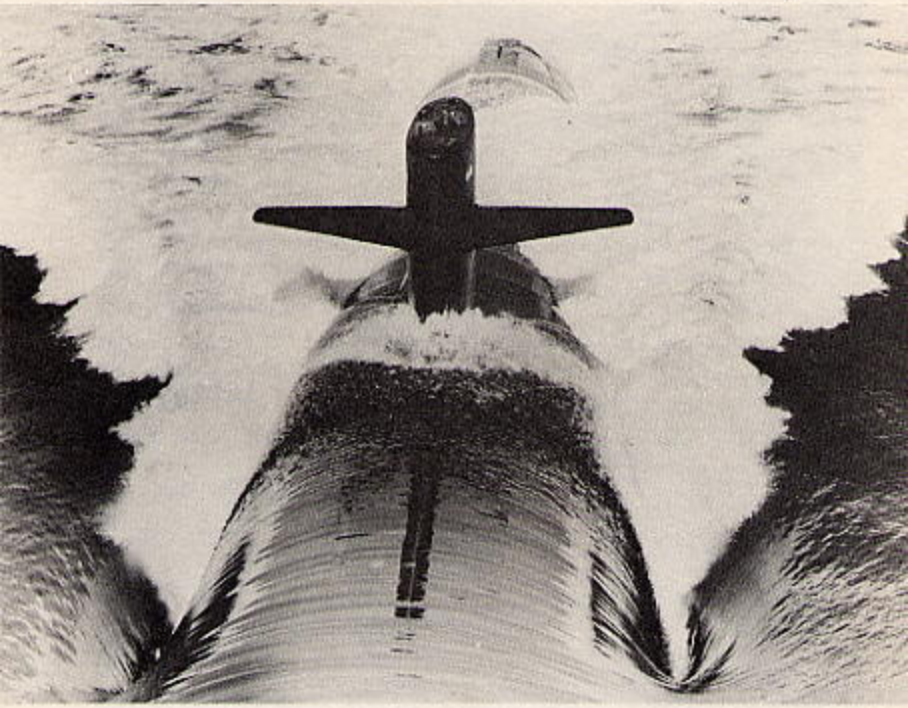
Welcome Aboard



USS GROTON

SSN 694

WELCOME ABOARD

GROTON is a nuclear powered fast attack submarine of the LOS ANGELES (SSN 688) class. Her principal mission as an attack submarine is to operate against enemy submarines and surface ships. Surpassing the underwater capabilities of any class of ship before her, GROTON carries detection, communications, navigation, propulsion and computerized weapons systems of the most advanced design. For months, she can cruise quietly submerged with a maximum of comfort for her crew, and with an ever ready potential for delivery of any submarine tactical weapon the Navy possesses against submerged or surface targets. When coupled with the talents of a well trained submarine crew, USS GROTON provides a tactical capability of major importance to our nation's defense.

SHIP'S CREST

The official crest of USS GROTON (SSN 694) is symbolic of the ship's namesake, the community of Groton, Connecticut, and the heritage of seafaring and submarine Men-of-War built by this New England community.

The proud slogan "Submarine Capitol of the World," as well as the depiction of representative types of submarines produced by Electric Boat Division of the General Dynamics Corporation, aptly portrays more than fifty years of submarine construction in Groton.

The map of the world represents the scope of modern nuclear submarine operations, the forefront of America's defense of its sea lanes and the global capacity of the Los Angeles class submarines.

COMMANDER GARY MICHAEL CRAHAN
UNITED STATES NAVY

COMMANDER GARY M. CRAHAN
UNITED STATES NAVY

Commander Gary M. CRAHAN assumed command of USS GROTON (SSN 694) on 3 December 1982.

Commander CRAHAN is from New City, New York, where he graduated from high school in 1962. He attended Cornell University under the provisions of the Naval Reserve Officer's Training Corps Program where he received both a Bachelor of Science and a Master of Engineering Degree.

