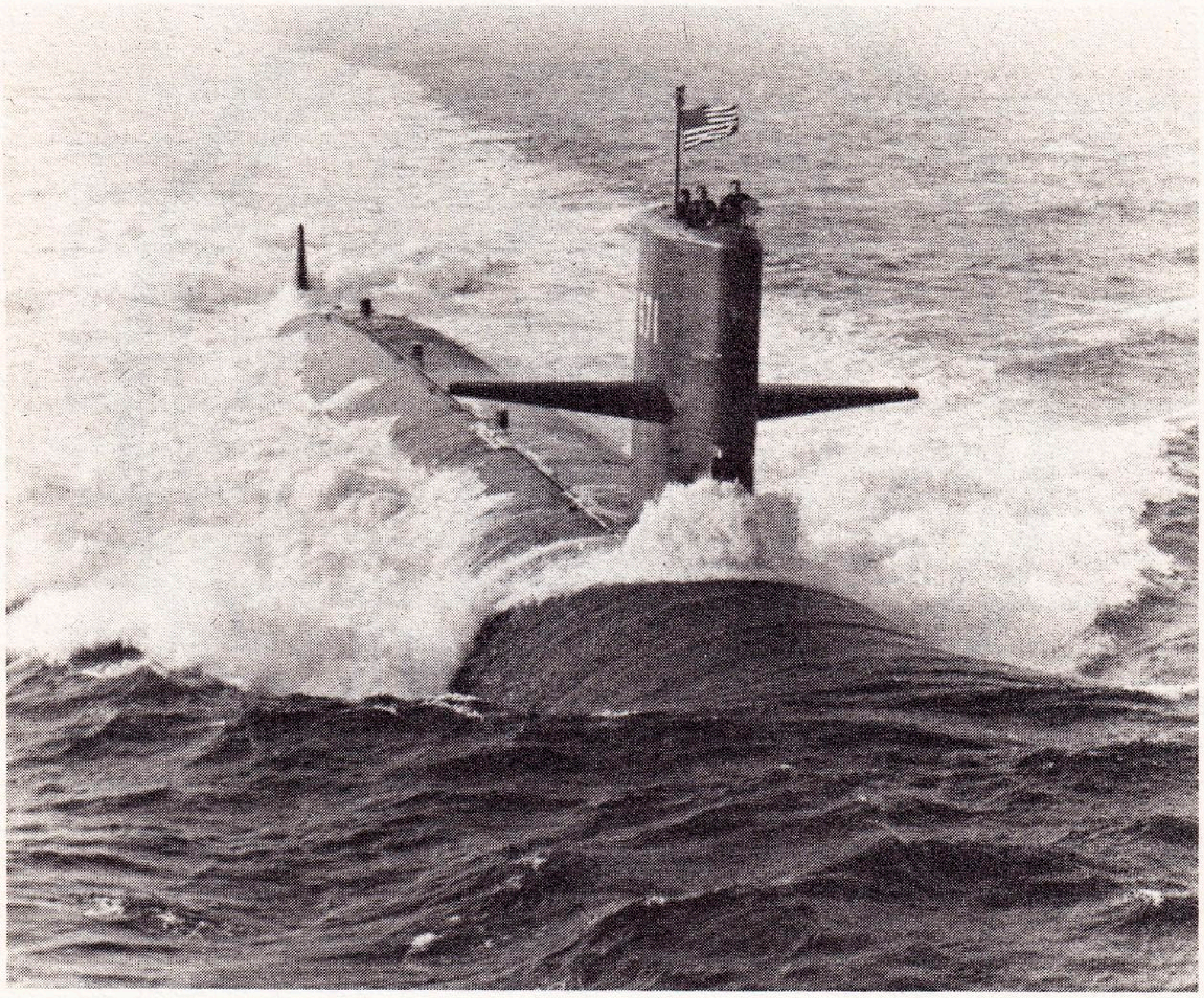
