

# USS DANIEL WEBSTER SSBN626



**Sponsor:** *Mrs. W. Osborn Goodrich, Jr.*

- **Keel Laid:** *December 28, 1961*
- **Commissioned:** *April 9, 1964*
- **First CO's:** *CDR. Marvin S. Blair (B)*  
*CDR. Lloyd S. Smith (G)*



**Launched:**  
*April 27, 1963*



KEEL LAYING



CHRISTENING



Commander ROBERTS graduated from the Naval Academy and received his commission in 1952. His initial duty assignment was in the destroyer USS BUCK. In 1954 he assumed command of LCU DIVISION THIRTY-ONE and participated in the "Passage to Freedom" in Vietnam.

Commander ROBERTS commanded the USS FAIRVIEW for two years prior to attending the U. S. Naval Post-graduate School in 1957 where he received his Masters degree in Engineering Electronics. He then served as Weapons Officer in USS NORFOLK for two years, followed by one year on the Staff of Commander Operational Test and Evaluation Force. In 1963 Commander ROBERTS attended Submarine School and received nuclear power training. Thereafter, he served in USS PLUNGER immediately preceding his assignment in the fall of 1966 as Executive Office (Gold) USS SAM RAYBURN. He assumed command of USS DANIEL WEBSTER in May 1968.

Commander ROBERTS is a native of Mt. Victoria, Maryland. He is married to the former Jo Anne Hastings of Seattle, Washington and they have five sons.

## DANIEL WEBSTER

Daniel Webster — Statesman, orator, Representative to Congress, Senator, and Secretary of State under two presidents — was born in the area of Salisbury, New Hampshire in the year 1782. He studied at Exeter and Dartmouth, receiving a degree in law from the latter in 1801. His first periods in congress were as Representative from the Portsmouth, New Hampshire, area in 1812 and 1814 during which time he became famous for his eloquently voiced opposition to the policies of the Madison administration. After moving to Boston and representing this area in Congress, he was, in 1827, elected Senator from the State of Massachusetts. He had by now delivered his famous Plymouth, Free Trade, and Bunker Hill addresses. In 1830 he delivered what is known as his greatest speech, his "Reply to Hayne", in which, it is said, he defined the powers and functions of the Federal Government in a manner second only to the Constitution itself. Webster had long been a staunch supporter of the Union, and had fought fiercely and incessantly to preserve it. During this impassioned speech in defense of the Union of States, he uttered the immortal cry — "Liberty and Union, now and forever, one and inseparable." It was from this that the ship's motto was derived. In 1840 he was appointed Under-Secretary of State in the administration of W.H. Harrison. In 1842, as Secretary of State under Tyler, he negotiated the Webster-Ashburton Treaty which, by defining the border between Maine and Canada, settled a long standing border dispute. He resigned this position shortly after and was again elected Senator from Massachusetts in 1845, in which office he served until 1850 at which time he was appointed Secretary of State under Millard Fillmore. He remained in this office until his death in 1852.



Mrs. W. Osborn Goodrich, Jr.

Sponsor

USS DANIEL WEBSTER was launched on 27 April 1963 at the Electric Boat Division of General Dynamics, Groton, Conn. The sponsor was Mrs. W. Osborn Goodrich, Jr of Farmington, Connecticut. Mrs. Goodrich is a great-great granddaughter of Daniel Webster.

# USS DANIEL WEBSTER

(SSBN 626)

The USS DANIEL WEBSTER is the ninth of the Lafayette class Fleet Ballistic Missile submarines and the first ship of the fleet to bear the name of Daniel Webster. She is approximately 425 feet in length, 33 feet wide, displaces about 7000 tons and carries 16 POLARIS missiles stowed in eight pairs of vertical launching tubes in the space immediately aft of the sail.

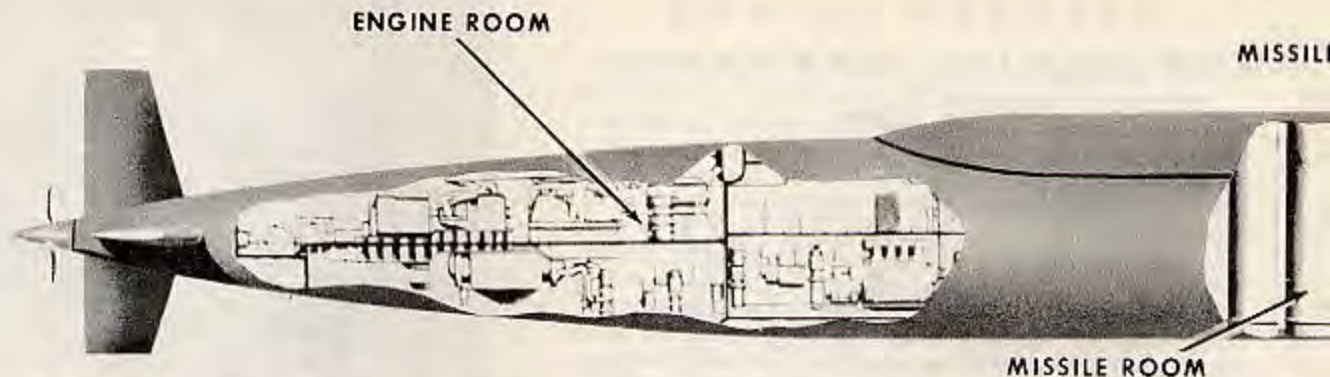
DANIEL WEBSTER has two crews, designated Blue and Gold, of about 125 enlisted men and 13 officers each. These crews alternate as on-ship crew for the deterrent patrols.

