

USS ENTERPRISE CVA(N) / CVN-65

THE WORLD'S FIRST NUCLEAR-POWERED
AIRCRAFT CARRIER



Dave McKay

Foreword by Vice Admiral Vincent de Poix USN (Ret.)

Midword by Admiral James L. Holloway III USN (Ret.)

Afterword by Captain William C. Hamilton Jr. USN

Vice Adm. Vincent de Poix, USN (Ret.)

This is the story of a ship that has no peer. From the day she was placed in commission in late 1961 she has performed for 50 years as though she was an animate entity, knowledgeable of her responsibilities in our country's defense and determined to meet or surpass every one of them. She showed these traits as soon as she was taken to sea by her plankowner crew, breaking records during sea trials and continuing to top previous records for aircraft carriers at every opportunity following commissioning. Witness that she received the highest marks ever awarded a carrier during shakedown training and that she won the Battle Efficiency "E" for all-round excellence her first year in the fleet, an accomplishment not matched by any other carrier up to that time. Indeed, *Enterprise*, like a champion thoroughbred racehorse, came out of the gate, took the lead, and never looked back.

During the entire period of the Big E's lifetime she has performed with distinction. In the first year or two of time in the fleet she bore the crushing load of a new propulsion system, introducing new aircraft into fleet operations and using new-design electronics and control equipment. Added to this was the

imperative of "showing the flag" at sea and in every port visited, and entertaining important personages and groups, both civilian and military, including heads of state.

The entire crew of *Enterprise* fully appreciated that none of the ship's demonstrated operational excellence or accolades received would have been certain, or even likely, but for the genius of Admiral Rickover in insuring that the design, built-in reliability, and attention to every detail were a full-bore, ongoing effort at Naval Reactors, the Newport News Shipbuilding Company, and by the ship's crew. Our first of its kind light reactor nuclear propulsion plant did its job unfailingly and surpassed design specifications in operation.

It is impossible to understate the significance of the part played by the crew in carrying off the monumental task of getting the ship off on the right track and keeping it there. Every officer and man knew he was lucky to be part of the crew of this magnificent ship, and demonstrated that fact by the operational excellence consistently shown at sea and the spotless conduct of the entire crew ashore.

There could not have been a more



Captain de Poix, the first Commanding Officer of USS *Enterprise* (CVA(N)-65).

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worthy successor to the legendary and beloved CV-6, which bore a charmed – and combat distinguished – life in World War II in the Pacific. We wish we could look forward to her preservation, particularly since it did not happen

with CV-6, and we know it cannot with a nuclear-powered carrier. But our Big E, CVA(N)-65, will live on in our minds and hearts, and those of our children and their children. Suffice it to say: She has done the State some service.

Adm. J. L. Holloway III, US Navy (Ret.)

CVA(N)-65 was commissioned in November 1961 as the USS *Enterprise*, the eighth navy ship to bear that name. Originally designed for a 25-year service life, America’s military strategy – in its role of leader of the free world and the world’s only superpower – has mandated an extension on active duty for *Enterprise* well beyond its planned service life.

On January 21, 2012, Defense Secretary Leon Panetta told sailors aboard the country’s oldest aircraft carrier that the United States is committed to maintaining a fleet of 11 of its formidable warships, despite budget pressures, in part to project sea power against Iran. Panetta also told the crowd of 1,700 gathered in the hangar bay of the USS *Enterprise* that the ship was heading to the Persian Gulf region and would steam through the Strait of Hormuz as a direct message to Tehran. Iran had warned it would block the strait, a major transit point for global oil supplies, and bluntly told the United States not to send carriers into the gulf. The United States has said it will continue to deploy ships there. “That’s what this carrier is all about,” said Panetta. “That’s the reason we maintain a presence in the Middle East ... We

want them to know that we are fully prepared to deal with any contingency and it’s better for them to try to deal with us through diplomacy.” *Enterprise* made the passage through the straits and into the gulf without incident.

“The decision to maintain 11 carrier groups,” Panetta said, “is part of the Defense Department’s five-year plan. In effect, the Pentagon has extended *Enterprise*’s operational life to fifty years in the active fleet, where the veteran warship has been engaged in nearly every major combat operation in the past five decades.”

Enterprise’s fame goes well beyond her longevity. She was the first nuclear-powered aircraft carrier in history. Of perhaps greater significance, *Enterprise* also was the first nuclear-powered ship to engage in combat.