Commander CRAHAN was commissioned in 1967 and was selected for the Naval Nuclear Propulsion program. This training involved theoretical and practical courses conducted at Bainbridge, Maryland and West Milton, New York. Following Naval Submarine School he reported to USS HENRY L. STIMSON (SSBN 655) (BLUE) where he served for two years as Main Propulsion Assistant and Electrical/Reactor Controls Officer.

In 1971, Commander CRAHAN returned to West Milton, New York as an instructor in the Nuclear Propulsion Program. After this thirty month tour he reported to New London, Connecticut as the Engineer Officer of USS CAVALLA (SSN 684). In 1977 he relieved as Executive Officer of USS ANDREW JACKSON (SSBN 619) (GOLD) and served there until 1980.

Commander CRAHAN's previous assignment was on the staff of the Chief of Naval Operations where he was the Nuclear and Submarine Enlisted Programs Manager.

Commander CRAHAN is entitled to wear the following personal awards: the Meritorious Service Medal, the Navy Commendation Medal with Gold Star in lieu of a second award and the Navy Achievement Medal.

Commander CRAHAN is married to the former Nicole de Varenne of Congers, New York. They reside with their two children, Christopher and Lauren, in Gales Ferry, Connecticut.

History of the Ships Named GROTON

Three ships of the United States Navy have proudly borne the name GROTON.

The first USS GROTON was a 304 foot destroyer escort built by the Walter Butler Shipbuilding Company of Superior, Wisconsin. She was commissioned in September 1944 as USS GROTON (PF-29) and spent the latter part of World War II as a weather patrol ship in the North Atlantic. In November 1945 she was decommissioned as a U.S. Navy vessel and recommissioned in the Coast Guard, returning to weather duty in the North Atlantic in March 1946. The first USS GROTON displaced 1,264 tons, carried a crew of 190, and could reach 20 knots. She was armed with three-inch guns, automatic weapons, depth-charge tracks and depth-charge throwers. In 1947 she was again decommissioned and was sold to the Colombian Navy, where she was rechristened the A.R.C. ALMIRANTE PADILLA. During the Korean War she was assigned to duty with United Nations forces.

The second GROTON received her name late in life. Launched as the unnamed patrol craft, PCE-900, during the closing months of World War II, she was commissioned in April 1945 and was used as an anti-submarine vessel in the Pearl Harbor area. She displaced 640 tons, carried a crew of 96, and was armed with a three-inch gun, automatic weapons, depth-charge tracks and depth-charge throwers. From 1948 until 1955 she was a training ship for the Naval Reserve, based in Boston. In August 1955 she was decommissioned and, finally, while inactive she was named GROTON in 1956.

The present GROTON is the first submarine to bear this name. GROTON was launched by her builder, Electric Boat Division, General Dynamics Corporation, in Groton, Connecticut on 9 October 1976. She was commissioned on 8 July 1978 at the Naval Submarine Base, Groton, Connecticut. GROTON's operations since commissioning have included ASW exercises, weapons certifications, a brief Post-Shakedown Availability at Newport News, Virginia in the summer of 1979, and an around-the-world cruise in 1980 which included a visit to Perth, Australia. In December 1980, GROTON was awarded the Navy Unit Commendation by the Secretary of the Navy for exceptionally meritorious service while operating as a unit of the United States Pacific Fleet from April to August 1980. She displaces 6900 tons, is 360 feet long, and has the capability to carry various types of submerged launched weapons. GROTON's complement is 12 officers and 115 enlisted men.

