



ROTARY BOMB DOOR—Rockets as well as bombs can be carried in the pre-loaded rotary bomb door shown here. The device turns 180 degrees just prior to bomb release, thus leaves no open bomb bay for buffeting winds. Using such a door, developed by the U. S. Air Force and Glenn L. Martin Company, fast-flying jet aircraft do not have to slow down to release their bombs or rockets. (See SNL, April 25, p. 269.)

ASTRONOMY

Test of Einstein Theory

► THE MINOR planet, Icarus, which travels closer to the sun than any other object in the solar system, will probably break a speed record for its extremely rapid motion in relation to earth in 1968.

Dr. Samuel Herrick Jr. of the University of California made this prediction to a Royal Astronomical Society meeting in London. The asteroid also "may become the most critical astronomical test" of Einstein's relativity theory.

Until the discovery of Icarus by Dr. Walter Baade of the Mount Wilson Observatory in 1949, Mercury was the only planet suitable for spotting small changes in perihelion motion due to relativity effect. Perihelion is the point in the path of a planet or comet which is nearest to the sun.

Relativity theory predicts that over a period of time this point should shift a small amount, different for each planet. Although this change is much smaller over a century for Icarus than for Mercury, it can be measured about five times as accurately for the asteroid as for Mercury.

Calculations of the perihelion motion of Icarus were made by Dr. Herrick and Dr. J. J. Gilvarry of the Rand Corporation, Santa Monica, Calif.

In 1968, Icarus, the most eccentric object now known in the solar system, will

come within about four million miles of the earth. This is some four times closer than any minor planet has yet been predicted to come.

The asteroid's diameter is about half a mile, the smallest calculated. It is named after the mythological boy whose wax-attached wings melted off during a flight too close to the sun, since it can approach as close as 17,000,000 miles to the sun. It is the only body outside of a comet known to pass within the orbit of Mercury. Most other asteroids are confined to a zone between the orbits of Mars and Jupiter.

Science News Letter, August 15, 1953

BIOLOGY

Mexican Naturalists Join Association

► MEXICAN NATURALISTS have been invited to join with American scientists in a new Southwestern Association of Naturalists which will promote the field study of plants and animals, living and fossil.

The new organization will cover the states of Arizona, Arkansas, Kansas, Louisiana, New Mexico, Oklahoma and Texas, as well as Mexico, Prof. Herndon G. Dowling of the University of Arkansas, secretary, has announced.

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DENTISTRY

Discover Tissue Network Connecting Teeth, Gums

► THE DISCOVERY of a fine network of tissues that apparently connects the teeth to the gums has been reported by a University of California dental scientist, Dr. Louis J. Baume.

The cause of the gum-tooth connection has long been obscure. The strong adhesion is the defense barrier against pyorrhea and other gum infections.

Dr. Baume said that animal experiments show that the fine network of tissue decays in vitamin C deficiency, causing the well-known gum lesions of this disease. He added that mechanical injury may also destroy the fibers, loosening the gum-tooth connection, and inviting pyorrhea.

The scientist said the fibers, called tonofibrils, are protoplasm in chain form. They are arranged in bundles and run continuously from one cell into another, thus providing great strength and cohesion. They extend from underlying gum tissue into the tooth enamel cuticle, or "skin of the teeth."

The existence of the tonofibrils apparently has been overlooked in past research because laboratory preparation methods used have destroyed them. These methods include the use of dyes and preserving chemicals.

Dr. Baume observed gum tissues in the living state for the first time by means of the phase contrast microscope.

He photographed tissue taken in dental operations less than ten minutes after its removal.

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PHYSICS

Illusive Atomic Particle Made in Cosmotron

► ANOTHER OF the illusive particles within the heart of matter, known as the neutral V-particle, has been created for the first time artificially in the giant cosmotron atomic accelerator at Brookhaven National Laboratory.

The cosmotron was operating at an energy of 2.2 billion electron volts when it yielded two definite examples of these V-particles, so-called from the shape of their vapor trails in the experimental chamber which was bombarded with powerful neutrons. They were similar to those found in cosmic rays but never before assuredly manufactured by man-made radiation.

Only two definite examples of the neutral V-particle were found on about 4,000 photographs taken. This is another step toward understanding the atomic nucleus in which is locked secrets of matter and energy.

The experiments by Drs. W. B. Fowler, R. P. Shutt, A. M. Thorndike and W. L. Whittemore are reported in the *Physical Review* (June 15).

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