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**THE MAIDEN DEPLOYMENT OF**  
**THE *USS RONALD REAGAN (CVN-76)***

**(with a brief look at the development of**  
**the modern aircraft carrier)**

**Ronald I. Duvall**

## **THE MAIDEN DEPLOYMENT OF THE *USS RONALD REAGAN (CVN-76)***

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### **SUMMARY**

When the *USS Ronald Reagan (CVN-76)* sailed from San Diego on her maiden deployment in January, 2006, she was the newest, largest and most advanced aircraft carrier in the world. She was accompanied by four other ships that together made up Carrier Strike Group Seven, and she carried over 5000 sailors and aviators and more than 80 aircraft. She was embarking on a six-month cruise for the purposes of training, calls at ports of key U.S. allies and combat missions in the Persian Gulf.

This paper follows the *Reagan* on her deployment, with depictions of life aboard ship and activities in port. Interspersed are some history of the development of the modern super carrier and descriptions of the *Reagan's* construction, capabilities, nuclear power plant and the aircraft she carried. An aircraft carrier is by definition and purpose a "floating airfield," able to land, launch and store aircraft – all else is subordinate to that mission.

I was privileged to personally participate in this cruise as part of the Navy's traditional "Tiger Cruise," an event in which family members and friends of the crew are invited to join the ship to sail from her last port of call to her homeport at the conclusion of a long deployment. That seven-day transit was filled with thrilling demonstrations from the Air Wing and Strike Group ships as well as the routine ship-board activities of a crew that competently had fulfilled its mission.

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### **Departure**

On the hazy morning of January 4, 2006, the *USS Ronald Reagan* (hull classification symbol *CVN-76*) sailed majestically into San Diego Bay from her berth at Naval Air Station North Island, ready to commence her maiden (first) combat deployment. Blue-clad sailors lined the rails of her immense flight deck as she traversed the curving bay toward the open ocean. The *Reagan* was the Navy's newest aircraft carrier, the ninth *Nimitz*-class nuclear-powered behemoth, commanded by Captain Terry B. Kraft. Ahead of her lay a six-month cruise that would take her and her crew of more than 5,000 to Australia, then to Southeast Asia, on to the Persian Gulf, back to East Asia, and home to San Diego with an intervening call at Pearl Harbor, Hawaii. Emotion ran high, felt variously by the ship's crew, the family members left on the dock and the on-lookers awed by the passage of the great ship.

The *Reagan* that morning carried with her more than just her sailors and aviators and her complement of aircraft – she bore the spirit of her namesake, Ronald W. Reagan, the 40<sup>th</sup> President of the United States, and his vision of “Peace Through Strength,” which had been adopted as the ship's motto. In the opinion of Loren Thompson, Senior Contributor for Aerospace and Defense for *Forbes*, “America's ... large-deck, nuclear-powered aircraft carriers are by far the most lethal combat systems available for action. ... In fact, they are so lethal ... that they have probably done more to deter aggression than any other military system in U.S. history.” To the extent that the President's outlook was indeed valid, the *USS Ronald Reagan* most certainly embodied it.

## **The *Reagan* Comes into Being**

The *Reagan* was ordered in 1994 and built by Northrup Grumman Newport News in Virginia, the only shipyard in the United States capable of building nuclear-powered aircraft carriers. The keel was laid on February 12, 1998, and the ship took shape by fitting together nearly 200 “superlifts” – modular pieces that weighed up to 900 tons each. The steel body of each superlift was assembled separately with most of its wiring and plumbing and then lowered into its precise position in the ship by huge cranes to be welded to surrounding modules and its wiring and plumbing connected. The last module placed was the 575-ton island on top of the flight deck along the starboard (right) beam.

The *Reagan* weighed in at nearly 100,000 tons, making her the largest ship afloat at the time. She was about as long as the Empire State Building was tall. Her flight deck stretched out 1092 feet in length – longer than three football fields – and was 252 feet wide, covering a total of 4.5 acres. From keel to mast, she stood 244 feet, about 20 stories high. She could cut through the water at over 30 knots (approximately 35 miles-per-hour), and by virtue of her nuclear power plant, she possessed unlimited range.

Because the *Reagan* was expected to be in service until after 2050, she was built on the concept of a “flexible platform.” Innovation in digital technology, weapon capabilities and other relevant fields proceeded at a dizzying pace, a reality incorporated into the initial design of the *Reagan* – in fact, her original electronics were not even selected until a year before her completion. Platform flexibility enabled regular upgrades, including increased network capacity and “plug-and-play” spaces for new weapons and workstations. The *Reagan* was scheduled for updates every two years, with a full overhaul slated for the late 2020s, halfway through her projected service life.

