

## ZOOLOGY

**Seals in Antarctica Are Record Deep-Sea Divers**

► THE WEDDELL SEAL of Antarctica holds the record for deep-sea diving by mammals—more than 1,000 feet below the chilly ocean surface.

The seals live in the perpetual air-conditioning of McMurdo Sound, an icy wasteland on the coast of Antarctica. They also are believed to have an extremely well developed sense of navigation for swimming under dangerous ice blocks and shelves in the waters of the sound.

During a recent expedition to Antarctica, Profs. Arthur L. DeVries and Donald E. Wohlschlag of Stanford University's department of biological sciences, Stanford, Calif., captured two female seals and attached depth recording devices to their backs.

They found that the seals not only were able to dive to depths of 1,100 feet or more, but were also able to swim under 19 miles of solid ice without coming up for air or without the aid of light since light does not penetrate ice.

Previous estimates of the swimming ability of the Weddell seals were that they could swim less than two miles underwater for about ten minutes.

The results of the studies by Profs. Wohlschlag and DeVries reported in *Science* 145: 292, 1964, indicate a still unknown adaptation of the seal for long-range deep-sea diving.

• *Science News Letter*, 86:72 August 1, 1964

## MILITARY SCIENCE

**Largest Hydrofoil to Be Used by Navy**

► THE WORLD'S LARGEST hydrofoil boat, more than 220 feet long and 40 feet wide is being built for the U. S. Navy.

The experimental craft, powered by twin diesel engines, is expected to cruise faster than the 45 to 50 knots possible with previous hydrofoils.

More than a quarter of a million pounds of aluminum will make up the entire structure of the vessel, except for the steel foils and struts.

Puget Sound Bridge and Dry Dock Company is building the craft in Seattle, Wash., from a design by the Navy's Bureau of Ships.

• *Science News Letter*, 86:72 August 1, 1964

## PSYCHOLOGY

**Hypnotism Stops Shivers In 40° Temperature**

► HYPNOTISM can stop the shivers in a 40-degree temperature, a psychiatrist found in tests performed with other researchers at Wright Patterson Air Force Base, near Dayton, Ohio.

Dr. Clifford B. Reifler of the University of North Carolina Psychiatric Center stressed that this was not an "operational study" and refused to make any direct application of the results.

Because the study took place in a setting where there was an active program to develop protection against temperature extremes, however, conjectures are being made that the method might be useful for astronauts when they experience temperature extremes in space travel and in reentry.

The researchers were surprised to find that in the chilly 40-degree thermal chamber where the tests were made, men performed better when hypnotized than when not hypnotized.

Performance actually improved among the hypnotized men, who showed no loss of awareness and ability to function, Dr. Reifler said. Their skin temperature remained constant even with a drop in the body's heat production and a loss of body heat.

The researchers believe this unusual condition was due to "altered vasomotor activity."

Dr. Abbott T. Kissen and Maj. Victor H. Thaler, both of the Aerospace Medical Research Laboratories at Wright Patterson, collaborated with Dr. Reifler on the study.

• *Science News Letter*, 86:72 August 1, 1964

## SPACE TECHNOLOGY

**Sun Probe to Enter Corona for Measurement**

► A SOLAR PROBE that would travel within one million miles of the sun and actually pass through the sun's corona has been designed.

Powered by a nuclear ion engine, the probe would spend nearly ten hours within three million miles of the solar surface. Avco Corporation, Wilmington, Mass., designed the probe to be launched by a Saturn V launch vehicle. It would take measurements of the sun's magnetic field, density, temperature and other characteristics.

• *Science News Letter*, 86:72 August 1, 1964

## TRANSPORTATION

**All-Purpose Vehicle Has 'Tread Full of Tires'**

► A STRANGE VEHICLE has been seen in Canada, moving along on back roads, swamps, snow banks and lakes.

Called the Fisher, it looks roughly like a large bathtub with a steering wheel and owes its mobility to two continuous rubber belts, each carrying eight soft rubber tires. The amphib will race along on land at up to 12 miles per hour, and at about three mph in the water.

The Fisher is designed more for miners, foresters and adventurous vacationers than for military use. It can climb grades of 50% or more, even on slopes of loose rocks, as well as move through the water. It is being built and tested by Canadair division of General Dynamics Corporation, Montreal, Canada, and will cost about \$2,700.

