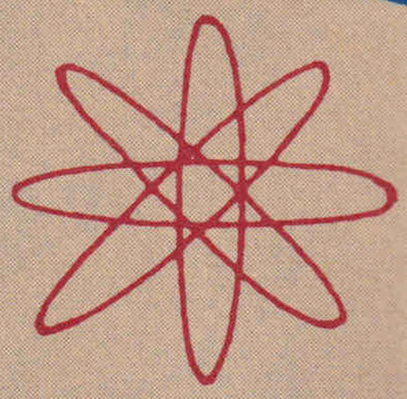
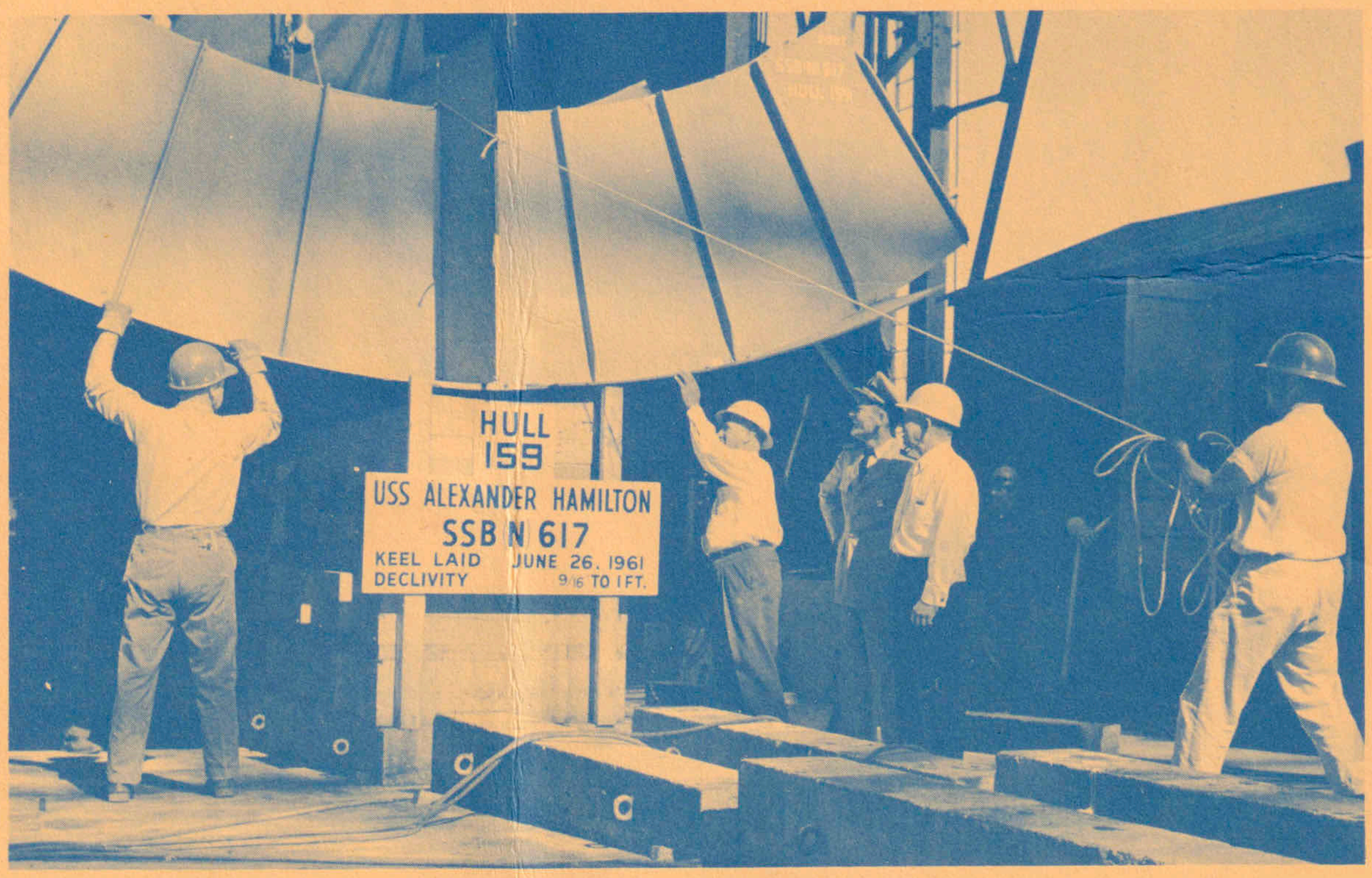
