STATISTICS

Length overall	425 Feet
Surface displacement	7300 Tons
Submerged displacement	8000 Tons
Main battery	16 Missile tubes
	4 Torpedo tubes
Complement (each crew)	14 Officers, 124 Enlisted
Cruising Range	UNLIMITED
Submerged endurance	UNLIMITED
Propulsion plant	Nuclear Power
Speed	Greater than 20 knots
Depth	Greater than 400 feet

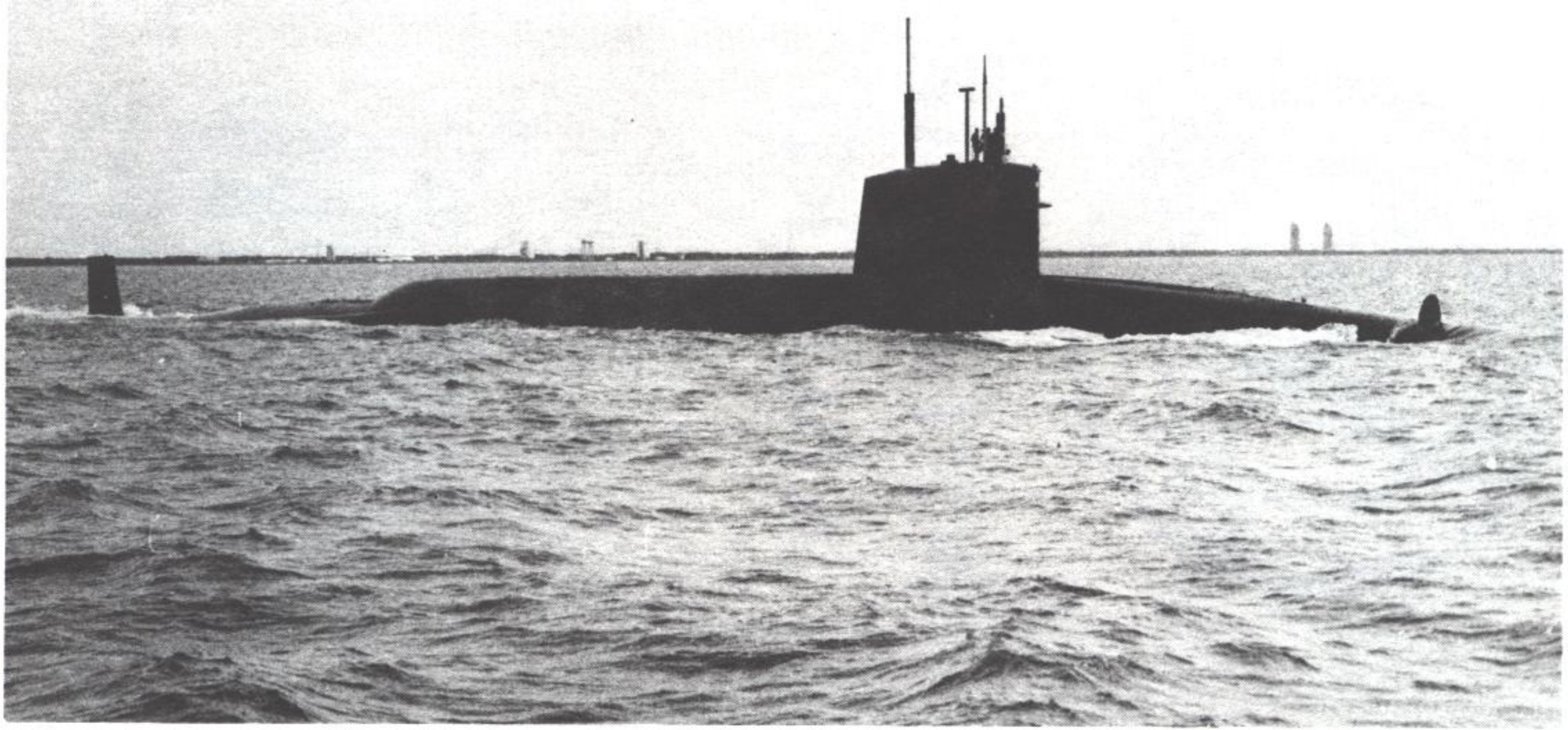
UNITED STATES NAVY

USS DANIEL BOONE (SSBN-629)

WELCOME ABOARD

NEW TRAILS TO BLAZE

DANIEL BOONE



USS DANIEL BOONE – NEW TRAILS TO BLAZE

DANIEL BOONE, THE MAN

The namesake of USS DANIEL BOONE was born on the Pennsylvania frontier on November 2, 1734. The son of English immigrant parents, he too became a wandering adventurer, ever curious about what lay ahead on the other side of the hill.