On 28 September 1964, DANIEL WEBSTER departed her home port of Charleston, South Carolina for her first deterrent patrol and was the first ship to deploy with Polaris A-3 missiles.

Patrols two through sixteen were conducted from Rota, Spain, Holy Loch, Scotland, and Charleston, South Carolina while under the administrative command of Commanders, Submarine Squadrons Fourteen and Eighteen.

In August 1968, DANIEL WEBSTER launched two improved Polaris A-3 missiles off Cape Kennedy prior to entering the shipyard at Newport News, Virginia for overhaul.





## NAVIGATION SYSTEM

Two positions must be known for success in missile launching — target and launcher. This places great importance on navigation since the position of the launcher is the position of the ship and is continuously changing. Several navigational methods complement each other in the FBM submarine to provide a very high order of accuracy in determining ship's position.

At the heart of the system is the Ship's Inertial Navigation System (SINS) which integrates ship motion,

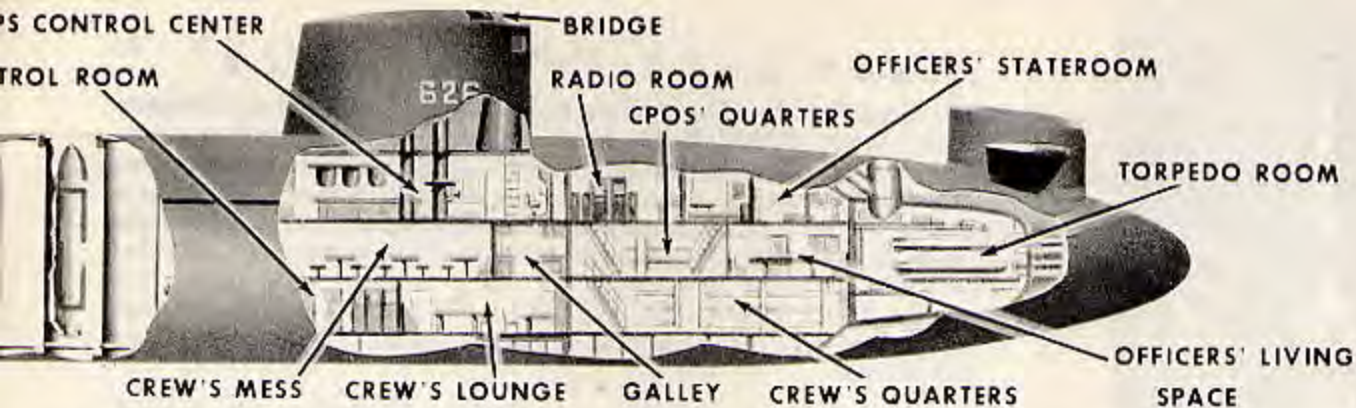
speed, and headings to give a continuous report of ship's position.

The ship has three SINS, each checking on the others. Similar systems guided NAUTILUS and SKATE on their historic voyages beneath the polar ice in 1958, TRITON on her 84 day underwater cruise around the world, and more recently, SEADRAGON and SKATE in their rendezvous at the North Pole in the summer of 1962.

## FIRE CONTROL

The fire control system feeds a wealth of coordinated information to the missile guidance system. Ship location, local vertical, true north heading, target location

and trajectory to be flown are continuously supplied until the very instant of firing.



## TRAINING

The average pre-commissioning training period of Fleet Ballistic Missile personnel is about 18 months. Of this period, about nine months are devoted to formal study at the U. S. Naval Guided Missile School, Dam Neck, Virginia. After a thorough grounding in transistors, electronic circuitry, Boolean logic, and digital computer theory, WEBSTER personnel receive intensive training in the maintenance of advanced systems.

## COMMUNICATIONS

Radio communications with submerged submarines have been possible for a number of years. The systems used have been devised with special care to protect the locations of the submarines and leave the advantage of concealment unimpaired. Recent tests have

Personnel not intimately connected with the Navigation or Weapons Departments also participate in rigorous training programs to permit the full support of the tactical systems at all times. The training programs continue at sea and, on shore, off-crews are provided with training facilities in the home ports of the various SSBN Squadrons.

again demonstrated that the Navy's world-wide communication system has the power and coverage necessary to exercise command of the always-submerged Fleet Ballistic Missile submarine.



## **FLEET BALLISTIC MISSILE**

The Fleet Ballistic Missile Weapon System, better known by the name of its missile, POLARIS, has been operational since November, 1960. The USS GEORGE WASHINGTON (SSBN-598) was the first POLARIS submarine to deploy on an operational patrol. The next four to join her were of the same class and carried the 1,200 nautical mile range A-1 missiles. The later construction FBM submarines carry the second generation POLARIS, the 1,500 nautical mile range A-2 missile. The USS DANIEL WEBSTER (SSBN626) will be the first to operationally carry the new third generation, 2,500 nautical mile A-3 missile.

