ASTRONOMY

New Minor Planets Around Sun May Be Discovered

➤ NEW TINY planets may soon be discovered revolving around the sun between the orbits of Mars and Jupiter. The exact paths of other asteroids or minor planets may be worked out through intensive research just being inaugurated.

This wide research program for the study of minor planets is to be under the guidance of Dr. Paul Herget, director of the University of Cincinnati Observatory. A number of observatories are cooperating in this program sponsored by the American section of the International Astronomical Union.

Fifteen hundred minor planets, most of them tiny telescopic specks which can be distinguished from faint stars only by their motions, are now known. The first one, discovered in 1801, was almost 500 miles in diameter. Most of them, however, are probably less than 50 miles across.

Not many asteroids were spotted until recent years, when astronomers could use photographic plates. Before the war about 100 new minor planets were found each year.

"Some of these planets have not been observed since 1937," Dr. Herget states, "and then for only two months, when they should have been observed for three or four years in a row. Astronomers today are not even sure they can be located again."

Science News Letter, March 1, 1947

NUTRITION

Lack of Fertilizer Causes Food Shortage and Hunger

➤ FOOD SUPPLIES for the world's famished lands will be behind schedule all this year because of serious shortages in fertilizers, the International Emergency Food Council warns. This condition obtains despite the increase in commercial fertilizer production, especially in the United States, because the demand has gone up faster than the supply.

One prime difficulty is that whereas the greatest need for fertilizer exists in the war-ravaged lands of Europe, the increased supplies are largely in the United States, where the demand has also increased. Some manufacturers are reluctant to see their production routed to the areas of greatest need, instead of into markets which they know will be permanent.

Deficit of all fertilizer elements—nitrogen, potash and soluble phosphates—is estimated at 2,261,000 tons.

Perhaps the most critical shortage is in nitrogen fertilizers. This is due in considerable part to the stoppage of synthetic nitrate production in Germany, a major fertilizer source in pre-war days. Only five countries in the world have more nitrogen fertilizers than they need.

There is prospect of relief in the phosphate fertilizer field. The Council's committee on fertilizers has recommended that rock phosphates available since the beginning of the present year be placed on the unallocated list. There is some improvement also in the potash supply, though not enough as yet to be justifiable cause for optimism.

Science News Letter, March 1, 1947

EDUCATION

Afghanistan Wants Men To Teach Science, English

➤ YOUNG MEN who would like to teach science, mathematics and English in Afghanistan, the country lying between Soviet Russia and India, are being sought by the Department of State's division of international exchange of persons.

The Afghan ministry of education is seeking 31 teachers, who would be employed in Kabul, the capital, and Kandahar, the center of Afghan history and Pushtu culture. Teaching experience and college degree are required.

English has been made the required foreign language and the two American instructors already in the country can not meet the demand for teacher training.

Science News Letter, March 1, 1947

CHEMICAL ENGINEERING

Synthetic Rubber Is Made In Continuous Stream

➤ SYNTHETIC RUBBER is turned out in a continuous stream, thanks to a new process described by M. A. Youker of du Pont to the American Institute of Chemical Engineers. Latex of the synthetic neoprene is converted into a thin rubber-like film by freezing a thin, ice-mixed layer on the surface of a chilled revolving metal cylinder. This method avoids the use of chemicals and operates continuously.

Science News Letter, March 1, 1947

IN SCIENC

METEOROLOGY

New Balloon Needs No Separate Parachute

➤ SMALL RUBBER balloons are now much used for meteorological purposes, carrying radiosondes into the upper air and dropping them by parachute for possible recovery when they finally burst. L. P. Frieder of Great Neck, N. Y., and W. S. Finken of Brooklyn have obtained patent 2,415,818 on a balloon that requires no separate parachute. A ring, secured to the rubber wall near the bottom, carries the parachute shrouds. Immediately above it is a zone of thinner rubber, providing a predetermined line of rupture. When the balloon bursts along this zone, the top is thrown off and the part of the bottom held by the ring automatically turns inside out and becomes the parachute.

Science News Letter, March 1, 1947

CHEMISTRY

Metal-Coated Plastic Fabric Is Used in Homes

➤ GOLD- or silver-colored fabric, of a new type, has many decorative uses in the home. It is a metal-coated plastic fabric that has a mirror-like finish. Uses range from lamps to window shades.

The base material is a mesh that resembles ordinary wire screening with the spaces filled with a cellulose acetate film. The fiber of the mesh is saran, a well-known plastic, a compound of polyvinylidene chloride.

The mesh with acetate filler is coated on one side with a thin film of aluminum applied by a high-vacuum evaporation process. This, as well as the gold or silver color, is covered with a protective lacquer. Over the silver finish, it is a clear lacquer; a gold-colored lacquer is used for the gold finish.

Because of its mirror-like finish, the new material will be known by the trade name Miramesh. It is a product of the National Research Corporation in Boston. It can be stitched, or cemented provided the cement used does not include solvents that will attack the acetate. It is not suitable for uses where it will be subject to repeated bending because the acetate may separate, leaving the mesh bare.

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E FIELDS

ZOOLOGY

Uninterested Mother Loses Child—In Zoo

➤ A MOTHER who "showed absolutely no interest in her baby" has had her child taken away from her. The foster mother is a broom handle.