His family moved to the Yadkin Valley in North Carolina in 1751, and it was there that he met his future wife, Rebecca.

Daniel Boone served for a short time on the British side in the French and Indian War, but after his marriage in 1756 he settled into the life of farmer, hunter and explorer.

People who drifted west returned to the Yadkin Valley with tales of magnificent hunting and beautiful lands in Kentucky. Despite knowledge of warlike Indians in that area, Boone became fired with the idea of settling the new lands to the west. This led ultimately to his greatest endeavors, leading settlers through the Cumberland Gap, and the building of the Wilderness Road through eastern Kentucky in 1775.

In 1778, while serving in the Colonial Army, Daniel Boone became a captive of the Shawnee tribe, but his experience as a woodsman and his knowledge of Indians enabled him to avoid the worst of their tortures and escape after six months.

Throughout his life he continued to travel westward, always looking for new lands to settle. He traveled through Ohio, Illinois and Missouri, eventually settling in the latter territory. He died on September 26, 1820, at the age of 85.

USS DANIEL BOONE, THE SHIP

The nuclear powered, Fleet Ballistic Missile submarine USS DANIEL BOONE is the first ship of the United States Navy to bear the name of this famous American pioneer and frontiersman.

The construction of USS DANIEL BOONE was authorized by the Congress in 1961, and the keel was laid in February 1962 at the Mare Island Naval Shipyard in Vallejo, California. The ship was launched on 22 June 1963. Mrs. James H. WAKELIN, wife of the then Assistant Secretary of the Navy for Research and Development, was the ship's sponsor.

The ship was commissioned on 23 April 1964, the nation's 22nd Polaris submarine. Admiral U.S.G. SHARP, USN, the Commander in chief of the U.S.

COMMANDER CRAIG I. HANSON
UNITED STATES NAVY

Commander Hanson, a native of Fortuna, California, graduated from the United States Naval Academy in 1976 with a Bachelor of Science in Systems Engineering. He completed Nuclear Propulsion Training at Mare Island, California and Idaho Falls, Idaho.

In December 1977, following completion of Submarine School, Commander Hanson reported to USS ETHAN ALLEN (SSBN 608) (GOLD) in Pearl Harbor, Hawaii, where he served as Electrical Officer and Main Propulsion Assistant. From July 1980 to August 1982 he was assigned as Operations Officer on the Staff of Commander Submarine Refit and Training Group, La Maddalena, Italy.

Following completion of the Submarine Officer Advanced Course, Commander Hanson was assigned as Engineer Officer in USS THOMAS JEFFERSON (SSN 618) in April 1983. During this assignment, he participated in a Mediterranean deployment, interfleet transfer, and Inactivation at Puget Sound Naval Shipyard. Reporting as Navigator in USS SEAHORSE (SSN 669), in March 1985, he participated in two Arctic deployments. Commander Hanson was subsequently assigned as Material Officer on the Staff of Commander Submarine Group SEVEN in Yokosuka, Japan from September 1986 to March 1989. He next served as Executive Officer in USS STURGEON (SSN 637). During this tour, STURGEON conducted two North Atlantic deployments and was awarded the Battle "E" for 1990 and 1991.

Commander Hanson has been awarded the Meritorious Service Medal (three awards), the Navy Commendation Medal (four awards), the Navy Achievement Medal (two awards), the Battle "E" Ribbon (two awards), the Navy Expeditionary Medal, and Armed Forces Expeditionary Medal.

Commander Hanson is married to the former Nancy A. Rasper of McLean, Virginia. They have two children, Elizabeth and Kenneth.

COMMANDER BRUCE W. CAVEY
UNITED STATES NAVY

Commander Cavey is from Kalamazoo, Michigan. He was awarded an appointment to the United States Naval Academy and graduated with the class of 1974 with a degree in Analytical Management. While at the academy, he lettered in varsity football and was the Brigade heavyweight boxing champion.