For very cold weather, the fiber glass vehicle is provided with an enclosed cab, heated by the engine.

• *Science News Letter*, 86:72 August 1, 1964

**IN SCIENCE**

## CONSERVATION

**Strip Mining Adversely Affects Aquatic Life**

► STRIP MINING for coal in an eastern Kentucky watershed is detrimental to fish and aquatic plants. The process changes the chemical quality of surface and ground waters, removes forest cover and increases stream-borne sediment, a report by the U.S. Department of the Interior's Geological Survey stated.

The report covers a five-year study of the effects of surface mining on the water, soils, forest and aquatic life of the Cane Branch Basin of Beaver Creek in McCreary County, Ky.

It can serve as a model for further efforts aimed at solving the complex problem of strip mining which "has become a matter of increasing concern to all people who are interested in the conservation of soil and water resources."

Under the leadership of three bureaus of the Department of the Interior, the Geological Survey, Bureau of Sport Fisheries and Wildlife, and Bureau of Mines, Interior scientists worked closely with those from the Department of Agriculture, the Department of the Army and the Commonwealth of Kentucky.

• *Science News Letter*, 86:72 August 1, 1964

## TECHNOLOGY

**Rubber Fuel Tanks Used In Racecars**

► FLEXIBLE FUEL TANKS made of rubber and nylon fit like a couple of bladders behind the side panels of the new Ford GT (Gran Turismo) racing car.

The specially-Ford-designed car, built by Lola Cars, Ltd. of England, has no space for a fuel tank in the usual location behind the rear axle. The fuel tank must share space with the body's structural members, and building metal tanks of the proper shape would be costly.

The rubber tanks, in addition to fitting readily in the irregular spaces available, are less likely to rupture at the seams from a collision than rigid metal ones. Also, repairs to a metal tank could be made only after removing the body panels. The flexible versions can be installed or removed through a relatively small opening.

It is unlikely that rubber fuel tanks will be used in passenger cars in the near future, a Ford official told SCIENCE SERVICE, primarily because it is much cheaper to use a rigid metal stamping. If the technique were used, he said, it would probably be in some sort of limited production sports car.

The 21-gallon rubber tanks, used in pairs, were designed by Goodyear Corporation in Akron, Ohio, for use in the three Ford GT's that will be raced throughout Europe and the United States.

• *Science News Letter*, 86:72 August 1, 1964

# CE FIELDS

## MEDICINE

### Measles Complications Found in One in 15 Cases

► MEASLES is not the mild disease that most people think it is. One in 15 cases in a British survey of 55,589 children and adults with measles last year suffered from a potentially serious complication, and 12 patients died.

Complications were found to be highest among infants and adults, with males and females usually showing no difference in effects.

Severe bronchitis or pneumonia was reported in 38 per 1,000 cases, the rate in infants being nearly twice that in older children.

Inflammation of the middle ear, otitis media, was the second most common complication, occurring in 25 per 1,000 cases.

Four in 1,000 had neurological disturbances, and one of these four had brain inflammation, encephalitis, or some other form of impaired consciousness.

Convulsions and other motor disturbances were more common in males than in females.

Medical officers in 47 large county boroughs scattered over England and Wales took part in the survey, which was 95% successful. Of the 55,589 cards sent to physicians, 53,008 were completed and returned.

Dr. D. L. Miller of the Central Public Health Laboratory, London, reported in the British Medical Journal, July 11, 1964, that late results of the more serious complications are also being studied and will be reported in the future.

Measles vaccines now offer a way to prevent measles with its danger of complications, but many parents and doctors still look on the disease as usually harmless, Dr. Miller said.

• Science News Letter, 86:73 August 1, 1964

## TECHNOLOGY

### Space Research Brings Dividends to Industry

► RESEARCH for space and the trip to the moon is paying dividends to industry in by-product "spinoffs."

Dr. Hugh L. Dryden, deputy administrator, National Aeronautics and Space Administration, told the American Management Association in New York that already these applications have resulted:

1. Boat builders will be able to use a two-nozzle spray gun, which was originally devised for painting the nose cones of space vehicles. As one nozzle sprays plastic coated resin, the second nozzle sprays a hardening solution, thus eliminating the problem of mixing the hardener and resin inside the gun.

2. Railway tank cars, weighing up to nine tons less than their steel counterparts, have

been constructed from new reinforced plastics, which resist heat and corrosion and absorb shock extremely well. These plastics are used to rocket cases and other components that must be both strong and light.

