



ASTRONAUT SEAT FOR SPACE LANDINGS—Built to withstand 60 g's.

pected to follow—sometime between 1975 and 1980. The younger generation of today will take an active part in such flights, Dr. Koelle predicted.

He said the following developments could contribute to cheaper space transportation:

1. Increased size of launch vehicles.
2. Increased reliability of launch vehicles.
3. Multiple use of each launch vehicle.
4. Increased performance of propulsion systems.
5. Eventual use of extraterrestrial resources.
6. Increase of available economic resources.
7. Increase of space activities in general.

• Science News Letter, 80:267 October 21, 1961

Life Support Systems

➤ **NO MAJOR TECHNOLOGICAL DEVELOPMENTS** will be necessary to meet the life support requirements for the next generation of manned spacecraft, a physician and an engineer reported to the American Rocket Society in New York.

Dr. James N. Waggoner, health director of the Garrett Corporation, Los Angeles, and project engineer William L. Burriss, also of the Garrett Corporation, said they have concluded that certain changes should be made in environmental control systems in order to meet man's physiological requirements for extended trips in space.

The scientists reported a mixed gas atmosphere rather than 100% oxygen would be preferable. They suggested a mixture of oxygen and nitrogen be used. The "atmospheric" fluids could be stored on the space ships at extremely low temperatures (at about minus 400 degrees Fahrenheit) in smaller and therefore lighter containers because these fluids contract when cooled.

The scientists also recommended that a space radiator with an ethylene-glycol-water mixture be used for removing heat from the astronaut's cabin. This would reduce the amount of evaporation on the skin and cut down the astronaut's water requirements.

These changes would make the longer space trip possible, using chemical power

systems such as hydrogen-oxygen fuel cells or hydrogen-oxygen dynamic heat engines.

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Seat for Space Landings

➤ A SEAT designed to protect an astronaut from pressures up to 60 times his own weight, during space landings, was described at the American Rocket Society meeting in New York.

The safety device was reported by W. C. Boyce and H. E. Freeman of the Chance Vought Corporation, Dallas, Tex. Developed for the Air Force, it will be tested first with dummies and later with men.

The seat includes a fiberglass "jacket" to protect the body and an "apron" for the legs. The device could also be used in military aircraft for crash landings or in automobile and aircraft accidents in which the high gravitational forces of 60 g's occur.

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SPACE

Zero-Gravity Cell Makes Oxygen for Use in Space

➤ A ZERO-GRAVITY electrolytic cell, capable of producing oxygen under the weightless conditions of space flight, has been developed by scientists at Battelle Memorial Institute, Columbus, Ohio.

Standard cells depend on the pull of gravity on the electrolytic solution to separate water into hydrogen and oxygen. The new experimental cell, however, defies natural gravity. The centrifugal force produced by rotation acts as an artificial gravity field.

In space, the cell could be used with another Battelle-made device that chemically changes carbon dioxide in an astronaut's breath into carbon and water. This device can use the hydrogen produced by the cell, while the cell uses the water to produce more breathing oxygen. Together, the two could create a livable atmosphere in a spacecraft for a two-year flight, with no supplemental oxygen supply needed.

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RADIO ASTRONOMY

Biggest U.S. Radio "Dish" Installed in California

See Front Cover

➤ AMERICA'S BIGGEST radio telescope "dish," 150 feet across, has been installed on Stanford University campus, Stanford, Calif.

The steel and aluminum parabolic antenna, seen on the cover of this week's SCIENCE NEWS LETTER, will be used for radar and radio explorations of the solar system before the end of the year.

The \$350,000 dish was designed and built by Stanford Research Institute with support of the Air Force Office of Aerospace Research and the Defense Atomic Support Agency. It is the first of three such radio telescopes planned for the U. S.

