

SPACE

Space 'Hot Rod' Launched

The information obtained from the fiery reentry of a Project Fire spacecraft may mean safer manned trips to the moon—By Walter Wingo

➤ A BLUNT-FACED package of instruments was rocketed into space on April 14 and then kicked back into the atmosphere at more than 25,000 miles an hour to see how hot it would get.

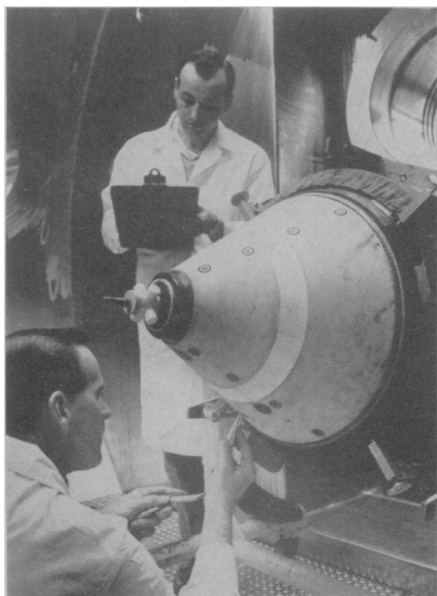
The spacecraft plunged into the Atlantic 5,200 miles southeast of its launching pad, Cape Kennedy, Fla. Coming down, it glowed like a fireball. Temperature of the gases just in front of it reached 20,000 degrees Fahrenheit.

Called Project Fire by the National Aeronautics and Space Administration, the unmanned craft, launched by an Atlas-D rocket, entered the atmosphere slightly faster than vehicles that will carry astronauts back from moon journeys.

The Project Fire craft weighed 200 pounds and was shaped much like the Project Mercury manned crafts, which entered the atmosphere at lower speeds of about 17,500 miles an hour.

A solid propellant Antares II rocket drove it back into the atmosphere.

Most of the speed of a vehicle reentering the atmosphere is changed to heat. Craft returning from lunar and planetary missions are expected to generate more heat than craft entering at orbital speeds.



Republic Aviation

PROJECT FIRE—The reentry spacecraft of Project Fire is being given its final operational tests by laboratory technicians in Republic Aviation's space environment chamber. The 200-pound vehicle was successfully launched from Cape Kennedy via an Atlas-D booster on April 14.

The temperature of the gases around the craft is an indication of the energy which is transferred from the speeding vehicle into the surrounding air.

The energy transferred is great enough to break up some gas molecules and electrically charge some atoms. All of these reactions must be known before risking humans in superfast spacecraft.

The first of two scheduled launchings in 1964, the spacecraft was reported to have sent good radio signals throughout its fiery path. Heat data were recorded by a tape recorder until high temperatures cut off the radio signals.

• Science News Letter, 85:262 April 25, 1964

PHYSICS

Radar Range Increased By New Laser System

➤ THE RANGE and sensitivity of laser radar systems are expected to be increased hundreds of times by a new system that will use three lasers operating in tandem.

The intense beam of light generated by the first laser will be focused through lenses into a second laser, where its energy is increased. The beam will then be aimed through a third laser for the high power amplification needed to carry it to a distant target and back.

When the laser light reflected off a target returns to the radar receiver, it will be detected and amplified by a tiny, transistor-like device that is sensitive enough to pick up signals carried on less than one-billionth of a watt of light.

Developed by engineers at Sperry Rand's Electro-Optics Group in Great Neck, N. Y., the three-laser radar system is expected to be applied in a ground-based missile- or satellite-tracking system, pinpointing distant and high-speed small targets.

• Science News Letter, 85:262 April 25, 1964

SPACE

Cape Kennedy Accident Delays Satellite Launch

➤ THE EXPLOSION of the rocket intended to carry a solar observatory satellite into orbit—the first major accident involving injuries at Cape Kennedy, Fla.—postponed the original launch date of April 21 (see SNL, 85:247, 1964).

During an indoor "spin-balance test," the five foot high, solid-fuel third stage of the rocket "just exploded and blew up everything," an official of the National Aeronautics and Space Administration said. Approximately 20 persons were in the test room, of whom 11 were injured.

• Science News Letter, 85:262 April 25, 1964

ARCHAEOLOGY

Museum's New Exhibit Features Ancient Gold

See Front Cover

➤ ANCIENT GOLDSMITHS, centuries before the Spanish Conquest, knew many techniques used by today's jewelers and dentists to twist gold into jewelry and teeth.

Delicate gold pendants and figurines that rival modern jewelry in beauty were produced 2,700 years ago with techniques such as stretching and shaping by hammering, annealing to keep the metal pliable, soldering and casting in open and closed molds, and casting by means of the famous "lost wax" technique.

Tiny cast miniature animals half the size of a dime, massive breastplates and collars, and ceremonial knives with inlays of semi-precious stones are some of the 250 gold objects on exhibit at the Los Angeles County Museum until May 17. Included in the exhibit is the funerary mask of beaten sheet gold with turquoise and bronze inlays seen on this week's front cover. Of Chimu culture, about 1200 A.D., from Lambayeque, Peru, it is 9¼ inches high by 16 inches wide.

These gold objects represent ancient handiwork from 800 B.C. to 1500 A.D. by the people of Mexico, Panama, Costa Rica, Colombia, Ecuador and Peru.

More than 30 museums, galleries and collections throughout the United States helped contribute to the exquisite exhibit, titled "Gold Before Columbus." Part of the exhibit displays treasures found at the bottom of the 75-foot Sacred Well at the ancient Maya site of Chichen Itza on the Yucatan peninsula of Mexico.

An American amateur archaeologist and diplomat, Edward Thompson, worked four years to recover these jade offerings, gold disks and gold animal figurines from the well's muddy depths where they had been tossed in offering during the great Maya era.

• Science News Letter, 85:262 April 25, 1964

TECHNOLOGY

Stronger Auto Tires Seen By Adding Glass Fibers

➤ A STRONGER, tougher automobile tire reinforced with glass fibers was foreseen at the Textile Research Institute meeting in New York.

When embedded in rubber, glass is as tough and resistant to impact as nylon and polyester, Dr. Albert Marzocchi of the textile product development laboratory of Owens-Corning Fiberglas Corporation, said.

Glass reinforced tires would have a longer tread life, better fuel mileage and superior ride characteristics. For example, the tires are extremely stable at high speeds with no "fish tailing" and minimum tire noise and squeal.

Dr. Marzocchi has developed a special multifilament glass fiber yard for strengthening rubber. Neoprene, nitrile, styrene-butadiene rubber and two other compounds were used to protect the fiber and to fuse the glass fiber to the rubber.

• Science News Letter, 85:262 April 25, 1964