Commander Cavey entered Nuclear Power School at Bainbridge, Maryland in August 1974 and after attending Nuclear Power Training Unit S1C at Windsor Locks, Connecticut he reported aboard his first submarine, USS WOODROW WILSON (SSBN 624) (BLUE) in October 1975. After qualifying engineer onboard WILSON his next tour was on the commissioning crew of the USS CINCINNATI (SSN 693) as Weapons Officer from November 1977 to November 1979 and made one Mediterranean deployment. Commander Cavey's first shore tour was on Commander Submarine Force, Atlantic Fleet staff as the Force MK 48 Torpedo Project Officer from January 1980 until January 1982. His next tour was as the overhaul Engineer onboard USS HENRY L. STIMSON (SSBN 655) (BLUE) from February 1982 until February 1985. He then served as Executive Officer, USS MARIANO G. VALLEJO (SSBN 658) (BLUE) from May 1985 until November 1987 making six strategic deterrent patrols. In December 1987 he was assigned as Executive Officer, USS SAM RAYBURN (SSBN 635) which was converted to the Navy's first moored training ship, eventually acting as the commissioning Executive Officer of the Naval Nuclear Power Training Unit Charleston, South Carolina. After attending Prospective Commanding Officer School he reported aboard USS DANIEL BOONE (SSBN 629) (BLUE) in November 1990. Since taking command, BLUE crew has won the COMSUBRON 16 Red "E" for Engineering excellence and the COMSUBRON 16 Strategic White "S" for strategic mission excellence. The Blue crew has also been nominated as the COMSUBLANT representative for the Arleigh Burke Award as the most improved warship. Commander Cavey was nominated for the Navy Submarine League Read Admiral Jack N. Darby Award for Inspirational Leadership.

Commander Cavey is authorized to wear the Meritorious Service Medal, four Navy Commendation Medals, and the Navy Achievement Medal. He is married to the former Carol S. McLaughlin of Pittsburgh, Pennsylvania and has two daughters, Heather and Nicole. They reside in Charleston, South Carolina.

COMMANDING OFFICERS ASSIGNED TO THE SHIP

GOLD CREW

Commander Alan B. Crabtree, USN
(1 December 1963-21 March 1967)

Captain Robert D. Rawlins, USN
(21 March 1967-1 February 1969)

Commander E. R. Van Hoof, USN
(1 February 1969-20 June 1970)

Commander Edward J. Convey, USN
(20 June 1970-9 November 1973)

Commander John H. Williams, USN
(9 November 1973-27 March 1978)

Commander Michael J. Lees, USN
(27 March 1978-30 March 1981)

Commander Charles M. Wood, III, USN
(30 March 1981-6 January 1984)

Commander Darrell R. Powell, USN
(6 January 1984-7 May 1987)

Commander Donald E. Rockwell, III, USN
(8 May 1987-10 October 1989)

Commander Denis E. Huelle
(11 October 1989-24 June 1992)

Commander Craig I. Hanson
(25 June 1992)

COMMANDING OFFICERS ASSIGNED TO THE SHIP

BLUE CREW

Captain George P. Steele, USN
(20 June 1963-14 July 1966)

Captain R. M. Brumstead, USN
(14 July 1966-19 January 1968)

Commander E. R. Van Hoof, USN
(19 January 1968-20 June 1970)

Commander James C. Hay, USN
(20 June 1970-15 July 1972)

Commander Charles H. Brickell, USN
(15 July 1972-14 March 1975)

Commander Shelden M. Sanders, USN
(14 March 1975-8 December 1975)

Commander John H. Williams, USN
(8 December 1975-21 April 1978)

Commander Dan H. Smith, USN
(21 April 1978-18 January 1980)

Commander Jary W. Lewis, USN
(18 January 1980-11 April 1983)

Commander Melville H. Lyman, USN
(11 April 1983-17 April 1984)

Commnader Darrell R. Powell, USN
(17 April 1984-24 February 1988)

Commander Stephen M. Jarrett, USN
(24 February 1988)

Commander Bruce D. Cavey
(November 1990)