The *Reagan* accommodated over 80 aircraft of various types, half of which were stored in the cavernous Hanger Bay, the deck directly below the flight deck. This deck also housed repair facilities. The remainder of the planes were parked on the flight deck, and four elevators, each capable of handling two planes at a time, shuffled the planes between decks as needed. Four steam-powered catapults were positioned on the forward end of the flight deck and could each launch a plane at 30-second intervals. Landing aircraft had three cables to snag with their trailing tailhook, bringing their speed from 150 miles-per-hour to zero in about 350 feet.

The eyes and ears of the *Reagan* consisted of eight different kinds of radar, various radio bands and satellite uplinks to connect with other military forces. Together, these could create and share a “real-time map” showing the deployment and courses of each connected unit, essential for effectively coordinating the actions of the units involved.

An aircraft carrier was not, in itself, a heavily armed vessel. Her survival in battle depended on the combined forces of her planes, the surface ships that accompanied her and the submarines that silently shadowed her. However, the *Reagan* was not entirely defenseless. She possessed two missile systems – two Sea Sparrow launchers to confront threats at a distance, and two rolling mainframe missile bays that sprayed nearby targets with small rockets. Ten 50-caliber machine guns and four 20mm Close-In Weapons Systems, which were quickly repeating cannon placed on a rotating, automatically-controlled and -aimed gun mount, completed the *Reagan's* armament.

The *Reagan* was christened on March 4, 2001, by Nancy Reagan, wife of the former president. The *Reagan* was the first ship named after a living president, but due to President Reagan's advancing Alzheimer's disease, he was unable to attend, and Mrs. Reagan performed the ceremony on her own. President George W. Bush and his wife, Laura, were also present. The date of christening was the

Reagan's 49<sup>th</sup> wedding anniversary. After numerous tests and trials, the *Reagan* was accepted for service by the Navy and commissioned on July 12, 2003.

### **Carrier Strike Group Seven**

The *Reagan*, three ships that comprised Destroyer Squadron Seven and a supply ship made up Carrier Strike Group Seven. The Strike Group was under the command of Rear Admiral Michael H. Miller, and its mission was to support Operation Iraqi Freedom and Operation Enduring Freedom, active combat operations then underway in Iraq and Afghanistan. The Strike Group would also engage in joint training with other carrier strike groups and make good-will port calls in key allied countries. And it would, just three days into its deployment, rescue a man aboard a fishing boat who was suffering chest pains, bringing him to the *Reagan's* sick bay for medical treatment. The *Reagan's* first port call was to be Brisbane, Queensland, on Australia's east coast, approximately 6300 nautical miles and 19 sailing days from San Diego.

### **History of the Aircraft Carrier (I)**

This long first leg of the *Reagan's* cruise provides an opportunity to consider how such a ship came to be. History may be viewed as a series of events, each one leading to another like a cascading line of falling dominos. What dominos had to tumble to arrive at the rousing departure of the *Reagan* on her maiden deployment that January morning of 2006?

To even conceive the idea of an aircraft *carrier*, there had to exist something for it *to carry*. The first domino to fall, then, occurred on the beaches of Kitty Hawk, North Carolina, where Wilbur and Orville Wright made four brief flights in the first powered, heavier-than-air aircraft on December 17, 1903.

Just over seven years later (a remarkably brief time span), the first fixed-wing landing on and take-off from a ship was made. The *USS Pennsylvania (ACR-4)*, an

armored cruiser, was anchored in San Francisco Bay. The cruiser was fitted with a temporary platform built atop her aft gun turret and extending over her stern, 120 feet long with ropes and sandbags serving as a primitive arresting system to snag a hook attached to the plane's tail. A canvas awning was erected at the forward end of the platform to catch the plane if it overshot.

On January 18, 1911, Eugene Burton Ely, racecar driver and self-taught pilot, landed his Curtiss Model D biplane without incident and, after lunch with the ship's captain, flew back into the air with a first in naval aviation history. Tragically, Ely was killed later that year performing at an air fair in Macon, Georgia.

