mesquite and greasewood. However, he has also paid considerable attention to wildflowers of the Southwest, such as gaillardia, prairie coneflower and Indian pink; and to cultivated plants like date palm, lemon, oleander, alfalfa and Shasta daisy. Also included in his collection are the pollens of such introduced weeds as Queen Ann's lace, dayflower, sow-thistle and Johnson grass.

Because the low-power microscope which he was using did not give the magnification he wanted, Mr. Coe in-

troduced an extra lens into its optical system. When water proved an unsatisfactory medium in which to examine the grains, he took to xylol, a light oily medium.

In one of his hobbies he is not likely to have many imitators: he raises scorpions.

His willingness to experiment with optical instruments has led him to the construction of a spectroscope and a small telescope, and to the modification of the lens of his camera so that he can obtain greater magnification in making photographs of insects in his collection.

Mr. Coe is one of the winners in the Seventh Annual Science Talent Search for the Westinghouse Science Scholarships.

Science News Letter, February 21, 1948

ENGINEERING

Plastic Foam Materials Insulate Against Cold

► FOAM is the latest form of substance used in keeping heat out of subzero chemical materials.

Two plastic materials, puffed or whipped up to include large quantities of air, were described to the American Institute of Chemical Engineers meeting in New Orleans, as efficient low-temperature insulators.

One of them is a urea-formaldehyde foam, with the trade name of U. S. Flotofoam, which can be used in either shredded or block form. E. C. Van Buskirk and C. C. Surland of the United States Rubber Co., Mishawaka, Ind., reported that it weighs only eight-tenths of a pound per cubic foot.

Another insulation material, used in cold storage rooms, is a polystyrene plastic in foam form, called Styrofoam. O. R. McIntire and R. N. Kennedy of the Dow Chemical Company told how it is superior to corkboard usually used.

Glass in cellular form is also used to insulate low-temperature equipment, Victor Sanders, of the Pittsburgh Corning Corporation, told the chemists, while C. B. Bradley and J. F. Stone of the Johns-Manville Sales Corporation predicted that still more new insulating materials will be developed through research.

Another new material is a fibrous silica which Leon Parker and John J. Foster of H. I. Thompson Co. reported was developed as insulation for jet aircraft. New uses of this material in various forms were predicted because of its high temperature resistance in thermal, electrical and acoustical applications.

Science News Letter, February 21, 1948

IN SCIENCE

PHYSIOLOGY

Chemical Treatment Shows Protein Position in Cells

► A NEW tool for prying into the secrets of cell life is a compound of phosphorus and tungsten known as phosphotungstic acid. It has been used by Drs. A. Engstrom and M. A. Jakus of the Karolinska Institutet, Stockholm, to find out where in the cell the greatest concentrations of proteins occur.

Proteins, which are the food materials that become the actual replacement parts of living matter, have the property of binding phosphotungstic acid. The areas in which this occurs become less transparent to X-rays, so that cells treated with the acid and then irradiated will give light-and-dark patterns telling of the distribution of the proteins.

The technique is not yet fully perfected, the two Swedish researchers state in a letter to the editor of the British journal, *Nature*, (Jan. 31) but it is expected that further work now in progress will overcome certain present difficulties.

Science News Letter, February 21, 1948

CHEMISTRY-ASTRONOMY

Hydrogen, Helium Are Most Common Elements in Cosmos

► ELEMENTS most abundant in the visible universe are not necessarily the same as those most abundant on our particular planet, Dr. Harrison Brown of the University of Chicago stated before the meeting of the American Physical Society in New York.

In as much of the universe as the greatest telescopes can probe, the most abundant chemical elements are hydrogen and helium, followed in order by oxygen, nitrogen, carbon and neon. Of these, helium and neon were for long mere chemical curiosities, and although both are commonly used now neither is abundant.

Taking the earth as a whole, Dr. Brown said, the Big Four are oxygen, silicon, magnesium and iron. Familiar though they are in everyday life, carbon, nitrogen and hydrogen constitute only a negligible fraction of the planet's total mass.

Science News Letter, February 21, 1948

E FIELDS

MEDICINE

Anti-Flu Vaccination Failures Are Reported

► FAILURE of influenza vaccine to give protection in two different boys' schools is reported in the *Journal of the American Medical Association* (Feb. 14).

The reports are by Dr. Arie C. Van Ravenswaay of Boonville, Mo., on experience at the Kemper Military School, Boonville, and from Drs. M. M. Sigel, F. W. Shaffer, M. Wiener Kirber, A. B. Light and W. Henle of Philadelphia. The school in this experience is in New Jersey but is not further identified.