That event occurred in December 1965 and was recognized at the time by a message from the admiral embarked as the carrier division commander, to the Secretary of the Navy, stating: “I have the distinct honor and pleasure to announce to you that on the Second Day of December 1965 at 0720H, the first nuclear-powered task group of your Pacific Fleet and the United States Navy



Capt. Holloway on the bridge during the second WESTPAC in 1967.

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engaged the enemy in Vietnam.” At 0700, when the *Enterprise* commenced air operations, “The carrier’s bridge and every available spot on the superstructure were covered with newsmen and military observers watching this unprecedented first in the history of war at sea: the use of a nuclear-powered aircraft carrier in combat operations. With *Enterprise*’s entrance into combat, a new era was opened before the world.” So reported the wire services dispatch covering the occasion. *Enterprise* and Air Wing Nine completed every mission on that daily flight schedule. CVW-9 flew 125 strike sorties on that date, unloading 167 tons of bombs and rockets on the enemy.

From that day forward, *Enterprise* would embark on an operational career that not only set performance records among the carriers conducting combat operations in the Vietnam War; she also established the persuasive justification for the incorporation of nuclear power in all future aircraft carriers in the U.S. Navy. In spite of being a relatively new ship, fighting in a high tempo war for the first time, *Enterprise* won the Battle Efficiency “E” award for being the best carrier in the Pacific fleet for the year 1965.

Enterprise returned from her first combat deployment in Vietnam to San Francisco in late June of 1966 to a real hero’s welcome. At that time she had an impressive cachet. She was the largest ship in the world, the first and only nuclear carrier, and her eight reactors gave her a speed of more than 40 miles an hour. Then, too, at that time the majority of the American people supported the war. The Bay Area had declared the day of return “*Enterprise* Day,” and any sailor with an *Enterprise* shoulder patch could get a free drink in most of the bars in San Francisco on that day. There was a feeling

of outright patriotism in the atmosphere. All three of the Bay area’s main newspapers devoted their full front pages on June 21, 1966 to the *Enterprise*’s return from Vietnam to its new homeport, the Naval Air Station Alameda, CA. The country was looking for a tangible hero to fuss over and for now, *Enterprise* was “IT.”

In June of 1967 *Enterprise* completed her second combat tour in Vietnam and again headed for Alameda. The carrier had been 230 days out of homeport and served five uninterrupted 30-day stints at Yankee Station, flying a total of more than 14,000 sorties from her flight deck, of which 11,470 were combat sorties, and delivering a total of 14,023 tons of ordnance. This amounted to 114 tons of TNT per day against a well-defended enemy. As in all combat tours, *Enterprise* and her air wing paid a price, losing 20 aircraft and 18 air crewmen to hostile fire. The finest recognition of *Enterprise*, her embarked air wing and her gallant sailors for the 1965–1967 combat deployments to Vietnam was the award of the coveted Navy Unit Commendation.

Although *Enterprise*’s early fleet operations included a circumnavigation of the globe and successful combat tours in Vietnam, follow-on nuclear-powered carriers were not immediately to come about. The stumbling block was Secretary of Defense Robert McNamara, who cited the increased costs of nuclear power in the carrier and was unable or unwilling to quantify the improved operational advantages that resulted. In his view, the nuclear-powered carrier was not “cost effective.” Consequently, the next two carriers, *America* (CV-66) and *John F. Kennedy* (CV-67) in the fiscal year 1961 and 1963 programs respectively, were conventionally powered improved

versions of the basic *Forrestal* design.

Then in the fall of 1966, Rickover invited McNamara and members of his staff, accompanied by the Secretary of the Navy, the CNO, and selected members of the OPNAV staff, including myself as the nuclear carrier project officer, to the Bettis Laboratory in Pittsburgh for a briefing on a surface-ship reactor that would be rated at 70,000 shp. Secretary McNamara was impressed by the presentation and upon his return to Washington he wrote to the Secretary of the Navy asking if two of these reactors could power an aircraft carrier, and, if so, would the navy be interested in such a design. The initial reaction in the Pentagon was only lukewarm. At that point, Admiral Rickover personally involved himself in the deliberations and, after a quick but intense consultation with his staff, affirmed that he could boost the output of his large-surface ship reactor from 70,000 to 90,000 shp.