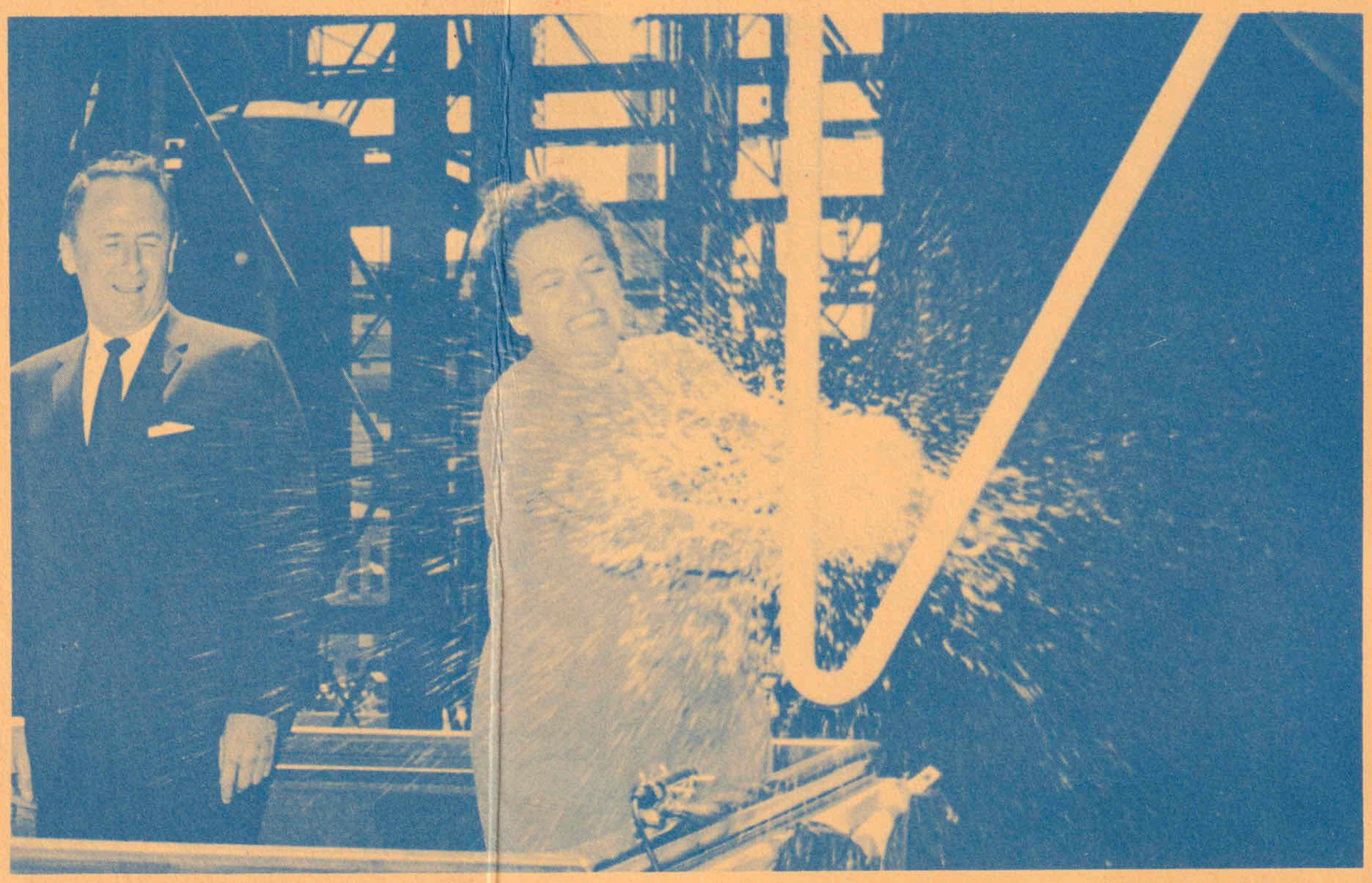
ALEXANDER HAMILTON