Both Dr. Van Ravenswaay and the Philadelphia group point out that other physicians have reported similar experiences with influenza vaccination last winter. In all these failures, the trouble seems to have been that a new strain of influenza A virus was responsible for last winter's outbreaks. This strain had not been included in the vaccines then available.

Suggestions for improving both the vaccine and tests for detecting the particular strain of 'flu virus in a given outbreak are given by the Philadelphia scientists.

Science News Letter, February 21, 1948

MEDICINE

Internal Organs Damaged In DDT-Poisoned Victim

► THE third death by DDT poisoning since this famous insect killer was introduced in 1943-1944 is reported by Dr. Nathan J. Smith of the Veterans Administration Center, Wadsworth, Kans., in the *Journal of the American Medical Association* (Feb. 14).

The victim was a 58-year-old laborer who accidentally drank about four ounces of a 5% solution of DDT. He immediately recognized his mistake and drank a quart of milk within a few minutes after swallowing the poison. He followed this by several glasses of beer. Neither this nor various other measures helped and the patient finally, five days later, went to the VA center for medical treatment which also, unfortunately, failed to save him.

To physicians the interesting point in

Dr. Smith's report will be the details of kidney and liver damage found at autopsy. This patient was the first killed by DDT who lived long enough after the fatal dose for changes in the internal organs to develop to the point where they could be seen after death. Heretofore the only information on how the insect killer damaged was obtained from studies of laboratory animals. These changes seen in laboratory animals are, Dr. Smith reports, "not unlike" those seen in this latest human victim.

Science News Letter, February 21, 1948

MEDICINE

Streptomycin Cure of Plague Reported in India

► STREPTOMYCIN cure of plague was reported by General Sir Sahib Singh Sokhey, director of the Haffkine Institute in Bombay.

In experimental tests with plague-infected mice, streptomycin treatment resulted in 100% cures.

When 87 human patients with bubonic plague, including 15 in an advanced, usually fatal stage of the disease, were given streptomycin treatment, all but two recovered.

The streptomycin used in these studies and to treat the patients was donated by Dr. Robert D. Coghill of Abbott Laboratories, North Chicago, Ill., and the British Medical Research Council.

Science News Letter, February 21, 1948

ZOOLOGY

Bear With Six Cubs Reported from Canada

► BLACK BEAR sees Mama Dionne's quintts and goes her one better—with sextuplets. What is believed to be the only case on record of sextuple birth in bears has been reported to Prof. William Rowan of the University of Alberta at Edmonton, Alberta, in a sworn statement by Tom Wykstandt, a veteran Canadian trapper.

Mr. Wykstandt met a female black bear, which seemed to be rather unusually thin. He shot her and also all of her family, which turned out to total six black cubs, all of the same size and apparent age.

Mr. Wykstandt, who is thoroughly familiar with the area over which he hunts and traps, declares that no other female bears were known to be in the neighborhood, although an adult male black bear was trapped within a few days at the same spot.

Science News Letter, February 21, 1948

WILDLIFE

Buffle-Head Ducks Design On New Hunting Stamp

See Front Cover

► TWO male and one female buffle-head ducks in flight is the design chosen for the Federal "duck stamp" to be used during the 1948-49 hunting season, Albert M. Day, Director of the Fish and Wildlife Service, announced.

This is the fifteenth in the series of migratory bird hunting stamps, all of which show wild ducks or geese of different species in some characteristic flight phase. It will be available at all first and second class post offices on July 1.

The current design, shown on the cover of this week's SCIENCE NEWS LETTER, is the work of Maynard Reece, staff artist for the Iowa State Department of History and Archives, Des Moines, Iowa.

Science News Letter, February 21, 1948

CHEMISTRY

High School Student Does Research on Hard Water

► HOW hard is hard water? A high school senior of Oak Park, Ill., David M. Geller, 17, has worked out the answer in terms of the water-softening power of a number of kinds of soap powder and other detergents. He has carried his research out to the fractions-of-a-cent point, telling which compound costs least per unit of hard water softened.

For accurate determination of results, he made up a synthetic hard water by dissolving a known weight of calcium sulfate, most familiar as gypsum, in a known quantity of distilled water. He made up his soap solutions with similar exactness, then added to each sample some of his hardened water, measured drop by drop until the soap was no longer able to produce any foam. This was the neutralization-point of that particular kind of soap.

Soap powders of the more conventional type all functioned rather much alike. Differences in cost, per unit of softening effect, were determined largely by market price per package, reduced to price per ounce. Greatest economy was achieved not by an old-type soap powder but by one of the newer detergents. On a cost-per-unit basis, this was more than 200 times more efficient than ordinary soap powders.

Mr. Geller will go to Washington at the end of this month, to participate in the Science Talent Institute.

Science News Letter, February 21, 1948