It took another seven years to create the U.S. Navy's first aircraft carrier, the *USS Langley (CV-1)*, named after Samuel Pierpont Langley, an assistant professor at the U.S. Naval Academy and competitor to the Wright brothers in the race to develop and fly the first airplane. The *Langley* was converted from the *USS Jupiter (AC-3)*, a collier built to carry coal for refueling other ships. The conversion, begun in 1920, involved building a landing deck over the entire length of the ship and her superstructure – literally, a full-length flat roof -- using the bases of the coal-loading and -unloading towers as supports. After the conversion was completed in 1922, the *Langley* served as a testing and training platform and saw no combat.

Previously, during World War I, the British Royal Navy had converted various ships, including cruisers and even a passenger liner, into ships that could land, launch and store aircraft, the three basic elements of carrier operations. The planes on these carriers served primarily as scouts surveilling vast areas of ocean for enemy vessels as they and their weapons were too small and weak to inflict any serious damage.

The Imperial Japanese Navy and the British Royal Navy were the first to *design* ships as aircraft carriers in 1922 and 1924, respectively. Meanwhile, the U.S. Navy followed the *Langley* with the *USS Lexington (CV-2)* and the *USS Saratoga (CV-3)*, both initially designed as battlecruisers but reconfigured during construction as carriers, both commissioned in 1927. The first U.S. carrier built from the keel up was the *USS Ranger (CV-4)*, commissioned in 1934.

## **Brisbane**

The *Reagan* arrived in Brisbane on January 23 and was the first nuclear-powered carrier to moor portside at this Aussie city. The city was excited to host her and her crew. DVDs promoting the city's attractions had been produced and shown aboard the *Reagan* prior to her arrival, and one local news organization termed her the city's "newest tourist attraction." A huge economic impact was anticipated by the city's businesses, including owners of the area's legal brothels, whose spokesman was quoted as saying "it's a real treat for the women ... in the industry, because they find sailors ... are a really polite bunch of people." The crew took part in seven community service projects, ranging from supporting a local children's and women's hospital, working on the restoration of an Australian Navy World War II frigate and cleaning the koala exhibit at the zoo. After four days in Brisbane, the *Reagan* would leave for Singapore.

## **History of the Aircraft Carrier (II)**

Aircraft carriers emerged as powerful warships during World War II, as both aircraft and naval vessels underwent significant development in the inter-war period. The United States was pulled into World War II by the surprise air attack on Pearl Harbor in Hawaii in which nearly 400 planes launched from six Japanese carriers, that nation's entire roster of first-line flattops, severely crippled the U.S. Pacific Fleet. However, the Navy's three carriers were not in port during the attack and thus remained undamaged and in fighting trim, which would prove significant in the early months of the Pacific war.

In what has been called the "Turning Point of the War," U.S. and Japanese carrier strike forces met near Midway Island in the Western Pacific in June, 1942, just six months after Pearl Harbor. With superior intelligence regarding the Japanese fleet's maneuvers and unparalleled bravery in the face of a much stronger

opponent, U.S forces prevailed, sinking all four Japanese carriers while losing, in turn, the *Yorktown (CV-5)*. The battle demonstrated that control of the *seas* depended upon control of the *air* and that modern sea power would be built on the trident of air, surface and undersea forces.

## **Singapore**

An 11-day sail put the *Reagan* in Singapore, arriving there on February 7 for a four-day stay of “friendship building and community interaction.” In addition to sightseeing and enjoying the local culture, the crew engaged in several community projects including supporting services for the disabled, visiting a children’s home and working to benefit facilities and services for AIDS patients. Singapore was the last port call before the *Reagan* moved to the Persian Gulf, the locale of her first combat action.

## **History of the Aircraft Carrier (III)**

Incremental advances in design and capacity can be expected to occur with each evolution of a product, but sometimes an innovation proves to be an unprecedented, game-changing leap. Two such leaps separated early carriers from a modern super carrier such as the *Reagan*.

The first revolutionary advance was the adoption of an angled flight deck, in which the landing area began at the centerline of the stern but then angled out around 10 degrees over the port (left) beam of the ship. Through the World War II era, carrier decks were axial, aligned with the keel from fore to aft. This arrangement was sufficient for piston-engined planes which would cut power just above the deck, land at low speed and be caught by the arresting gear, stopping them well short of any planes parked on the forward end of the deck.

Jet aircraft, which became available in the late 1940s, created seemingly insurmountable problems for carrier use. They were faster, heavier and required “power-on” landings for optimum performance. If the tailhook did not engage, the pilot would apply more power, take off and come around to try again. An axial deck could not accommodate those procedures safely. The angled deck was the eventual solution, enabling a carrier to make use of the most modern war planes. Planes could be parked on or catapulted from the forward area of the deck, while landings could take place simultaneously behind them and off to the side. The first U.S. carrier so designed, as opposed to retrofitted, was the *USS Forrestal (CV-59)*, commissioned in 1955.

