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## Polaris Submarine Program Is Ending Today

By HANSON W. BALDWIN

The end of a naval construction program that has revolutionized sea power and changed the dimensions of strategy will be marked today in a ceremony at Groton, Conn.

Mrs. Hubert H. Humphrey, the wife of the Vice President, will christen, at the yard of the electric Boat Division of the General Dynamics Corporation, the 41st and last of the nation's Polaris ballistic missile submarines.

The launching culminates an eight-and-a-half-year construction program that has mated nuclear-powered submarines capable of indefinite submergence, to 2,500-mile missiles with nuclear warheads capable of devastating any area on earth.

The launching of the Wil Rogers—named for the lariat-twirling cowboy-humorist who was born in the Indian Territory, now Oklahoma—is the culmination of a program that started with a National Security Council recommendation in 1955.

It is a program that has transformed the submarine from a destroyer of commerce and undersea marauder to a major strategic threat to any nation on earth. The Polaris missile has become a key part of the United States deterrent to nuclear war and sea power for the first time in history has extended its reach to the innermost land-locked fastnesses of the world's continents.

Each of the 41 Polaris submarines carries 16 missiles, which can be launched while the submarine is submerged. The total number of sea-based nuclear-tipped missiles carried by all of the Polaris ships will therefore be 656.

The 41 submarines are of three classes. The first five of the George Washington class displace 6,700 tons submerged, and were equipped to fire the

41st Vessel, Last of Series to Be Christened at Groton Ceremony by Mrs. Humphrey

Polaris missile. These five, which have been at sea ever since 1961 have been, or are being, refitted to launch the 2,500-nautical-mile A-3 missile.

The Ethan Allen class of five submarines displaces 6,900 tons submerged, and carries the 1,500-nautical-mile A-2 Polaris missile. The rest of the Polaris fleet of the Lafayette class—31 ships—are the largest submarines in the world. They displace 8,250 tons submerged, and have a crew of about 140.

The first eight of this class carry the A-2 missile; the rest, the A-3. In addition to missiles, all of the Polaris submarines mount 4 or 6 bow torpedo tubes. Thus, of the 41 ships, 28 will mount the long-range Polaris, the 1,500-mile version. But with minor changes all of them can launch the A-3 version.

### Modifications Possible

In fact, all of the Polaris submarines are fitted with launching tubes that can be modified, without major change, to accommodate the much larger Poseidon, or C-3 missile, now under development and tentatively scheduled for operational readiness in the nineteen-seventies.

The Poseidon will be about 6 feet in diameter, as opposed to the four and a half feet of Polaris. It will be three feet longer than the 31-foot A-3. It can carry about twice the payload in nuclear explosives, or probably a warhead of two to three megaton capacity and may also carry penetration aids, or radar decoys to enable it to evade enemy defenses.

It is expected to be twice as accurate as the A-3, so that

Poseidon's effectiveness against a hardened, or protected target will be about eight times greater than the A-3.

This fleet of nuclear-powered submarines armed with ballistic missiles, has established a record for dependability and reliability probably unmatched by any other weapons system. Ever since 1960, when the George Washington successfully launched her first two ballistic missiles from a submerged position off Florida the submarines have maintained continuous submerged patrols of 57 to 60 days each, alternately manned by one of two crews—a Blue crew and a Gold crew.

More than 264 operational patrols in sea areas within firing range of Communist targets have been conducted in the Atlantic, the Mediterranean and the Pacific to June 1, 1966, and as far as is known, no Polaris submarine ever has been successfully tracked by Soviet ships, submarines or planes.

Each submarine so far deployed has maintained 15 missiles ready to fire 99.9 per cent of the time and all 16 missiles ready to fire 98.1 per cent of the time. Every patrol and deployment commitment has been met on time; there have been no cancellations or postponements because of failures of missiles, submarines, or crews.

About two-thirds of the 41 Polaris submarines will normally be on station at any one time, operating from advanced bases at Holy Loch, Scotland, Rota, Spain, and Apra, Guam. This fleet is unmatched in quality or quantity by any other power.

Britain is building, with help from the United States, four similar missile submarines. The French plan several similar craft. China has one missile-firing submarine, with three launchers, in commission, but so far with no missiles.