

## ROCKETS AND MISSILES

# Rosy U.S. Space Picture

► SCIENTISTS from the National Aeronautics and Space Administration presented a glowing picture of this nation's future achievements and profits in space before the Senate Committee on Astronautics and Space Sciences. But the sad fact is that the United States cannot match present Soviet space capability until 1964.

U.S. excursions to Venus and Mars are not scheduled before that time, Dr. Abe Silverstein, director of NASA's office of space flight programs, told the Committee. But in the very near future an active repeater satellite program will both improve communications and cut down costs.

These satellites will be stabilized at a distance of 2,000 miles from earth so that they will orbit every 24 hours at the same rate as the earth.

Such satellites will be equipped to amplify messages sent from earth and relay the amplification back to earth at frequencies which can avoid blackouts that now occur

in all radio communications during periods of unusual solar activity.

Better weather information also will be available in the near future because of this nation's success with meteorological satellites, Dr. Silverstein said.

However, apart from practical applications, the ultimate scientific aim of all space exploration is directed at probing the secrets of the universe. Aimed at this goal are NASA's plans for orbiting solar, geophysical and astronomical laboratories. The solar launch is scheduled for this year and will carry a satellite of 380 pounds out into space with instrumentation designed to report back to earth on earth-solar relationships.

One of the aims of the civilian space program is to help other nations participate in upper atmosphere research. Those countries getting space aid from NASA include Italy, Canada, Great Britain, France, Japan, Norway, Sweden and Argentina.

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speech between members of competing countries in large numbers."

These highly talented young scientists are not only aware of such problems, but are also preparing themselves to contribute to productive solutions.

Answering a question concerning their personal goals for the future, they mentioned plans to "be instrumental in the re-uniting of the arts and sciences, because of the widespread and deleterious effects of their present lack of communication"; to "make some contribution toward a successful integration of electronics and computers on one hand and medicine on the other"; and to "make an advancement in preventive medicine, correlating genetic inheritance of certain physical or chemical characteristics with the genetic inheritance of susceptibility to specific diseases."

They find basic questions very challenging in such fields as magnetism, gravity, electric charges, matter and energy; the integration of biological and physical sciences; the interactions of behavior, physiology and evolution; and cell structure. They are eager to join the search for answers.

A strong feeling of personal obligation to pass along knowledge and enthusiasm for science by teaching at some time in their careers is detectable in many comments of these young people. The teachers of these outstanding students apparently have left a shining mark upon their future aspirations.

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

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## GENERAL SCIENCE

# Young Humanitarians

► THE BEST of the coming generation of scientists are humanitarians as well as scientists, actively concerned with the deprivations of hunger, pain, ignorance and poverty among the peoples of the world.

Asked what single scientific discovery they considered most important, the 40 winners of the 20th Science Talent Search, all of them high school seniors, emphasized the development of new sources of cheap and abundant power and food supplies, cures for disease, unification and communication between scientific disciplines and people, and breakthroughs in understanding the most basic laws of biology, mathematics and the physical sciences.

Sources suggested for abundant power at very low cost included more efficiently controlled hydrogen fusion, solar electricity, deuterium from the oceans via controlled fusion, and atomic batteries.

Cancer, arthritis, birth defects and degenerative diseases of old age head the list of medical problems mentioned as being most important.

Comments made by these young persons included:

"The new science discovery most needed by the world today is a method of simplifying and reducing the cost of synthesizing our drugs. Some discovery is needed which will permit laboratories in other countries not as well equipped or endowed as America's to produce large quantities of the drugs needed to cure the ailments of their populations."

"The improvement of mankind's use of the tremendous progress of the last 50 years would mean extensive further development in the social sciences."

"Three essential discoveries are a process

for the production of foods at high efficiency from ocean plants; a contraceptive device, acceptable to all major creeds, for stemming the population explosion, and a system of communication cheap enough and powerful enough to make possible world-wide



**WINNERS MEET PRESIDENT**—At the White House President Kennedy and Vice President Johnson talked science with the 40 winners of the Science Talent Search (See p. 166).