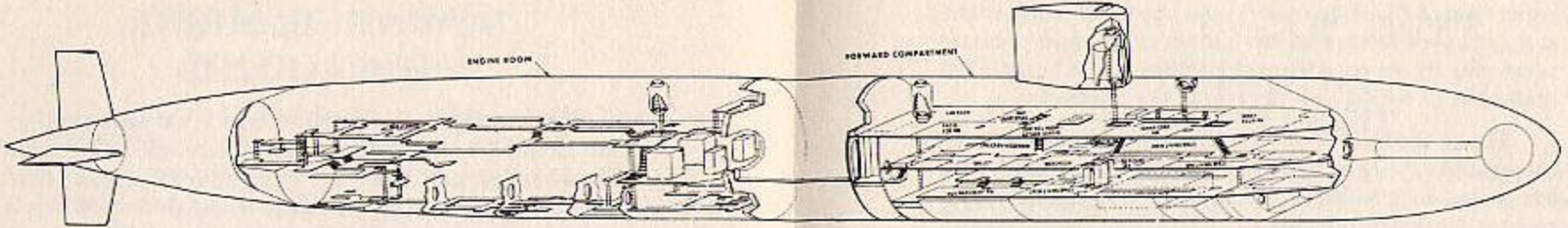
HOW A SUBMARINE IS ORGANIZED

Few modern institutions can rival the nuclear submarine for complexity and absolute self-sufficiency. The often inhospitable environment of the vast sea only intensifies the need for coordination of each crewman's activities. The keystone of the submarine organization is the Commanding Officer, the Captain of the ship. The responsibility for each operation of the submarine, in fact, the responsibility of each individual aboard, converge at the command level and create the Commanding Officer's ultimate charge: to successfully carry out the missions assigned. Whatever measures are required, in his judgment, to accomplish this task, the Commanding Officer is empowered to employ. It is this necessary conferral of discretion in an isolated circumstance that lends to the submarine command a sense of creativity and individuality.

Second in command is the Executive Officer, always next senior in rank to the Captain and not far from attaining his own command. The Exec, or XO, as he is informally called, offers his wide ranging experience to the submarine organization through direct coordination of the administrative and training activities of the ship. His knowledge and position extend his responsibilities and interests to every aspect of submarining.

The remainder of the ship's force is composed of six departments: Navigation, Operations, Weapons, Engineering, Supply and Medical. The first four are ordinarily led by the more senior officers of the ship who rank just below the Executive Officer. The more junior officers are assigned within these departments to act as division officers. Divisions are the smallest organizational units aboard, and consist of groups of enlisted specialists organized according to skills.

Every piece of material on the ship from the propeller to the paint job is assigned to a division and finally to an individual technician for its care. Each of these men soon becomes an expert not only in the technical functions to which his special training has been directed, but also in the demands of administration, leadership and instruction of his shipmates.


ENGINE ROOM
FORWARD COMPARTMENT

There is a second organization aboard the ship: the watch organization. Whereas the first organization is designed to maintain equipment, train and administer to the various groups of men, the watch organization is designed to conduct and coordinate the actual operations of the ship around the clock. This organization is ordinarily divided into three similar groups called sections. At any given time on the submarine one of these sections "has the watch." Each watch section is headed by the Officer of the Deck who carries out the Commanding Officer's orders during the hours of his watch. It is the Officer of the Deck who orders the ship's course, speed and depth, and conducts all combined shipboard evolutions. He is assisted by a second officer, the Engineering Officer of the Watch, who controls the reactor plant and all engineering evolutions in the propulsion plant.

Each watch section consists, for example, of helmsmen, who steer the ship; throttlemen, to control the steam turbine engines; sonar operators, who silently probe the ship's environs; reactor operators, who control the ship's remarkable energy source; torpedomen, to service and launch GROTON's weapons; radio operators, who continually maintain an invisible link with command centers ashore; and electricians, who supply power from the reactor for virtually every service on the ship. These watchstanders, among others, stand alertly by their equipment and stations throughout the duration of each watch.

The tempo of the watch is the heartbeat of the ship and, since one third of a submariner's time is spent standing his watch, it is also the principal determinant of his day to day routine.

A DAY IN THE LIFE OF A SUBMARINER

George Lee is a fictitious name for a typical GROTON submariner. He is, we will imagine, a second class Quartermaster. As such, he works in the Quartermaster Division in the Navigation Department. (In the Navy, quartermasters are specialists in navigation.)