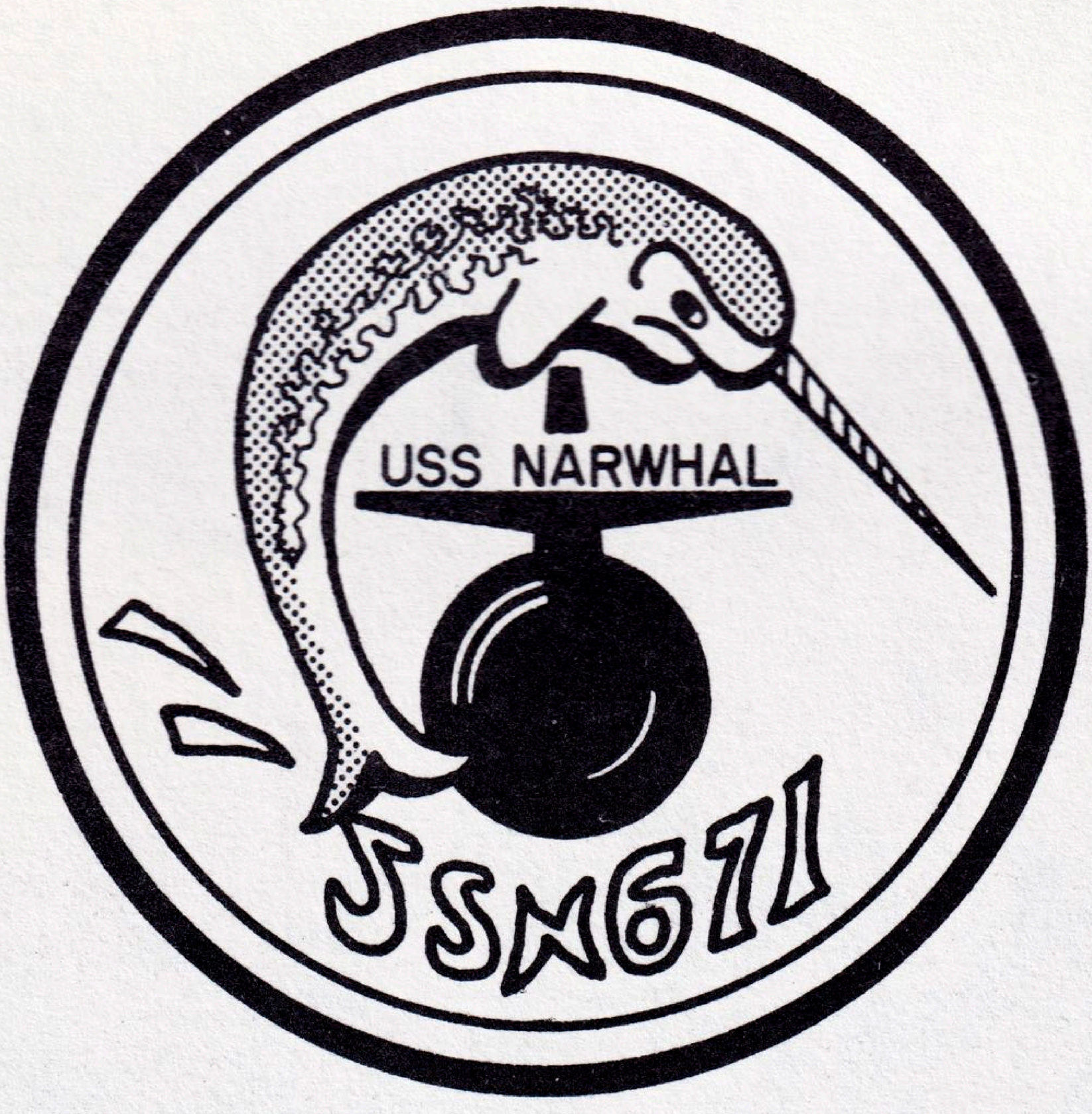