The second quantum advance in the making of the modern aircraft carrier was the advent of nuclear power for propulsion. Initially debuted in submarines, the technology was first applied to aircraft carriers for the *USS Enterprise (CVN-65)*. Nuclear power eliminated the need for regular refueling, thereby infinitely extending the range of a vessel so equipped. Nuclear power also greatly increased the ship’s speed: during her initial sea trials, the *Enterprise* displayed her jaw-dropping horsepower by outrunning the small and fast destroyer escorts that were sailing with her. These two factors – range and speed -- gave nuclear-powered vessels tremendous advantage over similar vessels that used conventional power.

Fuel in a nuclear reactor produced extreme heat. Water under high pressure was fed into the reactor where it became superheated. The superheated, high-pressure water was then fed into a steam generator, where it heated other water to create steam. That steam then turned turbines that turned the shafts that spun the propellers and thereby moved the ship.

The first nuclear-powered warship in the world was the *USS Nautilus (SSN-571)*, a precedent-breaking submarine commissioned in 1955. She set records for range and the ability to remain submerged for several weeks, a capability strikingly demonstrated by a 6-day cruise under the polar icecap from Alaska to Greenland in 1958. The *Nautilus* also displayed unmatched speed in a submarine, capable of

running submerged at up to 25 knots (diesel-electric submarines could only make around 10 knots submerged, as they were forced to run solely on batteries while under water).

The world's first nuclear-powered aircraft carrier was the afore-mentioned *Enterprise*, commissioned in 1961, the eighth U.S. ship to carry that name. [Note: The alpha-numeric hull classification symbol (e.g., *CVN-65*) is unique to each ship, which is not always the case with the ship's name (e.g., *USS Enterprise*). The letters indicate the type of vessel, and the number shows the sequence of that vessel in its type. *SS* designates submarine and *CV* aircraft carrier – as noted earlier, the *USS Langley*, the nation's first aircraft carrier, carried the hull number *CV-1*. The addition of an *N* to the identifying letters (e.g., *SSN* or *CVN*) signified that the ship was nuclear powered.] The *Enterprise* was powered by eight Westinghouse A2W reactors (A2W indicating “A” – developed for the aircraft carrier platform, “2” -- second generation reactor, and “W” – utilizing pressurized water) which gave her a top speed of 33-34 knots.

By contrast, the *Reagan* was powered by two Westinghouse A4W type pressurized water reactors (the “4” indicating fourth generation) producing approximate 280,000 horsepower (the exact figure is classified by the Navy). The high-pressure steam produced by the reactors drove four steam turbines which spun four propellor shafts. As noted earlier, the *Reagan's* top speed was officially listed at 30+ knots, and her range was unlimited. In addition to providing motive power, the system generated all the electricity used throughout the ship and supplied water for all shipboard needs by powering an onboard desalination plant capable of producing up to 400,000 gallons of fresh water per day.

### **On station in the Persian Gulf**

The Persian Gulf was where the Strike Group executed its primary mission on the deployment from mid-February to mid-May, 2006 -- force projection into Iraq and

Afghanistan, supporting ground troops with smart bombs and air-to-surface missiles as well as maritime security operations in the Gulf itself, ensuring that no enemy could use the waters for attack or to transport fighters, weapons or supplies. In an April 20<sup>th</sup> article, the *Khaleej Times* -- an English-language newspaper published for the United Arab Emirates -- reported that the Air Wing aboard the *Reagan* had already flown over 1000 missions after only a month on station.

### **Carrier Air Wing 14 (CVW 14)**

An aircraft carrier was designed to serve as an “airfield at sea,” and for its maiden deployment, the *Reagan* was home to Carrier Air Wing 14 (CVW-14), which was based out of Naval Air Station Lemoore in California’s San Joaquin valley. It constituted a full-capacity Air Wing, comprised of eight squadrons flying various types of aircraft, from fighters and attack aircraft to airborne early-warning and electronic warfare planes to helicopters and a supply/transport plane.