On a day that he has the 0600 to 1200 watch (6 a.m. to 12 p.m.), George is awakened at 0500 by a messenger; this gives him 45 minutes to dress, shave and enjoy a large breakfast. In keeping with a tradition, he reports to his watch station in the control room, where the Officer of the Deck also stands his watch, 15 minutes before his watch begins, in order to be briefed on the activities of the previous watchstander on his watch: a custom most appreciated by the departing quartermaster. During this six-hour watch, Quartermaster Lee plots the ship's position on the chart and assists the Officer of the Deck by recording and maintaining the ship's log.

After his relief has taken the watch, George cleans up for the noon meal. Today's meal is followed in the Crew's Mess by a "School of the Boat" lecture given by the Auxiliary Division Chief Petty Officer on the ship's hydraulic system. Since he is already qualified on the GROTON, George passes the lecture up in order to spend some time preparing for his first class Quartermaster examination. At 1500 (3 p.m.), he has an appointment to examine a newly reported seaman on his knowledge of the ship's periscopes and antennas, for the seaman's submarine qualification. George Lee's immediate

supervisor, a Chief Quartermaster, had told him to make some changes to several navigation charts and publications and to prepare an order for some new training materials — which took the rest of the afternoon.

The ship's daily drill, which today was unannounced, interrupted the task for about thirty minutes. Drills are conducted to test the crew's reaction to casualty and combat situations of various sorts: fire, loss of power, toxic gas, depth charge, and so on. Every drill is an "all hands" effort, even those catching up on lost sleep are summoned by the ship's alarms. Fire hoses are unrolled, medical bags opened, gas masks worn, equipment operated, nothing that can possibly be done to enhance the realism is neglected.

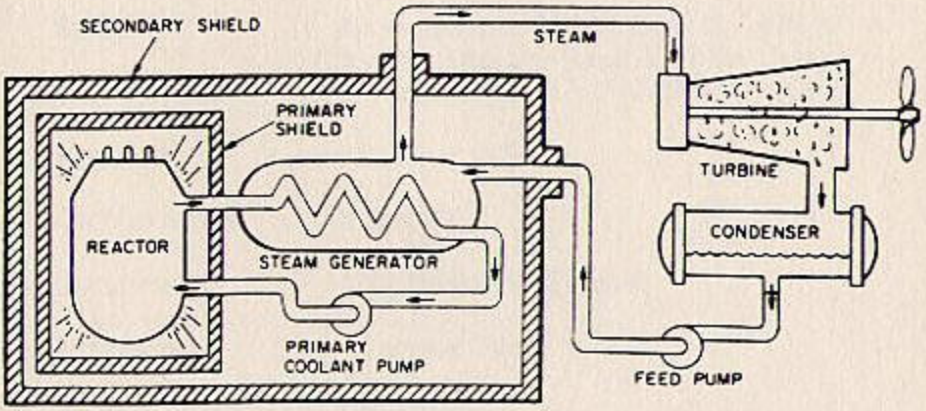
The movie after the evening meal was one he had seen before so George read some more of a Western he'd gotten in the ship's library. Then he can doze for a couple of hours before standing his next watch — the mid watch, from midnight until six in the morning.

The schedule of our mythical George Lee is not at all imaginary or exceptional. It is typical of what a submariner does during a usual workday at sea. It is perhaps a fair answer to the oft posed question: What on earth do you do out there for sixty days?

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 secondary 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.

