

OCEANOGRAPHY

Urge Oceanographic Aid

Oceanographers recommend international cooperation in marine sciences and point out the need for ocean research and conservation of marine resources.

TOP OCEANOGRAPHERS have urged the United States to give full support to international cooperation in the marine sciences. The ultimate oceanographic goal, they said, should be a planned survey of all the world's oceans.

Such a survey would require about 40 ships operating during a ten-year period making measurements along lines five miles apart. Additional ships would be needed to measure physical, chemical and biological contents of the oceans. Only cooperation among the major maritime powers could accomplish this task.

International cooperation is also needed for such efforts as the planned combined assault on the Indian Ocean which is the largest unexplored area on earth, the location and utilization of fishing grounds, the search for mineral resources on the ocean bottom, and the regulation of submarine operations.

Adoption of regulations to prevent pollution of the sea by radioactive waste material and the seemingly paradoxical use of radioactive tracers to study currents and diffusion in the deep sea also require concerted efforts.

The Committee on Oceanography of the National Academy of Sciences-National Research Council urged the Government to go all out to support world-wide cooperation. The latest chapter of its report on the next ten years in oceanography contains six specific recommendations toward this end.

The Committee urges the United States

to "give its proportionate share" of financial, estimated at perhaps \$20,000 a year, and other support to the Special Committee on Oceanic Research of the International Council of Scientific Unions. ICSU is the world's principal institution for international cooperation at the non-governmental level.

The Committee also recommends calling an inter-governmental conference of marine countries to discuss ways to cooperate in increasing man's knowledge of the oceans. This conference should be a first step toward establishment of a World Oceanographic Organization, to be a specialized agency of the United Nations.

The State Department, the Committee says, should be prepared to assist research ship operations and the exchange of information, persons, equipment and supplies. Similarly, the International Cooperation Administration, in its programs of technical assistance, should give greater emphasis to marine resources surveys and to research ship operations and training programs in the marine sciences.

Other recommendations included the seeking of grants from foundations and governmental sources to support special projects, and Government support in the establishment and support of regional international organizations for the study and conservation of the living resources of the sea.

Science News Letter, September 12, 1959

ASTRONAUTICS

Space Fuel Economized

Using energy belts in space, such as the Van Allen radiation belt, scientists hope some day to obtain free fuel for space travel.

SPACESHIPS SOME DAY may "cruise almost indefinitely on free space fuel."

This was described in a Report of the House Committee on Science and Astronautics as "perhaps the most imaginative idea of all" concerning present and future space propulsion methods.

It would involve charting and using plasma or energy belts found in space. Such an energy belt exists around the earth, the Van Allen radiation belt, named after the Iowa State College physicist who discovered it. Data on the Van Allen belts have been gathered by instruments in several Explorer satellites.

Such an idea lies outside the two cate-

gories into which the Committee classified space propulsion programs.

The first grouping, achievable in five years, included improving the chemistry of liquid and solid propellants. Theoretically, the energy-carrying capacity of these fuels can be upgraded 50%, the Committee said.

The second grouping, in which the "problem" will be defined in about five years and solutions may begin to appear in ten, includes harnessing nuclear and electric power. A less-conventional propulsion system might use free radicals—highly reactive parts of broken molecules.

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NUCLEAR SCROLL — In stainless steel spiraling ducts, like the one above, heat from a nuclear reactor is collected and pushed through a jet engine. Tests using these engines (General Electric X-39) have been made at the Atomic Energy Commission's site at Idaho Falls, Idaho.

ASTRONAUTICS

Soviet Lunar Rocket Aimed to Hit Moon

THE SOVIET MOON rocket, now in permanent orbit around the sun, was aimed to hit the moon, not merely to come close.

This is the conclusion of the staff of the House Committee on Science and Astronautics, based on a survey of all available evidence and ten hearings at which space experts testified in public and private sessions. The staff report summarizes findings on the first moon rocket, now called Mehta for "dream," which was launched Jan. 2, 1959.

The evidence that Lunik, as it was first named, was intended to hit the moon is circumstantial, not direct. The payload included equipment for measuring the moon's radioactivity and magnetic field. Such experiments could not be carried out at any great distance from the moon, but for all practical purposes assume a lunar impact.

The payload also included metal tapes and a sphere with Soviet inscriptions. The report concludes that these were intended to support a territorial claim by symbolic occupation of the moon. The sphere was inscribed, "Union of Soviet Socialist Republics. January—1959—January," as were the pennants.

The report also emphasized again Soviet progress in space technology, and the efforts that must be made by the United States to catch up with Russians.

The report, "The First Soviet Moon Rocket," was prepared by the Committee's special counsel, Spencer M. Beresford, in collaboration with Dr. Charles S. Sheldon II, technical director.

Science News Letter, September 12, 1959