USS NARWHAL

(SSN671)

5 APRIL 1975



USS NARWHAL (SSN 671)

NAUTILUS and NARWHAL are 100 hull numbers apart, from 571 to 671, but the advances between the two submarines are far more than numerical. NARWHAL incorporates the experience of 14 years of nuclear submarine operations; from voyages under the Arctic ice pack to surfacings at the North pole, from a submerged circumnavigation of the globe to Polaris patrols that serve as a forceful deterrent to nuclear war.

NARWHAL is designed to be technically superior to previous classes of submarines and incorporates many unique design features not found on any other submarine.

THE POWER PLANT

NARWHAL's unique power plant, incorporating many advanced silencing ideas and techniques, helps to make her one of the quietest submarines in the Navy, yet is capable of propelling her at speeds in excess of 20 knots.

The NARWHAL power plant consists of a nuclear reactor, which provides heat, steam generators which utilize the heat to provide steam to the engineroom equipment, and steam driven turbines to provide propulsion and electrical power. Heat is produced in the reactor by nuclear fission and is transferred to the circulating primary coolant, which is pressurized to prevent boiling. This water then passes through steam generators, where it transfers its heat to the secondary coolant, forming high energy steam. This secondary cycle is kept completely isolated from the primary coolant.

Steam rises from the steam generators and flows to the engineroom where it drives the propulsion and electrical generating turbines. 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 this generation of 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 to enter the reactor compartment until 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 from natural sources ashore.

AUXILIARIES

The nuclear power plant gives the NARWHAL the ability to remain deployed and submerged for extended periods of time. To take advantage of this, the ship is outfitted with extensive auxiliary equipment to provide for the needs of the crew.

The NARWHAL's atmosphere control equipment consists of oxygen generators, which make up for that used by the crew, and scrubbers and burners which remove carbon dioxide and other atmosphere contaminants. The ship's air is continuously monitored when submerged by an installed atmosphere analyzer, and by various portable analysis equipment maintained by the Medical Department. It is also monitored for airborne and gaseous radiation, to ensure that exposure from these sources is kept below that allowed for the general public.

The ship is equipped with two distilling plants, which convert salt water to fresh water for drinking, washing, and supplying water to the propulsion plant. NARWHAL also has its own laundry, and even its own ice cream machine.

COMMUNICATIONS

Submerged radio communications have been possible for years. NARWHAL is completely outfitted with the wide variety of antennas, transmitters and receivers necessary for this task. Interior communications is possible on a wide range of circuits, including dial telephones, announcing circuits, and sound powered phones which do not require electrical power and are reliable in a battle situation. Various alarm and indicating circuits give the Officer of the Deck and the Engineering Officer of the Watch a complete picture of what is going on throughout the ship.

NAVIGATION

Keeping track of the ship's position while submerged is difficult and important, and requires a complex navigational system. At the heart of the system is SINS, the Ship's Inertial Navigation System. SINS integrates ship's accelerations in three dimensions and gives a continuous report of ship's position. NARWHAL additionally has the capability to employ satellite navigation while submerged.

WEAPONS

The NARWHAL is armed with four torpedo tubes. The ship's wide variety of torpedoes and advanced fire control system enable her to meet the challenge of any target.