The case of the delinquent mother was reported by R. Marlin Perkins, director of the Lincoln Park Zoo in Chicago. The child is an unusually mature two-toed sloth, born with both eyes wide open, a full set of teeth and well-developed claws.

Wrapped in cloth, the broom gives the baby sloth something to cling to in place of its mother. The 14-ounce baby, which has a bleating cry like a tiny lamb's, is fed every two hours with an eye-dropper.

The two-toed sloth is well known to crossword puzzle fans under its Indian name, Ai.

The baby here has no name—zoo officials aren't sure whether it is a boy or girl.

Science News Letter, March 1, 1947

PLANT PATHOLOGY

Snap Beans Can Catch Disease from Gladioli

➤ IF YOU WANT to raise healthy beans, keep them away from gladioli.

Discovery that beans can catch one of their most damaging diseases, yellow mosaic, from the mosaic-mottled leaves of sick gladiolus plants is announced in *Science* (Feb. 14) by a three-man research team, Dr. F. P. McWhorter of Oregon State College, and Dr. Lytton Boyle and B. F. Dana of the U. S. Department of Agriculture.

Suspicion was first cast on gladiolus as a possible carrier of yellow bean mosaic virus by Carl Robertson of the Eugene (Ore.) Fruit Growers Association, who had noticed that the rows of beans in a field next to a mass planting of gladioli were heavily infected with yellow mosaic, while those farther off were less affected.

The three plant pathologists were at first inclined to be skeptical, partly because beans and gladioli are so widely separated in the plant kingdom; but subsequent field observations, backed by exact laboratory tests, have proven the first supposition to be correct. Only snap beans, however, get the disease from the gladioli; a parallel test planting of lima beans remained unharmed.

Since gladioli are planted in great quantities for market, especially in the Pacific Northwest, and since mosaic disease is very common in the "glad" fields, this discovery assumes considerable economic importance.

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CHEMISTRY

Plastics Have Many Little-Known Uses

➤ PLASTIC MATERIALS have many little-known uses ranging from water softeners and purifiers to adhesives for joining almost any types of materials, Dr. Paul O. Powers, of the Battelle Memorial Institute, Columbus, Ohio, told the American Chemical Society in Chicago. He included plastic products that are fast-drying printing inks and others that are better lubricating oils.

Plastic products, he said, are largely associated in the public mind with gadgets and bright-colored moulded articles familiar in everyday life. But plastics can be tailored by innumerable other applications because they are composed of very large molecules whose structure can be varied as desired, he explained.

A new flame spraying process makes it possible to apply a fine plastic film on an object as a protective coating without the use of the customary solvent. Usually solvents are required. They are expensive and large volumes are needed because otherwise plastics form a very thick solution.

In the flame spraying process, the finely divided powdered plastic is blown into a hot flame which softens the material and applies it to the surface to be coated. Other methods have been developed which use low-cost solvents by suspending rather than dissolving the plastic material, fusing the resin particles after application to obtain a continuous film.

Dr. Powers mentioned also plastics developed from silicon, the element present in sand, which are remarkably stable at high temperatures. He described a plastic made from fluorine, the unruly gas which has been tamed by wartime research, as characterized by high resistance not only to heat but also to solvents and chemicals of all types.

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AERONAUTICS

New Transports Offer More Speed, Comfort and Safety

➤ SPEED, COMFORT and greater safety are promised air travelers in new transports soon to be ready for scheduled service. Their design and operating equipment are based on lessons learned during the war, factors that helped give American planes top rating.

Among these new craft is the United Air Lines' Mainliner 300, the Douglas DC-6, the first of which will be ready for service early this summer and will quickly be followed by others. Air tests show this 56-passenger, four-engined plane to be speedy, comfortable-riding at high and low altitudes, and easy to maneuver, an important factor in safety.

Its great power is another safety factor. The four engines are Pratt and Whitney double Wasps with a total of 8,400 horsepower. They give the plane a cruising speed of 300 miles an hour, five-mile-a-minute clip, and enable it to climb rapidly, even up to an altitude of 25,000 feet. The speed is assisted by a jet thrust exhaust system, increasing it about ten miles an hour.

Another important factor in the new plane is its propeller system. The propellers are the full-feathering, reversible-pitch type, made by Hamilton. This permits the blades to be turned in their hub to present a different angle to the air, and permits also that they be reversed to decrease the speed of the plane rapidly in landing.

Electronic automatic pilot, radio altimeter, and similar war-tested apparatus are included in its equipment. Its pressurized cabin assures passengers low-altitude comfort regardless of altitude and outside temperatures.

Science News Letter, March 1, 1947

ENGINEERING

Oxide-Coated Iron Bits Hasten Steel-Cutting

➤ SQUIRTING a stream of fine iron particles coated with oxide into the flame of an oxy-hydrogen steel-cutting torch to hasten the operation is a process invented by G. M. Deming of Orange, N. J. He explains that the oxide coating prevents the particles from igniting prematurely. Rights in his patent, No. 2,415,815, are assigned to the Air Reduction Company, Inc.

Science News Letter, March 1, 1947