SSBN 617



KEEL LAYING



CHRISTENING

The ship's insignia, reproduced on the cover of this booklet, has been adapted from the Hamilton family coat-of-arms.

Cmdr. Norman B. Bessac, USN
Commanding Officer, Blue Crew

Commander Bessac was born in Oakland, Calif., and graduated from the U. S. Naval Academy in 1944. He has served on USS REQUIN (SS-481), USS BUGARA (SS-331), USS K-2, USS GUDGEON (SS-567), and USS SCORPION (SSN-589). He served as Commanding Officer of USS GUDGEON (SS-567) and USS SCORPION (SSN-589).

COMMANDING OFFICERS

Commander Sherman was born in Keene, New Hampshire and graduated from the U. S. Naval Academy in 1945. He has served on USS RONQUIL (SS-396), USS TIRU, (SS-416), USS BESUGO (SS-321), USS CORSAIR (SS-435), and USS PIPER (SS-409). He served as Commanding Officer of USS PIPER (SS-409).

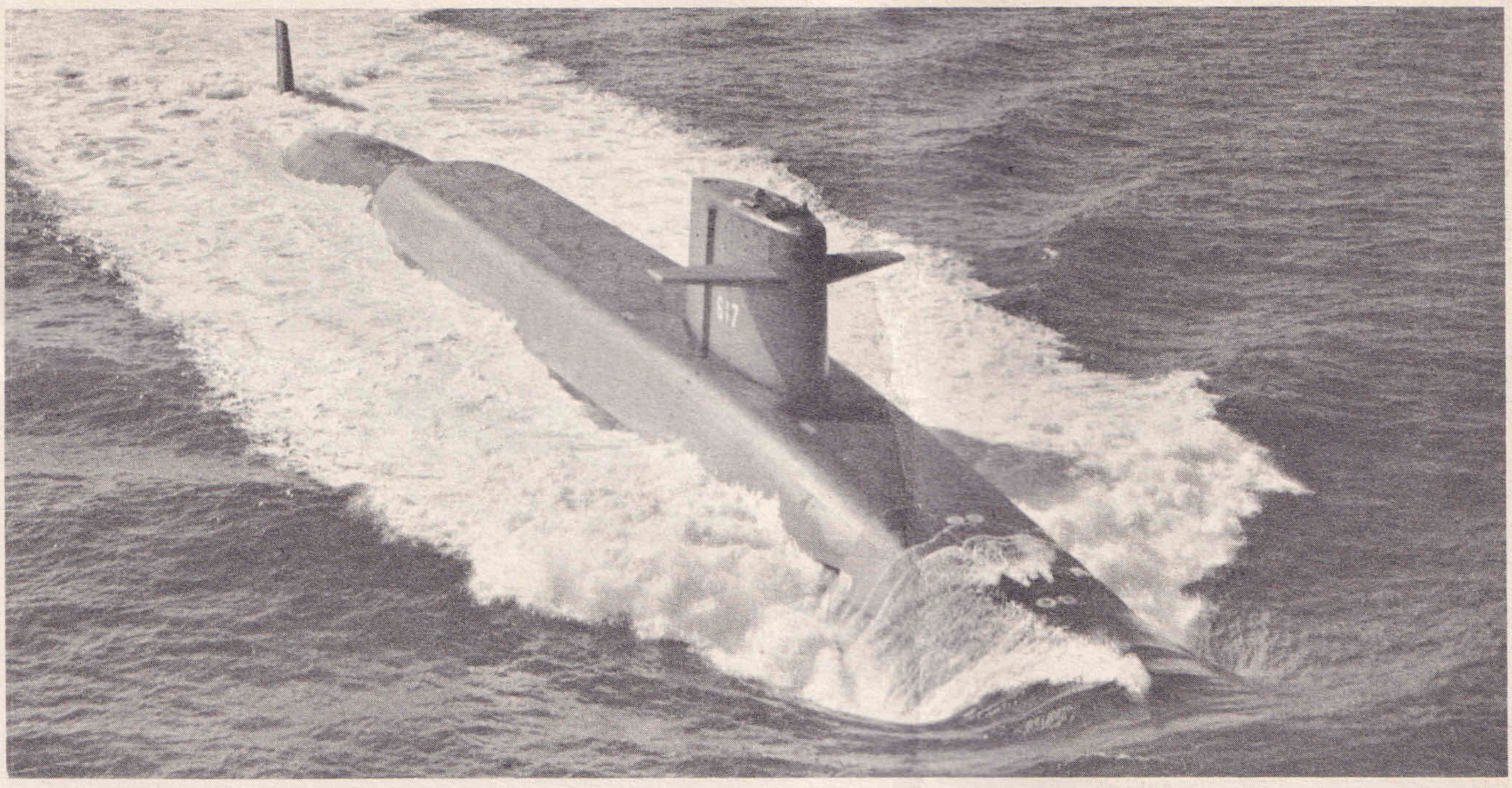
Cmdr. Benjamin F. Sherman, Jr. USN
Commanding Officer, Gold Crew

Mrs. Valentine Hollingsworth, Jr.
Sponsor

USS ALEXANDER HAMILTON was launched on 18 August 1962 at the Electric Boat Division of General Dynamics Corporation, Groton, Conn. The sponsor was Mrs. Valentine Hollingsworth, Jr., of Beverly Farms, Mass. Mrs. Hollingsworth is a great-great-great granddaughter of Alexander Hamilton.