SONAR

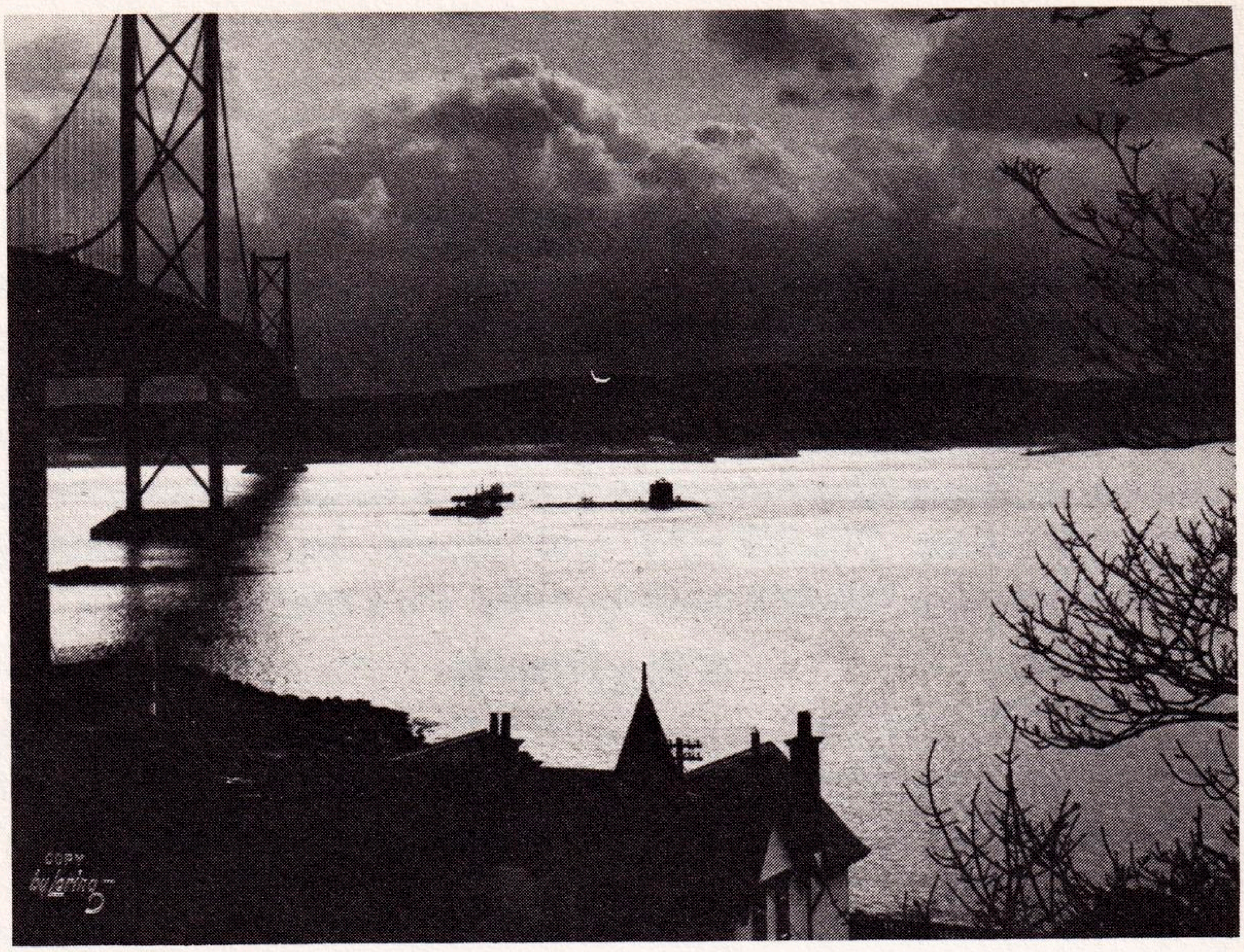
A submarine's "sonar suit" is her most vital system in the dark undersea world; it is her "eyes." NARWHAL's sonar system has been recently updated to one of the most sophisticated currently available.

SUPPLY

None of the complex equipment and machinery of the ship could function without the support of the supply department. The repair parts carried on board number in the hundreds of thousands, yet any one can be provided in a matter of minutes. The Supply Department also carries enough food to feed a crew of over one hundred for as long as 90 days, in the quality the Submarine Force is famous for. The NARWHAL has been awarded the coveted Ney Memorial Award for the best small mess afloat.

LIVING CONDITIONS

The large size of NARWHAL (over twenty feet longer and two feet wider than most other SSN's) provides for spacious working and living spaces. Every man has his own bunk and ample storage space. The airy, well organized engine room, a far cry from those of earlier diesel submarines is the envy of the Navy.



Command at Sea

THE PRESTIGE, PRIVILEGE AND BURDEN OF COMMAND
by Joseph Conrad

Only a seaman realizes to what an extent an entire ship reflects the personality and ability of one individual, her Commanding Officer. To a landsman, this is not understandable, and sometimes it is even difficult for us to compdehend — but it is so.

