

# WELCOME ABOARD



**USS JAMES K. POLK**  
**SSBN 645**





## JAMES K. POLK

James Knox Polk, for whom the USS JAMES K. POLK (SSBN645) is named, was born to Samuel and Jane Knox Polk on November 2, 1795, in Mecklenburg County, North Carolina and eventually became the eleventh president of the United States. During his distinguished career he was also a U. S. Congressman, Speaker of the House of Representatives, and Governor of Tennessee.

During his younger years Polk was not in good health and only received a limited education because of the limited facilities in his pioneer community. However, at age 18, he attended Murfreesborough Academy where his literary merit and moral worth won the approval of the rector and in 1815 he entered the University of North Carolina. Polk was graduated from the University in 1818 and enjoyed the distinction of being awarded first honors in both mathematics and the classics. Early in 1819 he began the study of law in the office of Judge Felix Grundy and was admitted to the bar in 1820. In 1823 he was chosen to represent his county in the state legislature, and, having thus entered the political arena, he continued in a very active, and for the most part successful, political career to the close of his term as President (1845-1849).

As the youngest President up to that time, Polk had a distinguished record of accomplishments. The western border of the United States was pushed to the Pacific adding to this country what is now Texas, California, Oregon, Arizona, Nevada, Utah, New Mexico, Washington, Idaho and parts of Montana, Wyoming, and Colorado. He also settled the Oregon boundary dispute with Great Britain and established an independent treasury system. By his assertion of the "Polk Doctrine" he made the American continent safe for democracy by repelling with all vigor interference by European powers. Seldom in our history has such an ambitious program been carried into effect in the brief span of four years.

In spite of all this he has remained relatively forgotten notwithstanding the fact that his tariff policy led to prosperity; that his treasury system proved successful; that his "Polk Doctrine" has been approved and extended; and that his expansion policy added over one million square miles of territory and gave the United States free access to the Pacific Ocean.

During his administration a formal course of education and preparation for Naval Officers at the United States Naval Academy was founded in 1845.

Polk was truly a constructive statesman, an unusually able executive, and a sound patriot who "planted the laws of the American Union on the shores of the Pacific."

# VITAL STATISTICS

Keel Laid . . . 23 November 1963      Length . . . . . 425 Feet

Launched . . . . . 22 May 1965      Beam . . . . . 33 Feet

Commissioned . . . . . 16 April 1966

Displacement surfaced . . . . . about 7000 tons

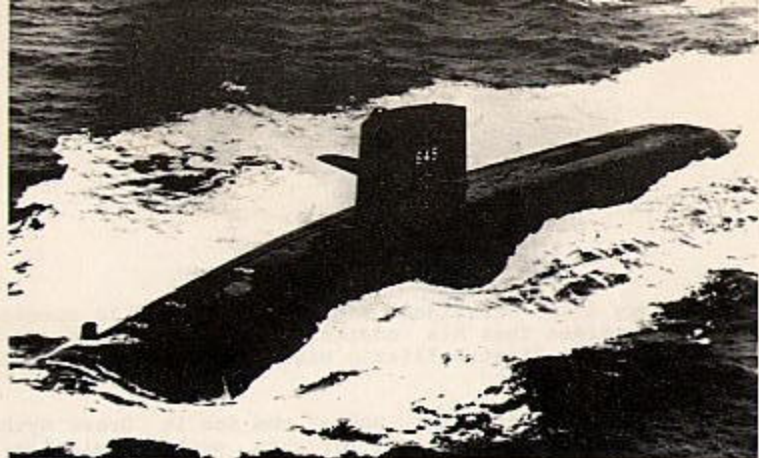
Displacement submerged . . . . . about 8200 tons

