MILITARY SCIENCE

National Defense Message

This nation is armed not for war but for peace and the prevention of war, President Johnson emphasized in his message to Congress on the state of national defense.

➤ IN A SPECIAL MESSAGE to Congress on defense, President Lyndon B. Johnson disclosed plans to develop a new submarine-carried ballistic missile with twice the destructive power of the Polaris.

The new missile system, called the Poseidon, with its increased accuracy and flexibility will provide added protection against enemy attack, the President said.

A new Short Range Attack Missile (SRAM) that can be deployed with the B-52 or other bombers was also described by the President. This missile will be winged, a vast improvement over existing systems.

He said that "for the past four years, the focus of our national effort has been upon assuring an indisputable margin of superiority for our defense" and that the effort has succeeded.

He further stated that our basic strategy is one of strength and readiness and that "our allies trust our strength and our adversaries respect it."

The President outlined these ten basic defense policies:

1. "Four years ago, President John F. Kennedy stated to the Congress and the world, 'The primary purpose of our arms is peace, not war.' That is still their purpose. We are armed, not for conquest, but to insure our own security and to encourage the settlement of international differences by peaceful processes.

2. "The strength of our Strategic Retaliatory Forces must deter nuclear attack on the United States or our Allies.

3. "The strength, deployment and mobility of our forces must be such that, combined with those of our allies, they can prevent the erosion of the Free World by limited, non-nuclear aggression.

4. "While confident that our present strength will continue to deter a thermonuclear war, we must always be alert to the possibilities for limiting destruction which might be inflicted upon our people, cities and industry—should such a war be forced upon us.

5. "Our military forces must be so organized and directed that they can be used in a measured, controlled and deliberate way as a versatile instrument to support our foreign policy.

6. "America will continue to be first in the use of science and technology to insure the security of its people.

7. "Our soldiers, sailors, airmen and marines, from whom we ask so much, are the cornerstone of our military might.

8. "Our citizen-soldiers must be the best organized, best equipped reserve forces in the world. We must make certain that this force, which has served our country so well from the time of the Revolution to the Berlin and Cuban crises of recent years keeps pace with the changing demands of our national security.

9. "The Commander-in-Chief and the Secretary of Defense must continue to receive the best professional military advice available to the leaders of any government in the world.

10. "We will strengthen our military alliances, assist freedom-loving peoples and continue our Military Assistance Program."

He estimated the defense expenditures for fiscal year 1965 to be about $49.3 billion, or approximately $2 billion less than fiscal 1964.

• Science News Letter, 87:67 January 30, 1965

General Electric

HONEYCOMB—Scientists Gerald E. Reinker and Henry G. Richardson peer at each other through a 3,000-pound fused quartz mirror produced by General Electric Company.

ASTRONOMY

Largest Fused Quartz Mirror for Observatory

➤ THE WORLD'S LARGEST fused quartz mirror blank has been contracted for and will be installed at Kitt Peak National Observatory near Tucson, Ariz. The telescope will be the second largest in the United States.

The Association of Universities for Research in Astronomy (AURA) has awarded the contract for making the huge mirror blank to General Electric Company, Cleveland. It will be 151 inches in diameter, 22 inches thick and weigh 32,000 pounds.

Delivery date to Kitt Peak National Observatory is set for June, 1966. The observatory is operated by AURA under a contract with the National Science Foundation for basic astronomical studies.

Large astronomical mirrors have previously been made of heat-resistant glass. However, because fused quartz is considerably less sensitive to temperature changes, it was selected for the 151-inch mirror.

• Science News Letter, 87:67 January 30, 1965

ASTRONOMY

Distance to Moon Measured By Radar

➤ TO REACH THE MOON, rockets must travel 238,866.16 miles, or 384,400 kilometers.

The mean distance to the moon was measured by scientists at the Naval Research Laboratory by bouncing radar waves from the lunar surface. It varies from 221,463 miles to 252,710, depending upon the moon's position in orbit.

Based on this distance, which is accurate within seven-tenths of a mile, the scientists found that the radius of the earth at the equator is 3,963.393 miles or 6,378,167 meters.

The radar measurements were made during a period of several months by Drs. B. S. Yaplee, S. H. Knowles, A. Shapiro and K. J. Craig. Dr. Dirk Brouwer of Yale University Observatory collaborated in the research.

• Science News Letter, 87:67 January 30, 1965

ASTRONOMY

Space Telescopes To Scan for Rays

➤ A SERIES of telescopes, to be launched into outer space beginning early next year, will be more than just powerful extensions of man's eyesight—they will scan the heavens for ultraviolet light, as well as X-rays and gamma rays.

The Orbiting Astronomical Observatories, (OAO's), will each weigh nearly two tons, which includes about 1,000 pounds of scientific equipment. The first in the series will scan for ultraviolet light, said Donald Imgram, project engineer for Grumman Aircraft Engineering Corp., Bethpage, N.Y., builder of the OAO's. OAO-I will be placed in a circular orbit, 500 miles above the earth.

The second in another "OO" series, the orbiting solar observatories, is getting ready for launching. The OSO-II has at least one significant improvement over its predecessor, which worked well for 69 days in 1962, and continued to transmit data for two years. OSO-II has a device that will allow its cameras to scan the whole solar disc, instead of just the center of the sun. In addition, the satellite will be able to collect 20 times as much data as OSO-I, said Dr. R. C. Mercure Jr., of Ball Brothers Research Corp., Boulder, Colo.

Both Mr. Imgram and Dr. Mercure addressed the conference on Military and Civilian Uses of Aerospace in New York, sponsored by the New York Academy of Sciences.

• Science News Letter, 87:67 January 30, 1965