STATISTICS

Length overall	425 Feet
Surface displacement	7300 Tons
Submerged displacement	8000 Tons
Main battery	16 Missile tubes
	4 Torpedo tubes
Complement (each crew)	14 Officers, 124 Enlisted
Cruising Range	UNLIMITED
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Speed	Greater than 20 knots
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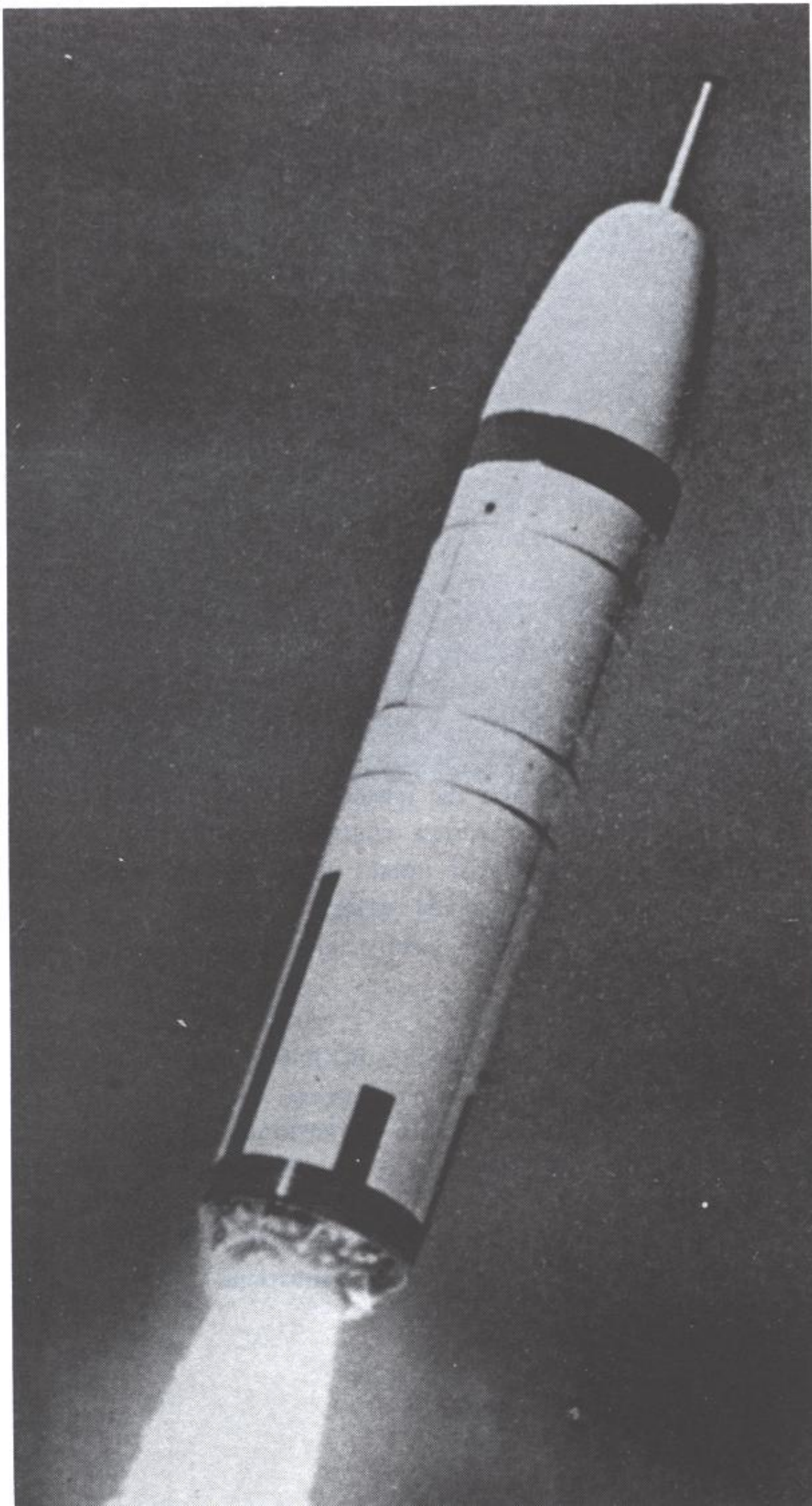
THE WEAPONS SYSTEM

DANIEL BOONE's primary mission is to serve as a launching platform for the Navy's TRIDENT I Weapons System. With almost unlimited range and endurance limited only to its crew, the FBM submarine is capable of extended operations in all parts of the world. Free of the need to surface, the FBM nuclear submarine remains hidden by the ocean and ready to launch within minutes of receiving the command. Mobile, hidden, ready for instant action, the Fleet Ballistic Missile system provides the United States with its strongest deterrent to those who might consider global war.

The ship's crew is trained and ready to monitor all on-board missiles and can accomplish at-sea repairs if necessary. The 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 ignites and sends it on its way. The missile's inertial guidance system puts the missile on correct course 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 reentry body from the missile. The reentry body then follows a ballistic trajectory to the target.

As a secondary mission, DANIEL BOONE is assigned the task of seeking out and destroying enemy submarines. A sophisticated sonar and fire control system provides the information and guidance to the torpedoes fired from the tube nest located in the submarine's bow.

Using these two weapons systems, DANIEL BOONE may be employed in both strategic and tactical situations.