ALEXANDER HAMILTON

Alexander Hamilton was a soldier, statesman, politician, writer, financier, patriot, economist and scholar. He was born on 11 January 1757 on the Island of Nevis in the West Indies and later came to the colonies to attend the King's College (now Columbia University) in New York. The Revolutionary War interrupted his studies and he became intensely interested in the Colonial cause. He organized an artillery company and was awarded its captaincy on examination. His bravery during the campaign of 1776 came to the attention of General Washington who promoted him to the rank of lieutenant-colonel. During the ensuing four years Hamilton served as private secretary and aide to the commander-in-chief. Later in the war when he was again with a field command, his unit had the honor of capturing the first redoubt of the British works at Yorktown. Following the war he turned to politics and law. He was instrumental in changing the collection of states from a loose Confederation to a strong central Federal Government concept. He served as the first Secretary of the Treasury and in 1790 founded the Revenue Cutter Service, the forerunner of the present-day United States Coast Guard. For more than a decade following his Federal service, Hamilton continued in politics in New York State and ultimately became embroiled in a feud with Vice President Aaron Burr, a political antagonist of long standing. On 11 July 1804, Hamilton was mortally wounded by Burr in a duel at Weehawken, N. J. His loss was a blow to the country, for it silenced the voice of one of our outstanding creative thinkers.



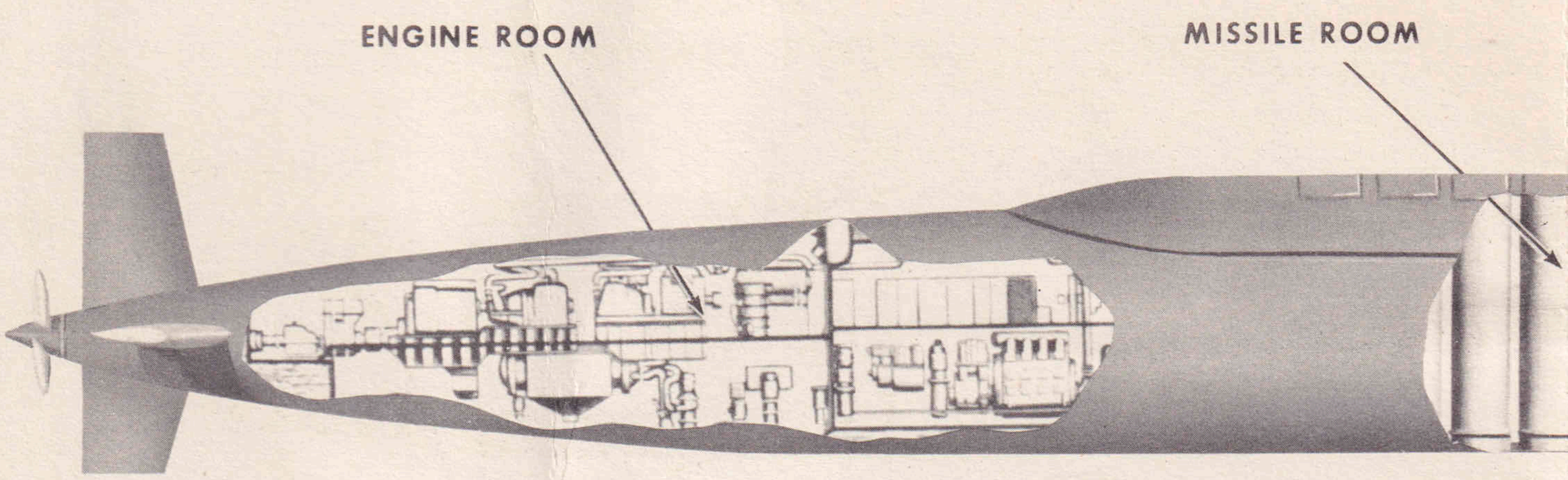
USS ALEXANDER HAMILTON

(SSBN617)

USS ALEXANDER HAMILTON, SSBN-617, is the first ship of the United States Navy to bear the name. A revenue cutter of the same name did operate under Navy jurisdiction during the Spanish-American War, but she never lost her identity as a revenue cutter. She was the second in a line of four revenue cutters named HAMILTON, or ALEXANDER HAMILTON, in honor of the First Secretary of the Treasury who established the Revenue Cutter Service.

ALEXANDER HAMILTON is the second of the Lafayette class Fleet Ballistic Missile submarines. 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. The ship has ample air conditioning equipment for the benefit of machines and personnel. Special atmosphere purification equipment removes irritants from the air and maintains the proper balance of oxygen, carbon dioxide and other atmospheric elements during prolonged submerged periods. Electrolytic oxygen generators permit the submarine to manufacture all of its oxygen from sea water.

HAMILTON has two crews, designated the Blue and Gold, of about 125 enlisted and 12 officers each. These crews alternate as on-ship crew for the deterrent patrols. The off-ship crew enjoys scheduled leave periods and benefits from refresher training prior to their re-deployment.



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.