Dr Harold Brown, Director of the Department of Defense Design, Development, Research and Engineering (DDR&E) Directorate and later Secretary of Defense, observed, "Bob [Secretary McNamara] has been so inflexible on opposing nuclear power for carriers in spite of the technical advances by the industry and the remarkable performance of nuclear ships in combat at sea, that he can't change his policy without an overriding reason. The two-reactor carrier now gives him that excuse."

Nuclear-powered aircraft carriers are

proving to have very long lives. The reason is twofold. First is the extraordinarily stringent quality control of materials and skill in workmanship that goes into the initial construction of a nuclear-powered vessel. The second reason is the tender loving care – TLC – given to the ship by the crew of talented and dedicated young sailors who conduct the routine maintenance and repair of these carriers. This does not just apply to the nuclear components. The sense of motivation is transmitted to the entire ship structure. *Enterprise's* weapon systems have remained modernized over her 50-year life span because her military capabilities reside in her embarked aircraft. In a sense, an aircraft carrier's performance can be modernized in as little time as it takes to fly one aircraft off and a newer model aboard.

The demonstrations in the Bay area in 1966 of support for our sailors and carriers, our navy and our nation, inspired by the spectacle of the world's largest ship exploiting America's unique technology and competence in nuclear power; and then the debates in the Congress favoring the naval appropriations for nuclear carriers, were early evidence of the powerful legacy of *Enterprise*, one that has manifested itself in the construction of 11 large deck carriers to create today's all-nuclear carrier force as the main battle line of the U.S. Navy's fleet. The Big E's compelling motto, "Ready on Arrival," has deservedly evolved to today's: "We Are Legend!"

Capt. W. C. Hamilton Jr. – Last CO of USS *Enterprise* CVN-65

The beginning of the *Enterprise* lineage pre-dates the United States Navy and the Declaration of Independence. The immediate predecessor to CVN-65 carried the fight in the Pacific during World War II and was the most decorated warship in our nation's history. The name *Enterprise* defines its own ethos. A compilation of definitions from several of the most popular dictionaries could be assembled into the following appropriate description:

Enterprise: An especially daring and courageous undertaking driven by a bold and adventurous spirit.

It was the perfect description of USS *Enterprise* (CVN-65). The ship was one-of-a-kind, the likes of which will never be seen again. It was built at great technical risk and was, at the time of its construction, the largest ship in the world. Powered by eight nuclear reactors, its complicated propulsion plant was a nightmare to operate and maintain but provided redundancy and flexibility its successors could never match. Without siblings, the ship's singular existence required unusually arduous effort and undivided attention from its Sailors and

Marines, which numbered in excess of 200,000 during its 51 years of service. The tasking was no less challenging for shipyard workers, some of whom spent their entire professional lives designing, building, overhauling, and upgrading CVN-65. The education, skill, hard work, and complete devotion to duty required to keep this unique warship ready for combat was well known on the waterfront. Revealing that one had been assigned to *Enterprise* was often met with muffled laughter and false condolences from those who had never served aboard her and genuine respect from those who had.

Once aboard, Sailors and Marines quickly acclimated to the challenge of being *Enterprise*. Dread was replaced with pride as they became experts on the warship others avoided. They embraced the long-standing motto, “There's tough, and there's *Enterprise* tough,” proud to be part of something difficult, something historic; something special. At the end of their assigned tours they often transferred from the ship physically and emotionally drained, seeking orders to somewhere they could recuperate. But more often than not they would, by their own choice, return later in their careers

in pursuit of the pride, the challenge, and the rush of being *Enterprise*.

While some may insist that a ship has a soul, others might consider the idea of an inanimate object having a spirit inane or even blasphemous. The thought that a piece of steel could be self-aware, harbor emotion, and, most importantly, be at its best when times are the worst, is something found only in science fiction. However, if one reviewed the life and times of USS *Enterprise* (CVN 65) and passed judgment based wholly on observation, while discounting socially and scientifically acceptable paradigms and religious beliefs, the evidence would clearly support the notion that she did indeed have a soul.