TRIDENT I, C-4

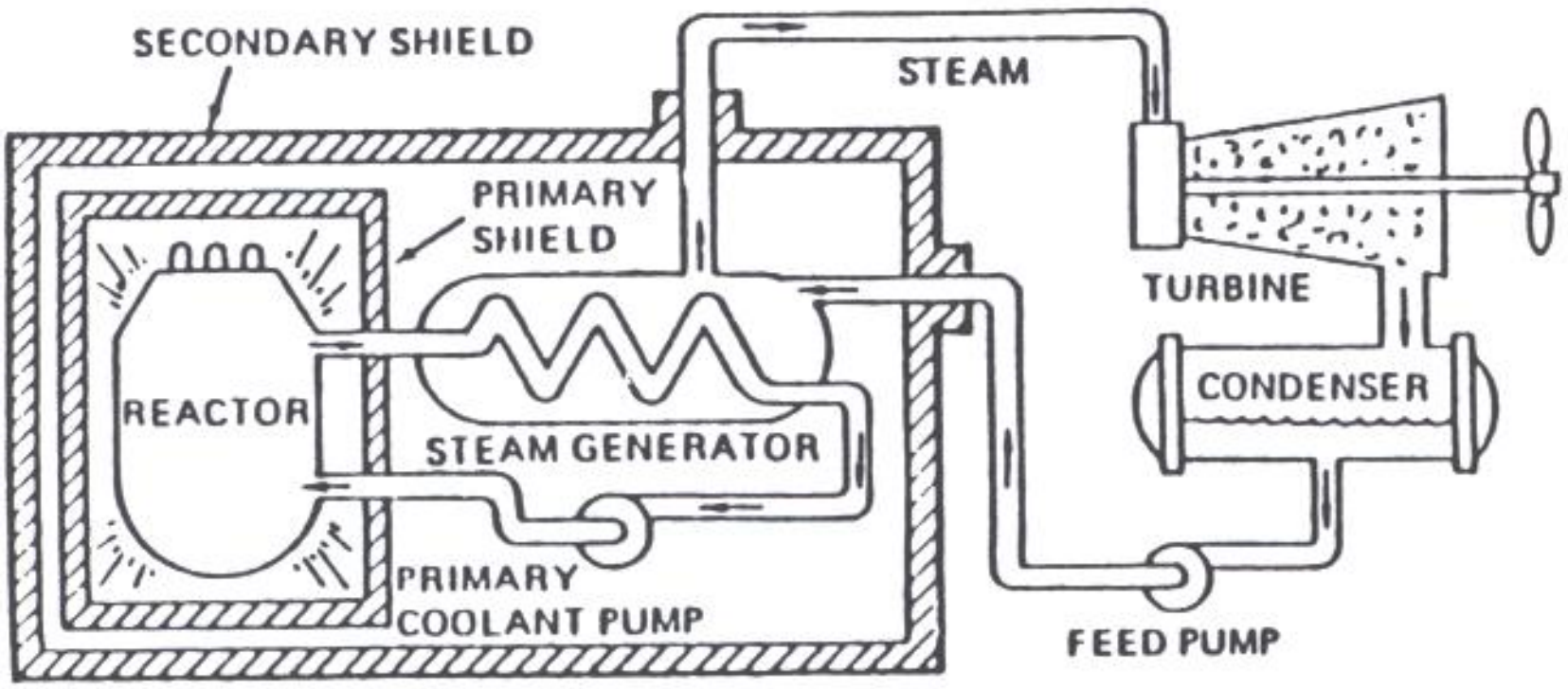
Toward maximizing the effectiveness of the Navy's Fleet Ballistic Missile (FBM) weapon system as a deterrent to the outbreak of nuclear war, the Navy's Strategic Systems Project Office developed the Trident I C-4 Missile.

Using experiences gained in the Polaris and Poseidon Fleet Ballistic Missile Weapons Systems, melded with the latest technology, the Trident I Strategic Weapon System provides a "State of the Art" sea-based strategic deterrent force. The range of the Trident I Missile is significantly increased over that of its predecessors. This enables DANIEL BOONE to patrol in a much greater area of the world's oceans while still remaining within range of its strategic targets, thereby making detection by potential adversaries even more inconceivable.

TRIDENT I, C-4

Length:	34 Feet
Diameter:	74 Inches
Weight:	70,000 Pounds
Powered Stages:	Three
Motor Case Materials:	1st Stage — Glass Fiber
	2nd Stage — Glass Fiber
	3rd Stage — Glass Fiber
Nozzles:	One per Stage
Controls:	Single Movable Nozzle Actuated by a Gas Generator
Propellant:	Solid
	1st Stage — Composite
	2nd Stage — Double Base
	3rd Stage — Liquid
Guidance:	All Interial
Range:	About 4400 N.M.
Warhead:	Nuclear

HOW NUCLEAR POWER OPERATES A SUBMARINE



The power plant of a nuclear submarine is based upon a nuclear reactor which provides heat for the generation of steam. This, in turn, drives the main propulsion turbines and the ship's turbo-generators for electric power.