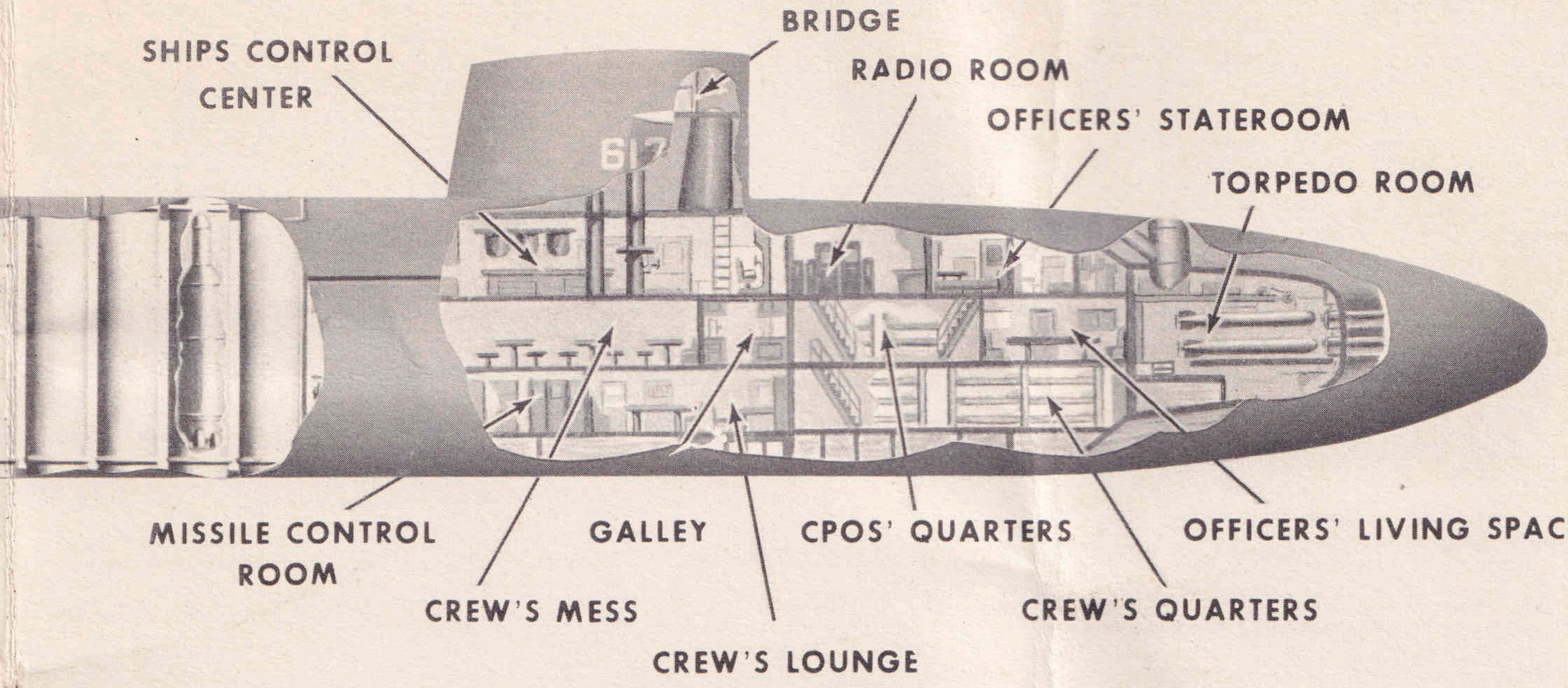
The ship has three SINS, each checking on the others. Similar systems guided NAUTILUS and SKATE on their historic voyages beneath the polar ice in 1958, TRITON on her 84 day underwater cruise around the world, and more recently, SEADRAGON and SKATE in their rendezvous at the North Pole in the summer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

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 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.



