

## OCEANOGRAPHY

**New Underwater Craft Designed**

► A NEW UNDERWATER research craft may soon expose the secrets of the silent ocean depths.

Designed by the Swiss scientist, Jacques Piccard, the craft will open up new avenues of oceanographic research. Known as a mesoscaph, which means middle boat in Greek, the vessel can move both horizontally and vertically in the ocean waters.

Mr. Piccard said that the mesoscaph has many advantages over its predecessor, the bathyscaph. Besides its greater maneuverability, the mesoscaph allows better visibility and has more speed. The craft can penetrate to depths three times greater than conventional submarines.

Swirling propellers drive the steel-clad craft through the ocean depths. The craft quickly surfaces merely by shutting off the motors, and the air-filled "underwater helicopter" bobs back up to the surface.

Although the mesoscaph is still in the design stage, Mr. Piccard confidently believes the craft will be built in the near future, if enough funds are available. The bathyscaph, in which he and Navy Lt. Don Walsh submerged to record depths off the Philippine coast last year, was built entirely from voluntary contributions.

Mr. Piccard received an award in Washington, D.C., from Argosy magazine in recognition of his 1960 record-shattering feat. It was presented to him by Sen. Warren G. Magnuson (D-Wash), a leading advocate for a bill encouraging oceanographic research.

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## OPHTHALMOLOGY

**Trachoma Still Common In Southwest Indians**

► TRACHOMA is still a common eye disease among Pueblo and Navaho Indians, surveys reported in the Journal of the American Medical Association, 175:405, 1961, have shown.

Drs. John C. Cobb, Albuquerque, N. M., and Chandler R. Dawson, San Francisco, U. S. Public Health Service, who made the study, state that overcrowding and inadequate water supplies probably enhance spread of the virus-caused infection in homes and schools.

About 15% of 2,522 Pueblo Indians and 23% of 1,126 Navaho school children seen had the disease. Once the most common cause of blindness, trachoma can now be controlled by sulfonamide and antibiotics.

The division of Indian health of PHS is engaged in a control program of health education, early diagnosis and treatment of active cases.

Physicians will also be reading in their official journal that a new acetic acid solution (VosoL Otic) has produced "entirely satisfactory results" in 200 patients with "swimmer's ear," an inflammation of the outer ear caused by bacteria or fungi (p. 402).

Dr. Ben H. Jenkins, Newnan, Ga., who

reports the findings, states the solution had several advantages over antibiotics and other drugs. Some drugs may suppress the symptoms without curing the infection, whereas the use of sulfonamides and antibiotics can be followed by development of resistant bacteria.

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## ROCKETS AND MISSILES

**Unfurling Techniques Promise Bigger Antennas**

See Front Cover

► ONE OF THE GREATEST challenges in making unfurlable antennas for space vehicles is the development of techniques for folding and unfolding them.

These antennas, designed for operation in space, must be packaged in a small volume during vehicle launching and later be automatically inflated in space.

New unfurling techniques are expected to make possible larger antennas than have been considered practical before. Using the pressure techniques, the antenna is inflated like a balloon. The Mylar and aluminum foil antenna balloon, seen on the cover of this week's SCIENCE NEWS LETTER, was designed by Lockheed Missiles and Space Division, Sunnyvale, Calif.

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## MEDICINE

**Bacteria Trigger Asthma In Persons With Colds**

► PERSONS WHO GET "a dollar's worth of asthma for every nickel's worth of a cold" suffer an allergic reaction to ever-present bacteria that run wild when a cold strikes.

Dr. Stanley F. Hampton, director of the allergy clinic at Washington University School of Medicine, St. Louis, Mo., told specialists attending the American Academy of Allergy in Washington, D. C., that what they have suspected for some time is true: Cold-associated asthma attacks are, in many cases, a true allergy to an organism.

For the first real test of this theory, Dr. Hampton chose a bacterium, *Neisseria catarrhalis*, that inhabits the noses and throats of most persons, but usually causes no trouble. Large quantities of this organism were grown, jiggled to pieces with sound waves and filtered. The filtrates, containing bacterial antigens, were sprayed into the respiratory tracts of patients susceptible to the cold-asthma phenomenon. In most of the 16 patients, asthma attacks occurred within three to 30 minutes. All but two had an attack within six to eight hours. No attacks occurred in the controls.