A Ship at sea is a distant world in herself and in consideration of the protracted and distant operations of the fleet units, the Navy must place great power, responsibility and trust in the hands of those leaders chosen for command.

In each ship there is one man who, in the hour of emergency or peril at sea, can turn to no other man. There is one who alone is ultimately responsible for the safe navigation, engineering performance, accurate gunfiring and morale of his ship. He is the Commanding Officer. He is the ship.

This is the most difficult and demanding assignment in the Navy. There is not an instant during his tour as Commanding Officer that he can escape the grasp of command responsibility. His privileges in view of his obligations are almost ludicrously small; nevertheless command is the spur which has given the Navy its great leaders.

It is a duty which most richly deserves the highest time honored title of the seafaring world — "CAPTAIN."

CAPTAIN EDWARD S. KELLOGG III, USN

Captain Edward S. KELLOGG III, son of Mr. and Mrs. Edward S. KELLOGG of Glendale, California, was graduated with distinction from the U. S. Naval Academy in 1954.

After serving for two years as ASW Officer on the USS PHILIP (DDE-498) homeported in Pearl Harbor, Hawaii, Captain KELLOGG reported to Submarine School. Subsequent duty was on USS BONITA (SSK 3), homeported in Pearl Harbor, Hawaii, and San Diego, California. Submarine qualification was achieved during this tour.

In 1959 following Nuclear Power School at New London and prototype training in Idaho, Captain KELLOGG reported to the commissioning crew of the USS SHARK (SSN 591) in Newport News, Virginia. There he served for three years successively as Supply, Operations, and Weapons Officer. A tour as Engineer Officer of the S3G Prototype, U. S. Naval Nuclear Power Training Unit, West Milton, New York followed.

In 1965, Captain KELLOGG reported as Executive Officer and Navigator of the USS SCAMP (SSN 588), homeported in San Diego, California. During this tour the SCAMP completed the first SSN SUBSAFE overhaul and one extended operation, and Captain KELLOGG qualified for Submarine Command.

After two months temporary duty under instruction at Naval Reactors in Washington, D. C. Captain KELLOGG reported for duty as Reactor Officer, USS ENTERPRISE (CVAN 65) in April 1967. This tour included three deployments to Southeast Asia, a transit "Around the Horn" to the Atlantic, and a refueling overhaul at Newport News, Virginia.

Captain KELLOGG took command of the USS NARWHAL (SSN 671) in July 1971. NARWHAL suicessfully completed four extended operations, won the NEY Award for the outstanding small mess afloat (1973), won the Division 23 Battle Efficiency "E" (1972), was awarded the Navy Unit Commendation (1974), and completed a one year overhaul at the Electric Boat Division of General Dynamics during Captain KELLOGG's command tour.

Captain and Mrs. KELLOGG, the former Margaret Anne WAGNER of Los Angeles, California, reside in Ledyard, Connecticut with their three children, Stephen, Joyce, and Carolyn. At present, Stephen is in his second year at California Institute of Technology, Pasadena, California, and Joyce is a freshman at Occidental College in Los Angeles.

Change of

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SCHEDULE O

ARRIVAL OF OFFICIAL PARTY
Honors

NATIONAL ANTHEM
Northeastern Navy Band

INVOCATION
The Reverend G. Richard Siener

CAPT EDWARD SAMU
Remarks and Reading

CDR MICHAE
Reading of C

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Command

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OF EVENTS

EL KELLOGG III, USN
of Orders

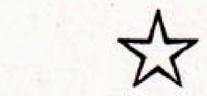
L CHRISTIAN COLLEY, USN
Orders, Relief of Command, and Remarks

T ARNE C. JOHNSON, USN
mmander, Submarine Squadron TWO
Remarks

BENEDICTION
The Reverend G. Richard Siener

DEPARTURE OF OFFICIAL PARTY
Honors

THE CEREMONY



The change of command ceremony is a time-honored tradition which formally restates to the officers and personnel of the command the continuity of the authority of the command. It is a formal ritual conducted before the assembled company of the command. The change of command in a naval unit is nearly unique in the world today; it is a transfer of total responsibility, authority, and accountability from one individual to another.