TRAINING

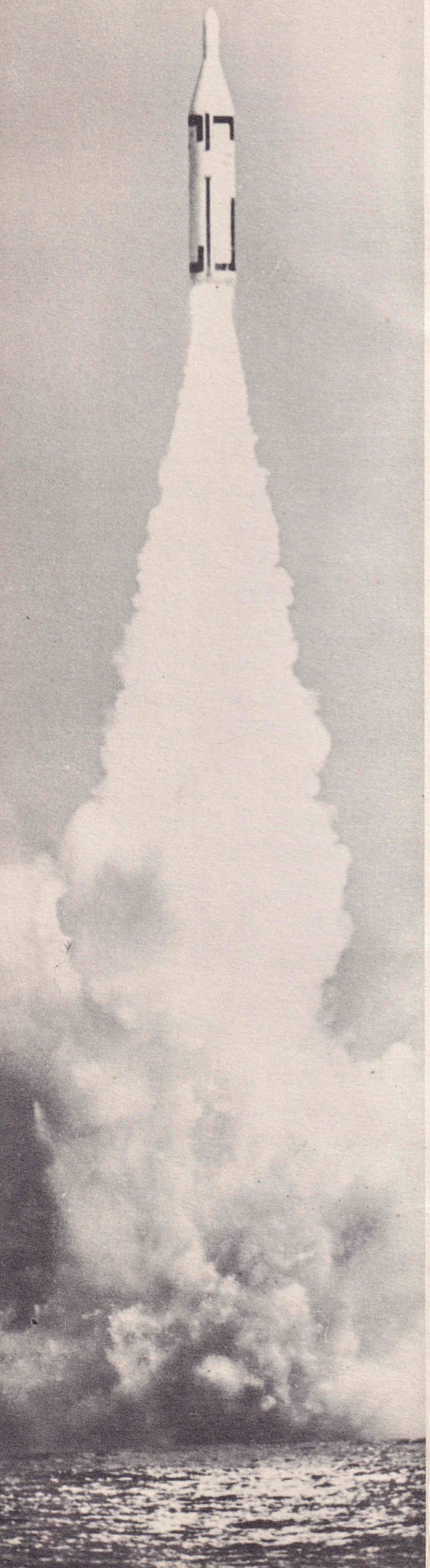
The average pre-commissioning training period of Fleet Ballistic Missile personnel is about 18 months. Of this period, about nine months are devoted to formal study at the U. S. Naval Guided Missile School, Dam Neck, Virginia. After a thorough grounding in transistors, electronic circuitry, Boolean logic,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

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.

VITAL STATISTICS

Keel Laid ..... 26 June 1961
Launched ..... 18 August 1962
Commissioned ..... 27 June 1963
Length ..... 425 Feet
Width ..... 33 Feet

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



FBM

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 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 submarines carry the A-2 missile which has a range of 1,500 nautical miles and will be modified to carry the 2,500 nautical mile A-3 missile when available.

THE MISSILE

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

The 1,200 nautical mile range operational missile is designated the POLARIS A-1. It is about 28 feet long, about four and one-half feet in diameter, and weighs about 30,000 pounds. Each motor exerts thrust through four nozzles in the motor base. Subsequent missile models have reflected design changes in improved propellants and flight ranges.

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.