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PUBLIC HEALTH

Disaster Medical Care

► MEDICAL SELF-HELP training useful in any disaster situation will soon be offered to the American people. Whether or not present nuclear war dangers continue, free instruction will be provided by medical and health specialists for possible use in shelters all over the country.

Aimed at teaching families how to survive a national emergency, a student handbook of 12 lessons has been prepared along with an instructor's guide to be used by persons trained under doctors' supervision.

Dr. Carruth J. Wagner, chief, division of health mobilization, U.S. Public Health Service, and Dr. Frank W. Barton, secretary of the American Medical Association Committee on Disaster Medical Care of the Council on National Security, supervised the compilation of the training material. They will help initiate three nationwide workshops this fall and winter to introduce the lessons.

The first workshop was at Sheepshead Bay, Brooklyn, N.Y., Oct. 16-19. The other two will be at Alameda, Calif., Nov. 19-22, and at Battle Creek, Mich., Dec. 4-7.

Approximately 100 professional health leaders will be oriented at these workshops. They will obtain training kits and return to their states to develop state programs.

Simple health lessons such as how to get rid of cockroaches and bedbugs will be

taught along with the less familiar techniques of caring for people and handling objects covered with radioactive dust.

How to deliver a baby; to immunize against such diseases as smallpox, diphtheria, tetanus, whooping cough and poliomyelitis; to care for various types of burns, are among the lessons.

The always useful techniques of artificial respiration, both mouth-to-mouth and the back-pressure arm-lift method, will be taught, along with methods of stopping bleeding, how to bandage wounds and take care of persons in shock.

Fractures and splinting, how to transport the injured and other techniques one needs

PUBLIC HEALTH

Gains in Latin America

► A DROP in the number of reported cases of six major diseases in Latin American countries was reported at the annual meeting of the Pan American Health Organization's directing council in Washington, D. C.

Dr. Abraham Horwitz, council secretary and director of the Pan American Sanitary Bureau, listed leprosy, yellow fever, tuberculosis, polio, malaria and yaws as occur-

ring less frequently.

Dr. David M. Benford of White Plains, N.Y., represented the American Medical Association as leader of the workshop held in Brooklyn. Invited to participate were representatives of the American Hospital Association, the American Dental Association, the American Pharmaceutical Association, along with public health officials and nursing personnel, all of whom are cooperating in getting the medical self-help training under way.

No date has been set for the country-wide schedule of courses but the P.H.S. division of health mobilization said classes should begin this winter.

Each state is expected to establish a medical self-help committee to supervise the program and use of the training material.

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ZERO GRAVITY CELL—An electrolytic cell produces oxygen for space travel independent of natural gravity. The bottles demonstrate production of hydrogen and oxygen within the cell. (See story opposite page.)

He also said that distribution of Incaparina, a low-cost health food developed by the Institute of Nutrition of Central America and Panama (INCAP), has helped enrich the diet of poor families in Central America.

Incaparina is made from corn meal, sorghum, cottonseed flour and yeast. As a substitute for milk in the diet, it is particularly effective against malnutrition in children. The daily cost per child is about four cents.

A locally grown base food other than corn can be substituted in areas where corn is not available.

The council is comprised of health authorities from the United States and 20 other American republics, along with France, the Netherlands and the United Kingdom on behalf of their territories in the Americas.

The organization will have a \$13,178,869 budget in 1962, a 7.9% increase over the 1961 figure. The money will be used to assist American republics with 303 health projects—49 more than the number carried out in 1961.

Funds come from quota assessments to member states, United Nations technical assistance allocations, the World Health Organization, and other sources.

Next year's plans include more work on malaria eradication, nutrition, and improving community water supplies.

Better statistical services to make planning less difficult and better health legislation are major needs in Latin America, Dr. Horwitz said. He pointed out that a 2.6% increase in population has not been accompanied by a proportional increase in economic resources and personnel to meet health needs.

He said the member states have made a significant contribution by recognizing that public health is a basic component of economic and social development.

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