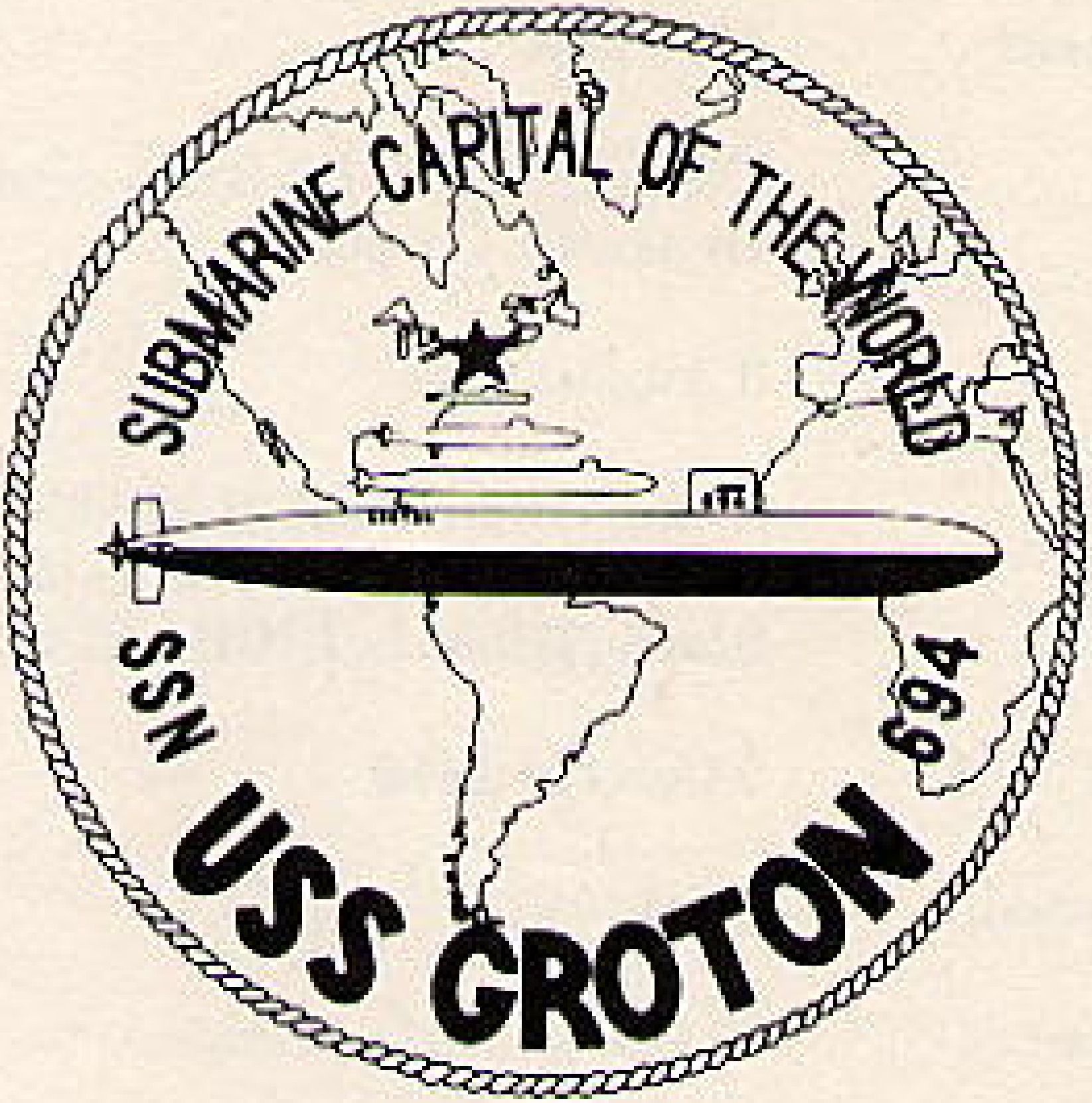
After passing through the turbines, the steam is condensed and the water is fed back to the steam generators by the feed pumps.

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.

GROTON STATISTICS

Length:	360 feet
Breadth:	33 feet
Displacement:	6900 tons
Builder:	Electric Boat Division, General Dynamics Corporation
Keel laid:	3 August 1973
Sponsor:	Anne Hazard RICHARDSON, wife of former Attorney General of the United States, Elliot L. RICHARDSON
Launched:	9 October 1976
Commissioned:	8 July 1978
Complement:	12 Officers, 115 Enlisted
Armament:	4 Torpedo Tubes
Range:	Unlimited
Speed:	Greater than 20 knots
Depth:	Greater than 400 feet


SUBMARINE CAPITAL OF THE WORLD
SSN 694
USS GROTON