The reason the allergy and the asthma come to the fore only when a cold strikes, Dr. Hampton believes, is that the bacteria are normally not present in large enough quantities. The excess moisture and associated conditions produced by the cold virus, however, probably cause a drastic upsurge in growth of the bacteria. More bacteria mean more reaction—the asthmatic attack.

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**IN SCIEN**

## GENERAL SCIENCE

**Top Young Scientists Plan Future Careers**

► THE PROSPECT of dedicating a lifetime to learning and working in the scientific disciplines is intensely appealing to the young Americans best qualified to become the productive scientists of the future.

Physics, medicine and teaching top the list of future careers planned by the year's most promising teen-aged scientists, the 399 members of the recently announced Honors Group of the Science Talent Search.

One-fifth of the group, 80 of them, look forward to joining the ranks of the nation's physicists. Five of these 80 future physicists are girls.

The medical sciences have attracted 17% of these outstanding high school seniors, with 47 boys and 21 girls planning on medical practice or research in medicine.

The grave problem of where to find top quality teachers may be brightened by the news that 12% want to teach. It is especially heartening to know that these future high school and college teachers include twice as many boys as girls, 34 boys and 15 girls.

The biological sciences have claimed the interest of 9% of the group, and engineering specialties another 9%. Chemistry comes next with 8%, followed by mathematics and computer science with 6% and general or interdisciplinary research with 6% also.

Other fields that can look forward to some new recruits include philosophy, sociology and anthropology, architecture and nursing. One young man thinks business administration will be his forte. Four of the Honors Group are deferring any decision on career training.

The annual Science Talent Search is conducted by Science Clubs of America (SCIENCE SERVICE) and is supported by the Westinghouse Educational Foundation.

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## MINERALOGY

**U. S. Mineral Production Leads Communist Bloc**

► THE UNITED STATES and the Free World held a commanding lead in mineral production for 1959, the U. S. Bureau of Mines reported. The U. S. still leads the world in producing 21 important mineral commodities, whereas the Communist countries lead in only 10.

Although the Communist gains were less impressive than in previous years, the Sino-Soviet bloc did make substantial advances when compared with the 1953 production record. The large gains in the Communist sector were in the heavy industries.

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# CE FIELDS

## OCEANOGRAPHY

### Oceanic "Inner Space" Research Spotlights

► THE SPECTACULAR results achieved in the race to conquer outer space overshadow an unusual interest now generating in regard to "inner space"—the oceans.

The need for oceanographic research is continually being echoed by Congressional committees, the military and scientists. President Kennedy emphasized the need in both his Inaugural Address and State of the Union message.

Various reasons, both practical and scientific, have been given from different quarters on why the United States' scientists should study the ocean depths. Military men point out the vulnerability of the United States to marine attack, whereas scientists stress the ocean's rich resources and its effect on weather.

With the world's population continually mushrooming, man is now turning to the ocean to harvest its rich food crop. By learning more about the seas around us, the productivity and fertility of the sea may be increased.

The military and scientific results are difficult to separate because they are so interrelated, Jacques Piccard, noted Swiss scientist, told a Senate committee in Washington, D. C. Some of the oceanographic data would definitely have military applications, he said.

He also pointed out that the Russians rate their ocean research second only to their space program in importance.

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## PSYCHIATRY

### Leadership Is Needed, Not Dependence on State

► THE INDIVIDUAL should be encouraged to do more for and by himself and not to depend on a paternalistic state, the American Group Psychotherapy Association, Inc., has been told.

Challenging the "proffered remedies" of Prof. J. Kenneth Galbraith, Harvard University economist who wrote *The Affluent Society*, Dr. Iago Galdston of the New York Academy of Medicine said group therapists can give needed leadership to make man's future secure.

Cultural world tensions, he said, are as common to the East as to the West, to the underdeveloped countries as to those that reputedly have reached the "Affluent State."

"Prof. Galbraith," he said, "has well described the richness and variety of our means. He also has shown how meanly we use our wealth."