A Carrier Air Wing carried out three general missions. First, it served as the “eyes of the fleet,” a mission dating back to the fragile biplanes used by the first carriers during World War I. Visual and electronic intelligence could be obtained for hundreds of miles around the Strike Group. Second, the Air Wing was tasked with gaining and maintaining control of the surrounding seas by neutralizing any enemy naval power. While essential overall to successful naval operations, this capability was minimally required on this deployment as there were no significant enemy naval threats. And third, the Air Wing was charged with carrying out strikes against specific targets, a mission it performed in Iraq and Afghanistan in the three months the *Reagan* was stationed in the Persian Gulf.

Fighter and attack aircraft of the Air Wing featured two versions of the F/A-18, the first all-digital fighter. Two squadrons, VFA-25 (the “Fists of the Fleet”) and VFA-113 (the “Stingers”) flew the F/A-18C Hornet (the “C” designating that the

plane was designed for use on carriers). This plane was first built by McDonnell Douglas in the 1970s, then later by Northrop and Boeing, and was a twin-engine, single seat mid-wing aircraft. Its top speed was Mach 1.7 – i.e., 1.7 times the speed of sound or over 1300 miles-per-hour – and it could range for over 1000 nautical miles. It was a versatile platform, able to carry a variety of external equipment under its wings to perform a wide range of missions including fighter escort and fleet air defense as well as engaging enemy ground forces with bombs and missiles.

In the 1990s, the Hornet evolved into the F/A-18E Super Hornet. It was larger and heavier than its predecessor, its range was increased by 40% and its speed to Mach 1.8 (nearly 1400 miles-per-hour). A bigger and better Hornet, the Super Hornet could also carry up to five external fuels tanks and be configured as an airborne tanker for air-to-air refueling of other aircraft. This aircraft was flown by VFA-22 (the “Fighting Redcocks”) and VFA-115 (the “Eagles”).

The Air Wing’s early-warning aircraft was the E-2C Hawkeye 2000, originally built by Northrup Grumman in 1973 and updated in 1992. It was a twin turboprop airframe with a large rotating dome above the fuselage, designed to stay aloft for four hours and alert the Strike Group to approaching air threats. It was also capable of offering command and control for strike aircraft, aerial surveillance, relay of communications and even search and rescue. The “Black Eagles” (VAW-113) flew this plane.

The EA-6B Prowler provided tactical electronic warfare for the Strike Group and was flown by VAQ-139, the “Cougars.” The Prowler could jam enemy radar and radio equipment and had missiles that could home in on and destroy enemy radars. It was a twin turbojet, four-seat aircraft.

The *Reagan’s* helicopter squadron was HS-4, the “Black Knights,” flying the Sikorski SH-60F and HH-60H “Seahawks.” These craft were capable of submarine

detection and attack and carried torpedoes and anti-ship missiles. They also performed surveillance, communication relay, search and rescue and logistics support.

Lastly, aboard the *Reagan* was the humble but indispensable C-2A Greyhound, flown by VRC-30 Detachment 1, whose motto was “We Deliver.” Built by Northrup-Grumman in the 1990s, the twin turboprop plane served as an at-sea delivery aircraft, ferrying both freight and passengers between ship and shore. Capable of carrying up to 10,000 pounds (that would accommodate an aircraft engine), it had a range of over 1000 nautical miles. During this deployment, the Squadron ferried over 40 medical patients, 3000 “distinguished visitors” and a half-a-million pounds of cargo and mail.

### **Jebel Ali (x 3)**

The *Reagan* visited the port city of Jebel Ali, located on the southern outskirts of Dubai in the United Arab Emirates, three times while on station in the Gulf for the purpose of rest and recreation. Crew members were taken on city tours and desert safaris, went shopping and golfing, and even had the chance to snow ski on a vast indoor slope. And, as at every port, the crew participated in a variety of community service projects.

### **Port Klang, Kuala Lumpur, Malaysia**

Having completed her tactical mission in the Gulf, the *Reagan* turned for home, stopping first from June 3-6 at Port Klang, Kuala Lumpur, Malaysia, an important ally in the region. Once again, crew members enjoyed the hospitality of the locals, being taken on city tours and participating in community service projects and other “friendship-building” activities.