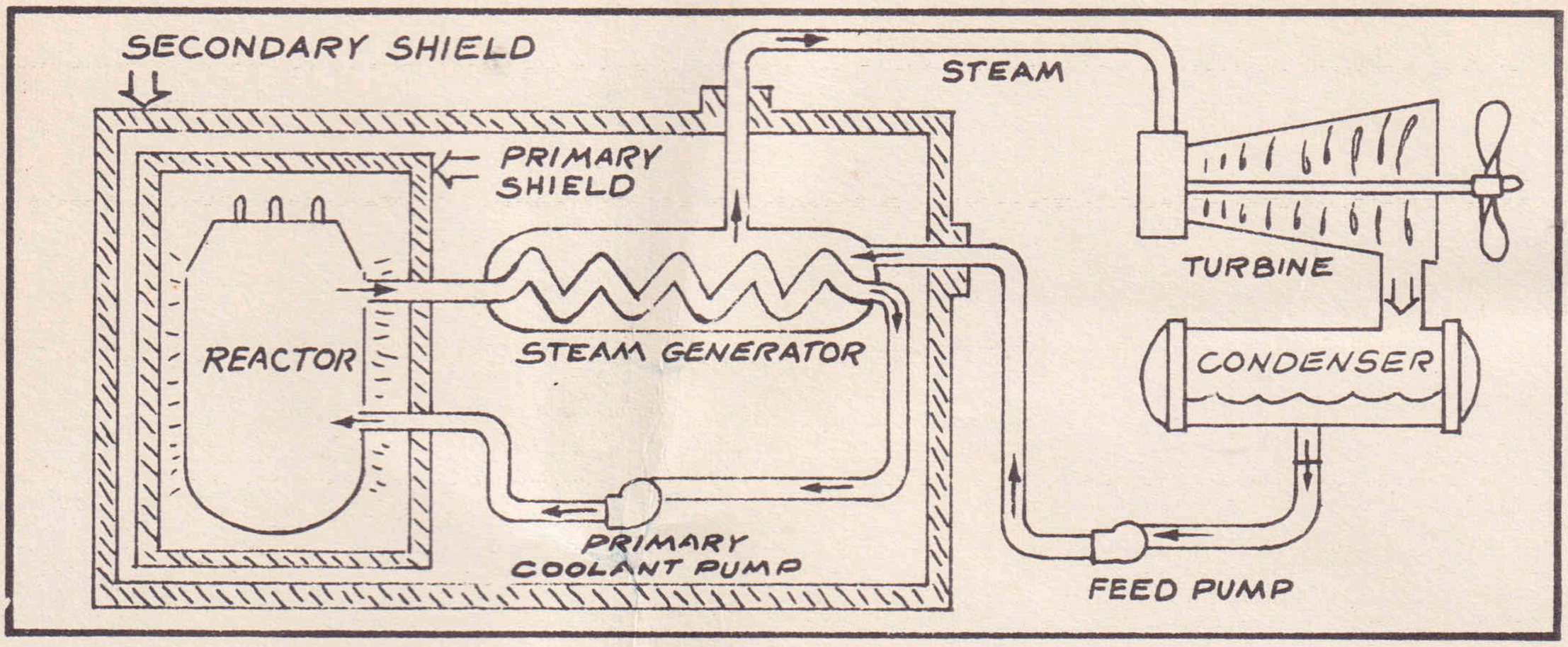
MISSILE LAUNCHING

POLARIS missiles are launched by an air-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. 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.

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 comprises 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 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 deterent to those who might start a global war.

THE POWER PLANT

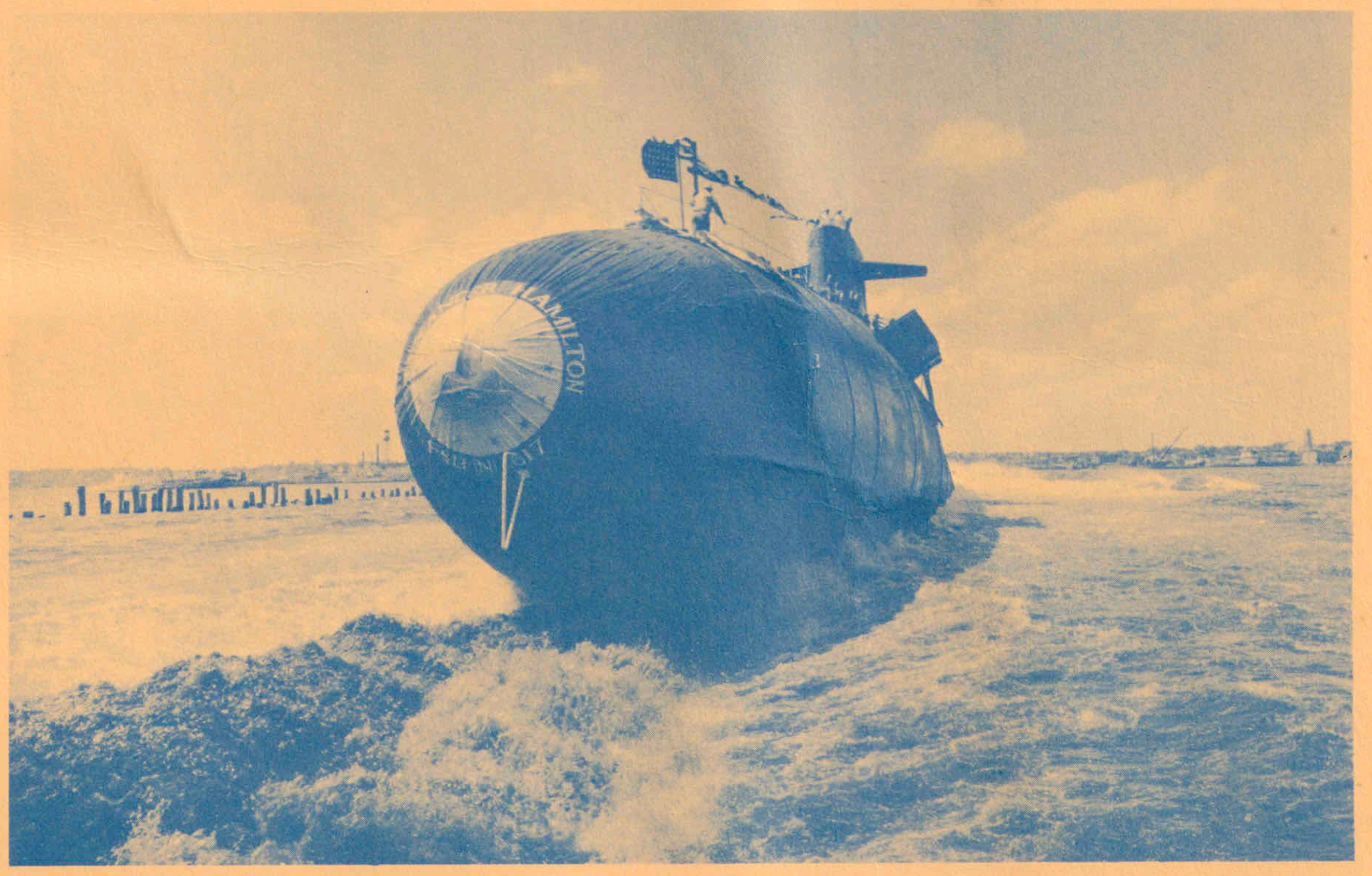


ALEXANDER HAMILTON is powered by a nuclear power plant which consists of a nuclear reactor with its associated circulating water and steam cycles and auxiliary machinery.