But, Dr. Galdston said, "I do not entirely accept his proffered remedies. They would further extend individual dependence

upon the paternalistic state. . . . To my mind the things that count in the ultimate, most in the ultimate be worked for and attained by the individual."

Traditionally, he said, psychiatry is concerned with the psychic conflicts of the individual, not with his cultural environment.

In insisting that psychoanalysis offers no world view or philosophy, Freud was right, Dr. Galdston said. But psychoanalysts cannot be indifferent to how much the cultural climate affects for good and ill the mental and emotional life of all whom it embraces.

Those involved in group therapy, he said, are even more favorably placed to give needed leadership than are the other members of the psychiatric brotherhood.

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## ROCKETS AND MISSILES

### Seven-ton Sputnik V Soars in Low Orbit

► A HEAVYWEIGHT Sputnik V satellite, weighing 7.1 tons, has been launched to test a new multi-stage rocket. Radio telemetry and trajectory tracking equipment is reported to be operating, by the Soviet Embassy in Washington, D. C.

According to American satellite experts, the orbit of a satellite only 138.75 miles from earth at its closest would change rapidly. Its estimated lifetime is about a week before it gets pulled into a circular orbit at this close distance and then passes into the earth's atmosphere where it will burn up.

The National Space Surveillance Control Center at Bedford, Mass., is tracking the satellite. Its 100 stations are receiving information, the nature of which has not yet been made public.

The radio signals are being monitored at about 20 megacycles, the wide-band frequency generally used by the Soviets.

The National Aeronautics and Space Administration's Minitrack stations have also been alerted. Only one signal has been picked up on the 20-megacycle band, a NASA official said. The station at East Grand Forks, Minn., "heard something." But what came over was neither loud nor clear enough either to verify or refute reports from Italian radio monitors who claim they heard human groans and code-like signals.

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## TECHNOLOGY

### Nuclear Power Plant Slated for Antarctica

► THE FIRST NUCLEAR power plant in Antarctica will begin operating in March, 1962.

The plant, built by the Nuclear Division of the Martin Company, will be shipped next November from the United States to McMurdo Sound for installation, J. Donald Rauth, general manager of the Nuclear Division, reported. It will be the first permanent structure built on the Antarctic continent.

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## METEOROLOGY

### Weather Forecasting Aided by Satellite

► STORMS CAN NOW be forecast much quicker from pictures taken by weather satellites.

Cloud formations that show certain patterns when a storm begins are clearly indicated in photographs taken from Tiros I, U. S. Weather Bureau meteorologist Vincent J. Oliver told the American Meteorological Society meeting in New York. The cloud formations, or cyclonic patterns, are tracked over large areas by the weather satellite.

The photographs from weather satellites fill a gap in the weatherman's knowledge of weather forecasting, the scientist said. For the last 30 to 40 years, scientists have been searching for ways of observing storms in their entirety.

Prior to Tiros I, surface and airplane observations provided very localized or patchy information of storm patterns. With the photographs from Tiros I and its successor Tiros II, scientists can now confirm many of their ideas about the formation of storms.

Mr. Oliver predicted that the first operational weather satellite will be transmitting weather information sometime in 1962. This satellite will be part of a scheduled world-wide satellite network for weather forecasting.

The satellite will house more sophisticated instruments than those in Tiros I and II. Besides a better and bigger TV camera, the new satellite will also contain infrared cameras capable of transmitting information back to earth immediately, 24 hours a day. Information from the infrared cameras now used takes three to four months before scientists can analyze the data.

Tiros III, the third and last of the experimental weather satellites, will be launched this year. Tiros I and its sister satellite, Tiros II, served as test vehicles for the future weather satellite network, according to the meteorologist.

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## TECHNOLOGY

### Revolutionary Compact Transformer Developed

► A TRANSFORMER design may revolutionize the distribution of electric power to the nation's consumers.

Developed by General Electric, the new unit is the first distribution transformer designed in 75 years that does not use oil in significant quantities for cooling and insulating.

By eliminating this fire hazard, the transformer can be mounted on a house or garage wall. The unit can also be buried in the ground or used in mines where moisture and other similar problems are constant threats.

The new transformer will replace the bulky ones now attached to pole tops. Trial units will be installed in selected homes throughout the country this year.

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