The primary system is a circulating water cycle and consists of the reactor, loops of piping, primary coolant pumps and steam generators. Heat produced in the reactor by nuclear fission is transferred to the circulating primary coolant water which is pressurized to prevent boiling. This water is then pumped through the steam generator and back into the reactor by the primary coolant pumps for reheating in the next cycle.

In the steam generator, the heat of the pressurized water is transferred to a secondard system to boil water into steam. This secondary system is isolated from the primary system.

From the steam generators, steam flows to the engine room where it drives the 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 independent 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 to enter the reactor compartment. Heavy shielding protects the crew so that the crew member receives less radiation on submerged patrol than he would receive from natural sources ashore.

The navigation system employed aboard the DANIEL BOONE consists of the very latest in electronic technology. The high accuracy required by the ship's missile system is accomplished through the use of ship's inertial navigation system. The ship's inertial navigation system consists of platform, gyros and velocity meters. The gyros keep the platform stable to enable the velocity meters to sense motion. Through the use of computers in the inertial system, the ship's position is constantly up-dated with the sensed motion for an accurate position.

Due to inherent errors of the inertial system, outside position information is required periodically. This outside fix information is received by the use of Loran tracking system and the Navy satellite tracking system. The electrically suspended Gyro monitor also supplies a reference for the ships Inertial Navigation System.

The inertial system, the Loran system and the satellite tracking system are all under the control of the central navigation computer. The central navigation computer has the basic function of control and monitoring of the navigation center. This enables fewer personnel to be involved at any one time to run the navigational system, and the control of the navigation system to be at one central point.

LIFE SUPPORT

In addition to the many facilities provided to insure the habitability of the ship, there is an ample air conditioning system for the benefit of the personnel and machines. Special atmosphere control equipment is provided to maintain standard atmospheric conditions. Electrolytic oxygen generators permit the submarine to manufacture an unlimited supply of oxygen from sea water. Other specialized equipment provides for removal of irritants, elimination of carbon dioxide and maintenance and proper balance of other atmospheric elements during prolonged submerged periods.

FIRE CONTROL

The fire control system feeds a wealth of coordinated information to the missile guidance system. Ship location, true north heading, target location and trajectory to be flown by the missile are continuously supplied until the very instant of firing.

LAUNCHER

The launcher subsystem is designed to perform three functions in supporting the TRIDENT I missile. It houses the delicate missile in a comfortable environment of controlled humidity, temperature and smooth riding. Since the missile is a dynamic machine it must be serviced and the launcher subsystem provides a means for the Missile Technicians to cross the pressure hull boundary of the submarine to perform maintenance on the missile. Last, and most important, the launcher subsystem can eject the missile from the submarine in a matter of minutes after receipt of a command to launch.

BLUE AND GOLD CREW CYCLE

One of the unique features of the FBM submarine program is that each of the forty-one submarines has two complete and interchangeable crews, called "Blue" and "Gold". While one crew takes the submarine on its regular cycle of two-month patrols, the other crew is back at its home port. There the crew members relax with friends and family for about a month after their two month confinement in the submarine, and then undergo intensive refresher training in preparation for their next