## **THE MISSILE**

POLARIS, named for the North Star, is a two-stage ballistic missile powered by solid rocket motors.

The 2,500 nautical mile range operational missile is designated the POLARIS A-3. It is about 32 feet long, about four and one-half feet in diameter, and weighs about 35,000 pounds. Each motor exerts thrust through four nozzles in the motor base.

## **MISSILE GUIDANCE**

The inertial guidance system used in POLARIS is a refinement of earlier inertial systems and is the smallest in use in U. S. ballistic missiles. The guidance system puts the missile on correct course at the time of launch and automatically computes a new correct course should the missile deviate from its path. At the precise instant required, the guidance system shuts off the rocket motors and triggers separation of the re-entry body from the missile. The re-entry body then follows a ballistic trajectory to the target.



## MISSILE LAUNCHING

POLARIS missiles are launched by a gas-ejection system, which forces the missile from its launching tube and propels it up through the water to the surface. At that point the rocket motor ignites and sends the missile on its way. The system takes advantage of the reliability of solid propellant fuel used in POLARIS.

## MISSILE CONCEPT

With almost unlimited cruising range and with endurance limited only by the crew, the Fleet Ballistic Missile Submarine is capable of extended submerged operations in the international waters of the world which comprise about 70 percent of the earth's surface. Free of the need to surface or extend a snorkel above the surface for continuous operation, FBM nuclear submarines remain hidden by the ocean, their

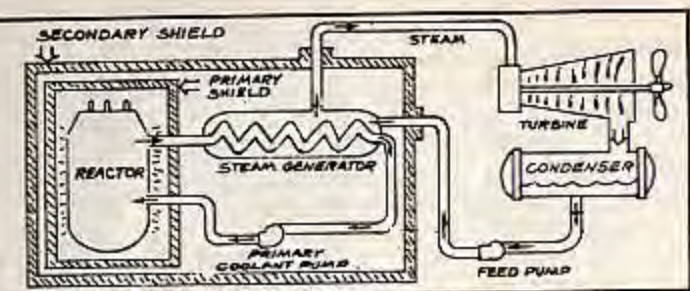
The result is increased safety for the submarine and crew. Each launching tube has its own air supply and is independent of the other 15 tubes. Vital parts of each missile are accessible for inspection and maintenance even when loaded in the launching tubes and while the submarine is underway at sea.

locations unknown to any potential enemy. The POLARIS missile, powered by solid propellant, is ready to launch within minutes of receiving the command without the need for a long countdown. Mobile, hidden, ready for instant action (or carefully considered delayed action), the Fleet Ballistic Missile system provides the United States with a powerful deterrent to those who might start a global war.

## VITAL STATISTICS

|                    |                  |
|--------------------|------------------|
| Keel Laid .....    | 28 December 1961 |
| Launched .....     | 27 April 1963    |
| Length .....       | 425 Feet         |
| Width .....        | 33 Feet          |
| Commissioned ..... | 9 April 1964     |

|                              |                                |
|------------------------------|--------------------------------|
| Built by .....               | General Dynamics/Electric Boat |
| Displacement surfaced .....  | about 7000 tons                |
| Displacement submerged ..... | about 8200 tons                |
| Speed submerged .....        | over 20 knots                  |
| Diving depth .....           | over 400 feet                  |



## THE POWER PLANT

The DANIEL WEBSTER is powered by a nuclear power plant which consists of a nuclear reactor with its associated circulating water and steam cycles and auxiliary machinery.

The primary system is a circulating water cycle and consists of the reactor, identical port and starboard loops of piping, primary coolant pumps and the tubes of the steam generators. Heat is produced in the reactor by nuclear fission and is transferred to the circulating primary coolant water which is pressurized to prevent boiling. This water is then pumped through the steam generator tubes where it transfers its heat to the shell or the secondary side of the steam generators

where it boils water to form steam. It is then pumped back to the reactor by the primary coolant pumps where it is heated for the next cycle.

The secondary system is the steam producing cycle and is made up of the shell side of the steam generators, turbines, condensers, and steam generator feed pumps. It is completely isolated from the primary system since the primary water goes through the tubes of the steam generator while the water which is boiling to make steam is on the shell side of the steam generator. Steam rises from the steam generators, then flows to the engine room where it drives the ship's service turbo-generators which supply the ship with electricity and the main propulsion turbines which drive the propeller. After passing through the turbines, the steam is condensed and the water is fed back to the steam generators by the feed pumps. There is no step in the generation of this power which requires the presence of air or oxygen. This fact alone allows the ship to operate completely divorced from the earth's atmosphere for extended periods of time.

During the operation of the nuclear power plant high levels of radiation exist around the reactor and personnel are not permitted entrance into the reactor compartment until a few minutes after the reactor is shut down. Heavy shielding is used to protect the crew so that the average crew member receives less radiation than he would receive from natural sources ashore.



SEA TRIALS

LAUNCHING