Speed submerged . . . . . over 20 knots

Diving depth . . . . . over 400 feet

Built by . . . . . Electric Boat division of General Dynamics

Conversion to Poseidon . . . . . Newport News Shipbuilding



## USS JAMES K. POLK (SSBN645)

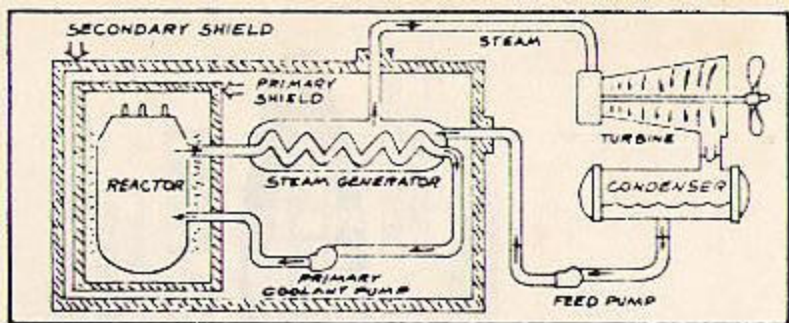
The USS JAMES K. POLK (SSBN645) is the Navy's 57th nuclear powered submarine and the 35th of its Polaris/Poseidon submarine fleet. The ship is 425 feet long with a beam of 33 feet and displaces approximately 8,000 tons submerged.

JAMES K. POLK was launched on May 22, 1965, at General Dynamics Corporation's Electric Boat Division at Groton, Connecticut. After 19 successful patrols POLK returned to the Newport News Shipbuilding Company, Newport News, Virginia, for conversion from the Polaris A-3 missile system to the Poseidon C-3 missile system.

Fast, silent and virtually immune to surprise attack, the JAMES K. POLK combines the almost unlimited endurance of nuclear power with the deterrent might of 16 POSEIDON missiles capable of wreaking more havoc than all the bombs of World War II. These missiles have a range of about 2,500 nautical miles and are housed in 16 launching tubes located just aft of the sail.

Manned by alternate crews (Blue and Gold) - while one is at sea the other is ashore training - she will be on duty almost constantly with address unknown, an underwater mobile launching platform hidden and virtually indestructible. Under U.S. control at all times the FBM (Fleet Ballistic Missile) system provides the United States with a powerful deterrent force to those who might start a global war.

In order to provide for maximum crew comfort during the 60 day POSEIDON patrols the ship is equipped with 390 tons of air conditioning equipment. Special atmospheric purification equipment removes irritants from the air and maintains the proper balance of oxygen, carbon dioxide and other atmospheric elements, and electrolytic oxygen generators permit the submarine to manufacture all of its oxygen from sea water.



## THE POWER PLANT

The POLK is powered by a nuclear power plant consisting of a nuclear reactor which provides heat for the generation of steam to drive 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, 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 and boils water to form steam. It is then pumped back to the reactor by the primary coolant pumps and reheated 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 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.

## THE POSEIDON MISSILE

On 18 January 1965, President Johnson announced in special message to the Congress that his administration proposed to develop a new missile for the Fleet Ballistic Missile Weapon System-POSEIDON.

POSEIDON is named after the God of the Sea in Greek mythology, which is particularly appropriate for this seabased missile. The mythological POSEIDON was known as the "earth-shaker" because of his ability to cause earthquakes far inland. But he is also known as "the preserver" because he could send calm seas.

The POSEIDON missile has its roots in the Fleet Ballistic Missile System which produced the Polaris submarine-launched missile. Polaris A-1 first became operational in 1960. This 1,200 nautical mile range missile was quickly followed by Polaris A-2, a 1,500 nautical mile range second generation. An advanced Polaris, the 2,500 nautical mile range A-3 became operational in 1964.

A series of proposals for a missile to follow the Polaris led to the development of POSEIDON, which is designated C-3.

POSEIDON is considerable different from the Polaris A-3. It is six feet in diameter, as opposed to the four and one-half foot Polaris. Measuring three feet longer than the 31 foot A-3, the POSEIDON missile weighs approximately 64,000 pounds. Yet despite this increase in size and weight, the growth potential of the ballistic missile submarine launching system has enabled the Navy to fit POSEIDON missiles into the same 16 missile tubes that carry Polaris.

POSEIDON has more than doubled the payload of the Polaris A-3. It is twice as accurate and as a result, its effectiveness against hardened targets is many times greater than the latest version of Polaris. Increased accuracy and flexibility permit its use broader range of possible targets with added assurance of penetration of enemy defenses. The POSEIDON missile can deliver multiple reentry bodies (REB) to a single target, one REB each to several targets, or any combination between. Missile thrust is provided by two independent (separable) rocket stages and by a hot-gas generator in a third stage, each stage has a completely independent steering system. Like Polaris A-3, it enables us to reach any spot on earth from its submerged nuclear-powered nesting place.