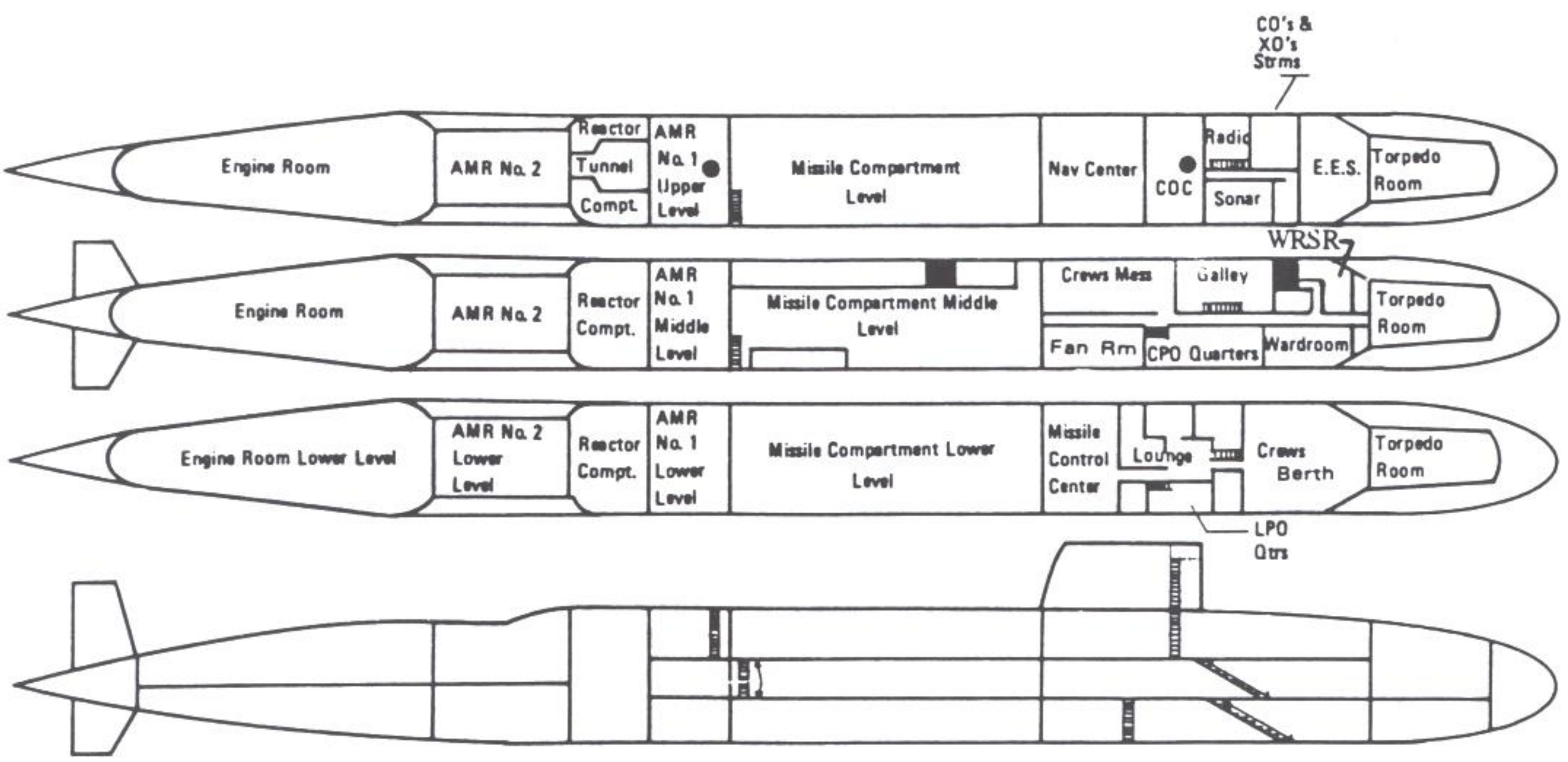
patrol. The following chart shows how the crews are interchanged in a constant cycle:

	2 Months	1 Month	2 Months	1 Month
Gold Crew	Patrol	Leave	Refresher Training	Submarine Upkeep
Blue Crew	Refresher Training	Submarine Upkeep	Patrol	Leave

This two-crew system accomplishes several objectives. Most important, it enables the submarine to remain at its forward operating site without having to return to the homeport to provide the crew a rest period. This means that the submarine can be kept on patrol for two-thirds of its operational lifetime, obviating the need for additional numbers of submarines, while at the same time providing for necessary crew rest.

Second, it provides a regular program of refresher training for the off-ship crew. The crews must be ready at all times to launch missiles while on patrol if ordered to do so. Their knowledge of their equipment and their own reactions must be honed to a razor-sharp edge at all times. Refresher training on equipment exactly like that found on their ship keeps them sharp during their off-patrol period.

