

TECHNOLOGY

U.S. Can Send Up "Moon"

For two years the United States has had the power and equipment necessary for placing an object in orbit around the earth. It could be done now.

► THE UNITED STATES is capable of launching a lightweight, but large, plastic satellite with a week's notice, using rockets, fuels and engines that have been in use more than two years, an authority on missile fuels and engines has told SCIENCE SERVICE.

Dr. H. W. Ritchey, technical director of the rocket divisions, Thiokol Chemical Corporation, Trenton, N. J., and assistant manager of Thiokol's Redstone Division, Huntsville, Ala., also said the Russians could have launched their sputniks with existing fuels and engines.

The rocket propulsion expert said an 80-pound fourth stage carrying a 15- to 20-pound brightly colored plastic bag could be added to existing Lockheed X-17 high acceleration test missiles. Solid propellant engines for several launchings are on hand and the fourth stage addition could be almost a routine task.

The satellite would contain no instruments, but would merely be a brightly-colored sphere six to 12 feet in diameter to show the world the United States has the rockets and power to place an object into a satellite orbit, and "has had the equipment and know-how to do it for the past two years."

The X-17 missiles have been in use as vehicles for testing atmospheric re-entry characteristics of rocket nose cones and structural materials. Dr. Ritchey said the only major engineering job to be performed before using an X-17 as a satellite vehicle would be in modifying an existing guidance and releasing system to be placed in the fourth stage.

"Assuming one of the several systems could be modified for the job, and depending on where the appropriate engines are now stored, there is no reason to believe we could not launch a plastic satellite very shortly, probably within a week," Dr. Ritchey said.

The rocket authority believes such a plastic sphere could make several trips around the world. It would not be able to carry instruments because of the X-17's extremely rapid acceleration.

"If we had launched a plastic satellite one or two years ago, it would have helped us greatly in international politics, but now I believe it would be too late," the rocket expert said. He added that he had talked about the proposed project with scientific colleagues "on the working level in the satellite program" several times, but never offered it at higher levels for serious consideration.

Dr. Ritchey said existing fuels and engines, in both Russia and the United States, are more than sufficient for satellite purposes; however, "a super fuel would make the job easier."

Estimates based on present fuel chemistry indicate that sputnik I, together with its vehicle and fuel, weighed 185,000 pounds at the time of its launching and the sputnik II probably weighed "in the neighborhood of a half million pounds."

"It is not unthinkable that present solid propellants powered the sputnik II, and I believe our technology in this country would allow us to launch a half million pounds also without getting into new fuel and engine concepts," Dr. Ritchey said. He added that the Russians are "cheating a little bit" in pointing with pride to the large pay-load of the dog-carrying sputnik II, "since the housing for the dog is probably part of the third stage and should not be counted as all pay-load."

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GENERAL SCIENCE

Without Drastic Action U.S. May Become Colony

► THE UNITED STATES may be reduced to the status of a colony unless it and its allies "make drastic progress in technology during the next decade." This was the warning voiced by Dr. Howard L. Bevis, chairman of the President's Committee on Scientists and Engineers.

"The world is now in the throes of a great scientific revolution. This revolution

is profoundly changing the world we live in," Dr. Bevis told a meeting of high school principals and guidance directors at Wentworth Institute, Boston, Mass.

"The shape of the world of the future will be largely determined by the manner in which we exert our utmost efforts to lead that scientific revolution. It is my deep conviction that unless the United States and her allies make drastic progress in technology during the next decade, the Free World will eventually decline to the status of industrial, political and cultural colonies."

Dr. Bevis charged that "whether we like it or not" we are in a technological race with Russia; a race in which "our whole way of life" is at stake.

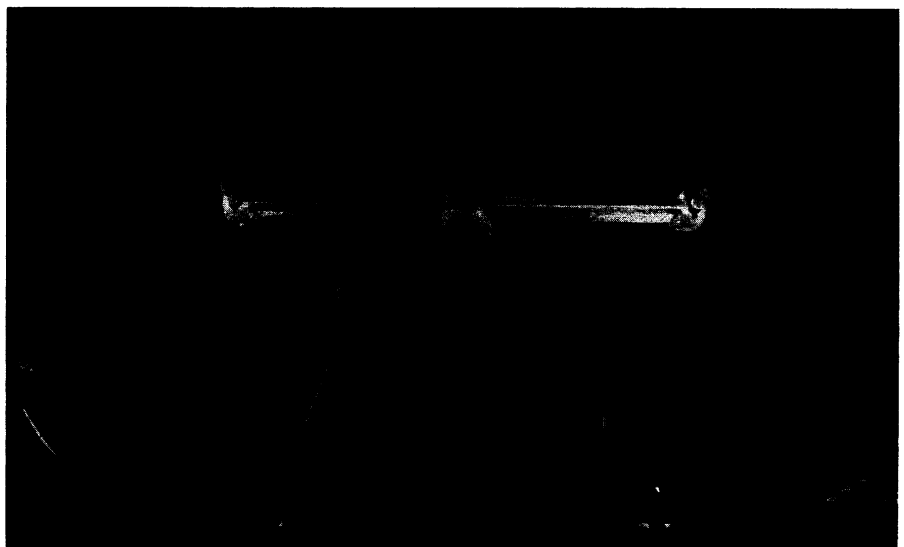
Pointing out that the Russians are mass-producing quality scientists and engineers, Dr. Bevis said the challenge can be met only by stepping up our own production of highly qualified scientists and engineers.

Technicians, described by Dr. Bevis as relatively new members of our industrial team, have become very important members of engineering and scientific teams in all phases of research and development. Therefore, he said, modernized technical training has a new and growing importance in American education.

The Government's top scientific manpower adviser offered four courses of action that must be taken in the scientific revolution:

1. Communities must improve the quality of instruction in the elementary and high schools.
2. Industry, labor unions, service clubs and community organizations must help.
3. Talented boys and girls must receive special provision.
4. Principals and guidance counselors must be aware of both the need for technologists and the rewards of science professions.

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FLEXIBLE FLYER—Bell Helicopter Corporation's XV-3 convertiplane is shown mounted in the full-scale wind tunnel at the Ames Laboratory of the National Advisory Committee for Aeronautics, Moffett Field, Calif. For landings and take-offs its rotor-propellers are perpendicular to the wing; when airborne, and after conversion air speed is attained, the rotors tilt forward 90 degrees and the craft operates as a conventional airplane.