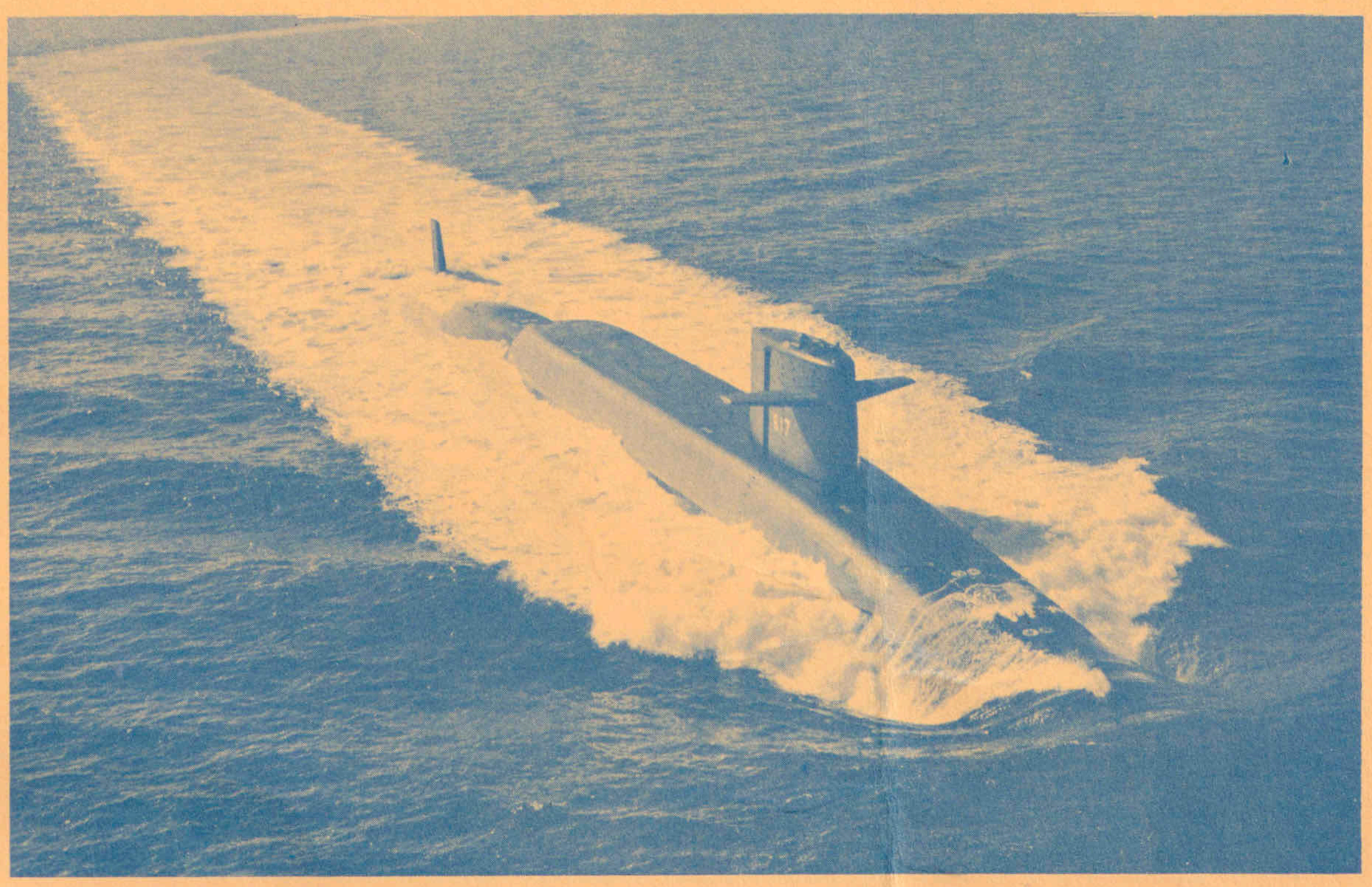
The primary system is a circulating water cycle and consists of the reactor, identical port and starboard loops of piping, primary coolant pumps and the tubes of the steam generators. Heat is produced in the reactor by nuclear fission and is transferred to the circulating primary coolant water which 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 engineroom where it drives the ship's service turbo-generators which supply the ship with electricity and the main propulsion turbnes 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 shutdown. 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.



LAUNCHING



SEA TRIALS