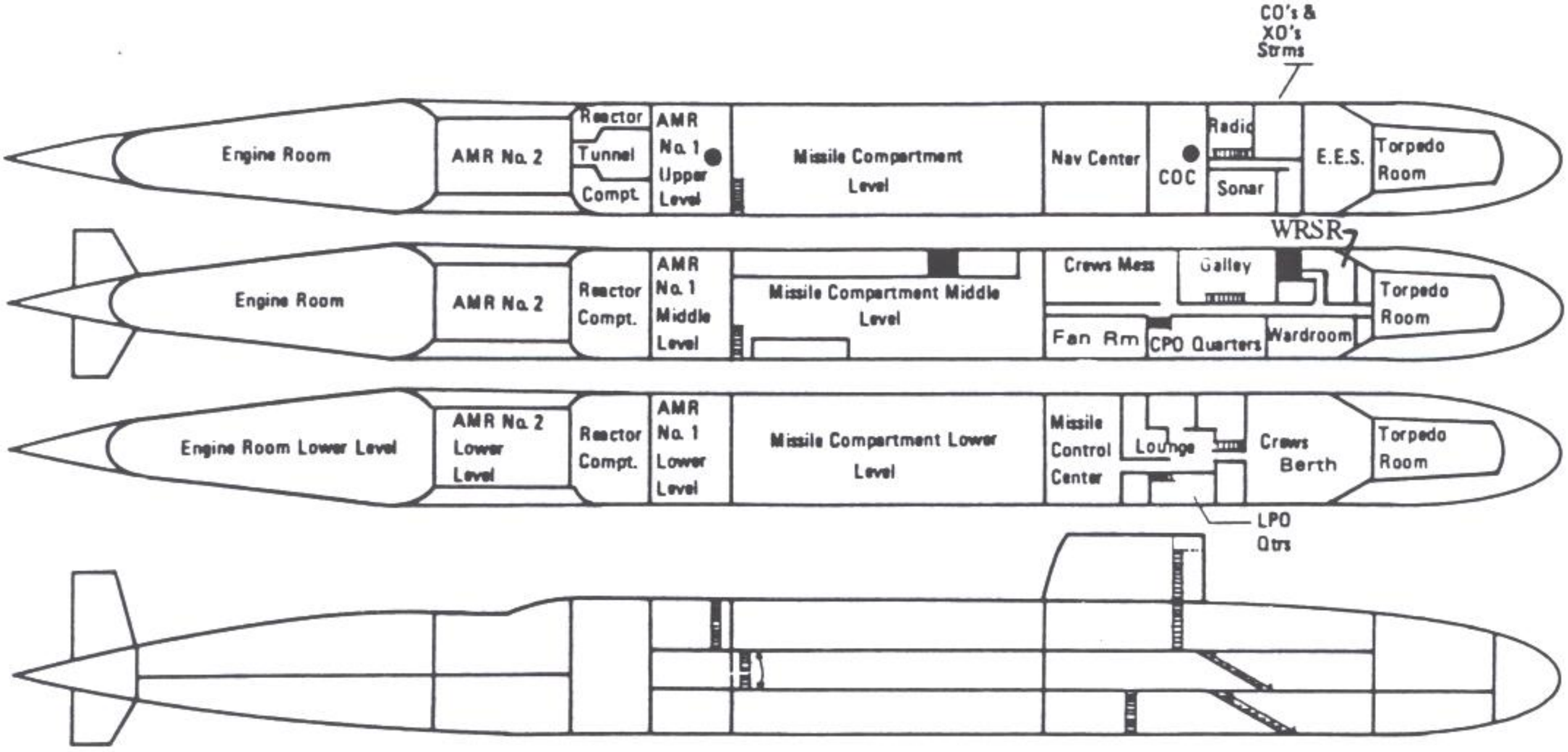
Finally, there are refinements and improvements constantly being made to the weapon system's various equipments. This often requires changes in circuits, and alteration of equipment operation methods and procedures. These changes, which must be well understood by the submarine's crews, are thoroughly studied during refresher training.


CO's &
XO's
Strms
Engine Room
AMR No. 2
Reactor
Tunnel
Compt.
AMR
No. 1
Upper
Level
Missile Compartment
Level
Nav Center
COC
Radio
Sonar
E.E.S.
Torpedo
Room
WRSR
Engine Room
AMR No. 2
Reactor
Compt.
AMR
No. 1
Middle
Level
Missile Compartment Middle
Level
Crews Mess
Galley
Fan Rm
CPO Quarters
Wardroom
Torpedo
Room
Engine Room Lower Level
AMR No. 2
Lower
Level
Reactor
Compt.
AMR
No. 1
Lower
Level
Missile Compartment Lower
Level
Missile
Control
Center
Lounge
Crews
Berth
Torpedo
Room
LPO
Qtrs

During the Spanish-American War, Commodore Dewey brought the might of United States seapower to Pacific waters. The USS DANIEL BOONE has brought the might of the Polaris weapons to these same waters. The ram bow of Dewey's flagship, USS OLYMPIA, was adorned with the Shield of Freedom as she steamed into Manila Bay. This same shield was chosen as the foundation of DANIEL BOONE's insignia.

Thirteen stars on a field of blue represents the original Thirteen Colonies, the same states Daniel Boone knew as a young man. The center star of gold represents Polaris, the North Star and guiding body of mariners, the namesake of the FBM weapons system.

Across the broad red and white stripes rests the Kentucky Long Rifle and powder horn, the basic weapon of defense for Daniel Boone, as well as the silhouette of USS DANIEL BOONE, a basic weapon of defense today.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AMR
No. 1
Middle
Level
Missile Compartment Middle
Level
Crews Mess
Galley
Torpedo
Room
Fan Rm
CPO Quarters
Wardroom
Engine Room Lower Level
AMR No. 2
Lower
Level
Reactor
Compt.
AMR
No. 1
Lower
Level
Missile Compartment Lower
Level
Missile
Control
Center
Lounge
Crews
Berth
Torpedo
Room
LPO
Qtrs