3. The newspaper industry will benefit from NASA's development of new types of chemical binders used in solid rocket fuels. These binders have led to the creation of improved, longer-lasting printing rolls for high speed presses.

4. NASA's need for neon gas to be used in work on a nuclear rocket engine has revolutionized the neon gas industry. NASA's order for more than 100,000 cubic feet of bottled neon gas brought about a new method of manufacturing it. The result has been mass production of neon and a price drop from about \$50 a cubic foot to about \$1.50.

These are only a few examples of the developments made specifically for the space program which have been adapted for industrial use, Dr. Dryden said.

• Science News Letter, 86:73 August 1, 1964

## ENGINEERING

### Time-Saving Devices Swamping Engineers

► THOSE NEW time-saving devices used in the electronics industry may be actually causing engineers to waste time.

An average of 40 new test and measurement instruments are put on the market each week. Thus, highly skilled engineers may soon be spending most of their time just trying to keep abreast of all the devices available to them, Walter Venghaus, president of Technical Information Corp., Glen Head, Long Island, N. Y., said.

A directory of electronic test instruments has 12,000 listings now, double the number in 1956.

• Science News Letter, 86:73 August 1, 1964

## AERONAUTICS

### Vertical Floats Put Seaplanes on Even Keel

► AN ODD-LOOKING SYSTEM of vertical pontoons or floats has been developed, which can keep a seaplane almost motionless in the water despite waves up to 10 feet high.

The floats, being developed for the Navy by General Dynamics/Convair, are large pointed cylinders, suspended from the wings and fuselage of the plane. The two under the wings are 40 feet long and four feet in diameter, while the two beneath the hull are 26 feet by five feet.

In a recent test, a Navy PBM-5 seaplane fitted with the floats sat calmly in the heavy seas off San Diego. It rode almost motionless in 10-foot waves, while in a seaplane stationed nearby with conventional floats for comparison, the crew became seasick from the pitching and tossing.

So far, tests have been confined to floats permanently fixed in position. A version has been suggested to the Navy, however, in which the floats will retract into the plane during flight and extend again after landing.

• Science News Letter, 86:73 August 1, 1964

## ENGINEERING

### Picturephone Developed For Commercial Use

► FUTURE COMMERCIAL use of Picturephones will depend largely upon public reaction, but already researchers are planning new improvements.

Picturephone, a service which enables a person to see the person to whom he is speaking by telephone, was inaugurated by a call from Mrs. Lyndon B. Johnson to Dr. Elizabeth A. Wood, a Bell Telephone Laboratories scientist.

A possible improvement would be in providing conference calls using three or more Picturephones, said William B. Cagle, researcher at Bell Telephone Laboratories, Holmdel, N. J., where this videophone system was developed.

"The only trouble is that a person using the phone would have to decide which of the other participants he wants to look at," Mr. Cagle said.

Another planned improvement is in the transmission of written material over the Picturephone. An adaptation would have to be developed to allow printed material to be seen more clearly on video, Mr. Cagle said.

Commercial Picturephone sets, for use by appointment, are now set up in three cities: Washington, New York and Chicago.

• Science News Letter, 86:73 August 1, 1964

## AGRICULTURE

### Beets and Spinach Thrive in Salt Water

► SOME VEGETABLES can grow in salty or brackish water.

In a crowded world faced with increasing difficulties of finding enough fresh water, positive results of growing certain fruits and vegetables in brackish water is good news.

Under the auspices of the U.S. Department of Agriculture Research Service, Beltsville, Md., vegetable growers in neighboring areas experimented with irrigating their crops with slightly salty water.

During a drought, farmers were able to save strawberries, snap beans and other vegetables that usually die when there is too much salt in the water. Such water can save the crops during an emergency, but is too salty for continuous use.

Brackish water accumulates in coastal inlets or creeks, in ponds bordering coastal marshes and from wells which have been contaminated by salt water. Bays, sounds and rivers also have salty water.

Certain vegetables can endure this brackish water better than others, report the soil scientists. For instance, garden beets, kale, asparagus and spinach have a "good tolerance," while radishes, celery and green beans are not able to live when irrigated with salty water.

The researchers pointed out that most vegetables are easily damaged as seedlings by the saline water, but as they grow older and stronger, their tolerance to salt increases.

• Science News Letter, 86:73 August 1, 1964