COMMANDER MICHAEL C. COLLEY, USN

Commander Michael C. COLLEY, a native of Wheaton, Minnesota, attended elementary and secondary schools in Beaverton, Oregon and was graduated with distinction from the U. S. Naval Academy in June 1960.

Following his commissioning, he served as First Lieutenant aboard USS PRICHETT (DD 561) homeported in Long Beach, California until entering Submarine School in October 1961.

After Submarine School, Commander COLLEY attended Nuclear Power School at Mare Island and prototype training at the Nuclear Power Training Unit, Idaho Falls, Idaho, completing in March 1963. Following a short tour on the S1W prototype staff, he reported to the commissioning crew of USS JAMES MADISON (SSBN 627), where he served successively as Main Propulsion Assistant and Damage Control Assistant, and completed submarine qualification.

Commander COLLEY reported to USS CASIMIR PULASKI (SSBN-633) BLUE in March 1966 and served as Engineer Officer until ordered to the Navy Postgraduate School at Monterey, California in August 1968, where he earned an M.S. in Computer Systems Management.

Commander COLLEY then served as Executive Officer, USS SUNFISH (SSN 649) homeported in Charleston, South Carolina, from January 1970 until March 1972. During this period, SUNFISH completed three extended operations and was awarded the Meritorious Unit Commendation. Commander COLLEY served on the staff of the Director, Division of Naval Reactors, United States Atomic Energy Commission, in Washington, D. C., until ordered to command NARWHAL.

Commander and Mrs. COLLEY, the former Arlen Carol SCHNEIDER of Beaverton, Oregon, and their two children, Allison and Kendall, reside at 8 Coachman Pike, Ledyard, Connecticut.

THE WHALE NARWHAL

The Narwhal is a cetacean, scientifically known as Monodon Monoceras, which is characterized by the presence in the male of a long, hornlike tusk. In the adult of both sexes there are only two teeth, both in the upper jaw, which lie horizontally side by side. The teeth of the female remain throughout life concealed in cavities in the bone, as the right tooth of the male usually does. The males right tooth is immensely developed, however, and attains a length nearly equal to that of the entire animal, projecting forward from the head in the form of a slightly tapered pointed tusk. The tusk is composed of good quality ivory, with a surface marked by spiral grooves and ridges. It's commercial value is limited to small ivory objects because a central cavity runs almost to the tip of the tusk. The Narwhal is an arctic whale rarely seen south of 65° North latitude, and like most cetaceans is usually encountered in schools of 15 to 20. It grows to a length of 8 to 10 feet, plus the tusk, and is usually playful and inquisitive. The Narwhal is usually dark marbled or mottled gray in color.

NARWHAL'S HERITAGE

USS NARWHAL (SS 17) was built by the Fore River Shipbuilding Company, Quincy, Massachusetts. The keel was laid on 16 April 1908, and she was launched on 8 April 1909. NARWHAL was commissioned 23 November 1909. The ship was renamed D-1 on 17 November 1911. As one of the pioneer submarines, it worked extensively on operations experiments and torpedo development. During World War I, the NARWHAL trained submarine crews and officers. It was decommissioned at the Philadelphia Navy Yard on 8 February 1922. The hulk was sold for scrap on 9 June 1922.

Length Overall:	134 feet
Extreme beam:	13 feet, 11 inches
Standard displacement:	288 tons
Mean draft:	11 feet, 8 inches
Submerged displacement:	337 tons
Design depths:	200 feet
Design surface speed:	13 knots
Design submerged speed:	9.5 knots
Complement:	1 officer, 14 men

Armament: four 18-inch torpedo tubes, carried four torpedoes

USS NARWHAL (SS 167) was built at Portsmouth Navy Yard, Portsmouth, New Hampshire. The keel was laid 10 May 1927, and the ship was launched 17 December 1929. Commissioned USS V-5 on 15 May 1930, it was renamed NARWHAL 19 February 1931. The ship was in overhaul in Pearl Harbor on 7 December 1941, and contributed to the fire which downed several Japanese aircraft. NARWHAL made fifteen war patrols, receiving fifteen battle stars and the Philippine Republic Presidential Unit Citation. Decommissioned on 23 April 1945, the hulk was subsequently sold for scrap.