CVN-65 did not like to be awakened from a long slumber. The appearance of a cold start-up on the operational calendar was always met with groans from the Engineering and Reactor departments. Chances were slim that eight reactors, eight coolant turbine generators, eight ship service turbine generators, and four propulsion plants could be brought to life without technical difficulties. The 1961-model ship shared the cold-natured

characteristics of a 1961-model Chevrolet, except that a true comparison was only possible if the Chevrolet was equipped with eight manually choked engines, eight generators, four-wheel drive, and was the only example ever built. Once the crew got the ship running it seemed as if she would run forever. It was as though the ship resented being shut down to cold iron and wouldn't forgive the transgression until she was once again running at 30 knots in an open ocean.

Most of my experience with *Enterprise* came fairly late in her life when she was challenging the crew almost hourly. Many times the ship would take the crew to the brink such that any additional failure would render it unable to accomplish its mission. But that additional failure either never happened or it happened at a time when it wasn't critical to the operational schedule. *Enterprise* seemed somehow to know just how hard the crew was working and what the limits were. Maybe she understood what was at stake, both for her and the crew.

As Captain, I saw the ship hang on until the last airplane was aboard more than once, squeezing out that last knot of wind across the deck required for the Hawkeye while running through oil fields in the North Arabian Gulf. I saw it finish a downwind launch at maximum speed with lowering main engine vacuum because it was circulating 96-degree seawater through the condensers. I saw the ship labor through the Thimble Shoals Channel, its seawater intakes rapidly clogging with a major bryozoan spawn, and make it to safe waters on a single remaining operational shaft. And I saw the number three arresting gear engine blow its main packing on the last trap the night before the ship was scheduled to pull into port. When it appeared things





Capt. William C. Hamilton Jr. hosts Secretary of Defence Leon Panetta while *Enterprise* steamed in the Atlantic Ocean on January 21, 2012 during CompTuEx, prior to the final deployment. SECDEF Panetta is sitting in the skipper's chair on the port side of the navigation bridge.

USN, MC2 Michael L. Croft Jr.

were going badly, *Enterprise* always got the job done. Maybe the ship understood that if she demonstrated an inability to accomplish the mission, she might be sent to the scrap yard.

This *Enterprise* was designed to last approximately 25 years and the Navy had no intention of keeping her past about 20 or so. She served honorably and superbly for 51 years, more than half the history of Naval Aviation at the time of inactivation in December of 2012. USS *Enterprise* (CVN 65) sailed on 25 extended deployments in support of America's national interests, more than any other aircraft carrier whether calculated in total or per year of life. She sailed virtually every ocean on the planet. She saw the Cuban missile crisis up close. She saw airplanes launch and never recover off the coast of Vietnam. And she launched the first strikes against the Taliban after 9/11.

To truly appreciate the longevity of CVN-65, one must contrast the America of 1961 with that of 2012. The most prominent difference was illustrated in the diversification of the crew. There were few prospects for minorities or women aboard warships in 1961. In 2012, the crew mix was such that minorities were the majority and both minorities and women served in positions of great responsibility. They operated nuclear reactors, conned the ship, flew jet aircraft, lead major departments comprised of hundreds of Sailors and Marines, and commanded Carrier Strike Groups. They redefined the "bold and adventurous spirit" of *Enterprise* and were an integral part of its ethos.

It is easy to romanticize about the prospect of the ship having a soul. But I don't for a minute believe that a piece of steel alone can have a soul. I do, however,

firmly believe that *Enterprise* – the ship, her faithful and devoted crew, and the shipyard folks that spent their lives building and maintaining her – comprised a collective soul born before America was the United States that will continue long after CVN-65 is decommissioned.

The greatest honor and privilege of my professional life was to be a part of *Enterprise*, to serve with the finest and

most dedicated Sailors and Marines in the history of the Naval Service, and to briefly occupy the Captain's Chair on CVN-65. It is my sincere hope that someday in the not too distant future another Captain will enjoy the life-defining moment of watching the first aircraft launch from the deck of his aircraft carrier, an aircraft carrier with a soul; an aircraft carrier named USS *Enterprise*.



Captain William C. Hamilton Jr. is a native of Alabama, where he earned an undergraduate degree in Aerospace Engineering from Auburn University in 1981. He also holds a Master of Science degree from the University of Tennessee. His first deployment in USS *Enterprise* (CVN 65) was to fly patrol missions over Bosnia and Iraq, later followed by

a tour as executive officer, during which he deployed to the North Atlantic for Summer Pulse '04. Capt. Hamilton has logged over 5500 total flight hours and over 850 carrier landings during his career. During 2012 he was serving as the 23rd and final commanding officer of USS *Enterprise*.