Length overall:	371 feet
Extreme beam:	33 feet, 3 inches
Standard displacement:	2,730 tons
Mean draft:	15 feet, 9 inches
Submerged displacement:	3,960 tons
Design surface speed:	17 knots
Design submerged speed:	8 knots
Design depth:	300 feet
Complement	8 officers, 80 men

Armament: ten 21-inch torpedo tubes; two 6-inch .53 caliber guns; two .30 caliber machine guns

SHIP'S HISTORY

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USS NARWHAL (SSN 671) was designed and built by the Electric Boat Division of General Dynamics Corporation, Groton, Connecticut. The keel was laid on 17 January 1966 and the ship was launched on 9 September 1967. NARWHAL was commissioned 12 July 1969 under the command of Commander Willis A. MATSON II, USN. The ship was initially assigned to Submarine Development Group TWO at New London, Connecticut.

Following shakedown exercises, at-sea training and a dependents cruise, NARWHAL transitted to the Caribbean for weapons and acoustic trials in August 1969. In 1970, after a Post Shakedown Availability at Electric Boat Division, NARWHAL commenced preparations for its first extended operation which began in July. Upon completion of this assignment in the Atlantic, the ship visited Holy Loch and Faslane, Scotland, and returned to New London in September 1970. Following more training in the local operating areas, a visit to Florida, and a short availability at Electric Boat Division, NARWHAL deployed in March 1971. Bremerhaven, Germany was added to the ports visited by the ship just before returning to New London in June. For these early operations, the ship and company were awarded the Meritorious Unit Commendation.

Administrative command of NARWHAL was shifted from the Development Group to Submarine Squadron TWO on 1 July 1971. On 9 July 1971, Commander Edward S. KELLOGG III, USN relieved Captain MATSON as Commanding Officer.

During the last half of 1971, NARWHAL traveled to the Bahamas and visited Fort Lauderdale, Florida. The ship participated in an advanced submarine exercise for the Submarine Development Group. A short time was spent in dry-dock at Electric Boat Division for hull inspection.

NARWHAL continued its series of successful operations in 1972. Two extended deployments were made. The ship once again visited Holy Loch and Faslane, Scotland. Also during the year, operations were conducted in the Bahamas and the ship made a port call at Ft. Lauderdale, Florida for weapons development exercises and crew recreation. During this year, NARWHAL won the Battle Efficiency "E" for Submarine Division TWENTY-THREE.

In 1973, NARWHAL had another busy year, completing two extended operations for COMSUBLANT. While on one of these, the ship traveled from Holy Loch to Rosyth, Scotland by the inland route, transitting the famed Pentland Firth. On another operation farther South, Mayport, Florida was added to NARWHAL's ports-of-call. There the ship was hosts to the Chiefs of Material of all the Armed Services for a one-day SSN demonstration. In this year the NARWHAL also won the Edward F. Ney Memorial Award for Food Service Excellence as the best small mess afloat, the first and only time in the award's fifteen-year history that it has been won by a submarine.

In 1974, NARWHAL and her crew were awarded the Navy Unit Commendation for operations in 1973. On 20 February 1974, NARWHAL entered the Electric Boat Division of the General Dynamics Corporation for a regular overhaul period, which was completed on 8 March 1975.

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"Eternal Father, strong to save,
Whose arm hath bound the restless wave,
Who biddest the mighty ocean deep
Its own appointed limits keep.
O hear us when we cry to thee
for those in peril on the sea."

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"Lord God, our power ever more,
Whose arm doth reach the ocean floor,
Dive with our men beneath the sea;
Traverse the depths protectively.
O hear us when we pray, and keep
them safe from peril in the deep."

☆