## A “Floating City”

Aircraft carriers have been characterized as “floating cities,” with all the services and many of the amenities offered by a small municipality, and the *Reagan* demonstrated this admirably. She was the self-contained home to over 5000 sailors and aviators for six months and had to supply their basic needs through her various departments. Utilities – water, electricity and waste disposal – law enforcement and fire protection were provided. Full service medical, surgical and dental facilities were available to all members of the Carrier Strike Group (and to the occasional civilian in the event of an emergency). Familiar “city-type establishments” could be found: “restaurants:” mess halls that served over 15,000 meals daily; two convenience-type stores; two barbershops and five gyms. Religious Ministries supported the spiritual and personal life of the crew, and the Legal Department provided advice and direction to crew members, conducted criminal and administrative investigations and performed personal legal services. Even schooling was offered through NCPACE (Navy College Program for Afloat College Education), more informally known as “Ronald Reagan University” – over 2800 sailors were enrolled over the course of the deployment.

Like most established communities, the *Reagan* had her traditions, festivals and ceremonies. The first occurred just two weeks after her departure from San Diego when the ship crossed the equator. Those who were making their initial crossing (known as “slimy Pollywogs”) were subjected to “a good-natured rite of passage” after which they became seasoned “Shellbacks” and “in need of a long shower.” On this deployment, the equator and the international dateline were crossed at the same time, bestowing upon the sailors the title of “Golden Shellbacks.”

The crew of the *Reagan* performed a solemn ceremony during the transit between Brisbane and Singapore. While passing through the Coral Sea, they commemorated the 1942 battle in which the carrier *Lexington* was sunk. Here they also performed a burial at sea, consigning the remains of 12 deceased veterans to the deep, accompanied by a 21-gun salute and the playing of Taps. In

addition, a wreath was laid for the Japanese aircraft carrier *Hosho*, sunk in the same engagement as the *Lexington*.

Recreation was an essential ingredient on a long cruise. A Halfway Talent Show was held on April 4 (“Halfway” referring to the duration of the deployment, not necessarily the quality of the talent presented.) The winner received a check for \$500. On May 1, country music artist Chris Gray was flown to the *Reagan* for a concert while the ship was underway in the Persian Gulf. And in a competition that lasted from February to May, a search was conducted for the “Reagan Idol,” the best singer among the crew, the winner of which became part of the sixth season of the television talent show, “American Idol.”

### **Hong Kong**

The final foreign port call for the *Reagan* was from June 10-13 on the island of Hong Kong, at that time still a semi-independent Chinese city adjacent to mainland China. The Hong Kong branch of the Nautical Institute, described by their website as a “global body for maritime professionalism” and headquartered in London, welcomed the carrier in its newsletter and were in turn welcomed aboard the ship for a tour, while crew members toured the city and nearby parts of the mainland. Members of the crew also played a goodwill basketball game against a team from the Peoples’ Liberation Army.

### **Personal Experience**

This account of the maiden deployment of the *USS Ronald Reagan* became personal for me while the ship was docked in Pearl Harbor, Hawaii. I joined my son, then Lieutenant, Junior Grade (now Commander) James P. Duvall, and over 1300 other family and friends of the crew for a long-standing Navy tradition known a “Tiger Cruise,” in which civilians sponsored by crew members sail from

the final port of call to the ship's homeport at the end of a long deployment. It was, as can be imagined, one of my most memorable life experiences.

Lines were cast off and we embarked from the pier, moving slowly through the harbor. All who were on deck paused whatever they were doing to honor the battleship *USS Arizona (BB 39)* and her crew, sunk during the Japanese attack on Pearl Harbor with over 1100 lives lost, as we silently glided past her memorial. Through the harbor and into open water, the *Reagan* accelerated to cruising speed, a rock-solid platform in every sea we encountered during the leisurely seven-day transit to San Diego.

My son was an officer, and so I enjoyed officer quarters and the privilege of the Officers' Mess and Wardroom. I did not bunk with my son, which turned out to be a good thing – he was quartered forward below the flight deck, and the frequent thunder of the launching catapults overhead was deafening. My quarters were on the third deck along the starboard hull near the waterline, shared with two officers pulling regular duty shifts and another "Tiger" father.

So many events stand out for me. The first night out, the claxons sounded in the very early morning and the call came for "General Quarters," practice for the "Tigers" to rush to their assigned stations to be accounted for in the event of an emergency. During the Cruise, tours were given for many parts of the ship (my son's Reactor Department was not open for visits, being off-limits to all but authorized personnel), from the engine rooms to the Hanger and Flight Decks to the bridge.

We were treated to two days of the Air Wing's capabilities – the first day, rehearsal, which we viewed from the ship's tall island and the second day, the actual "Air Power Demonstration," viewed from the flight deck between launchings and landings—during which we witnessed low-altitude flybys at near stall-speed, the F/A 18 canted upwards at an extreme angle fighting to remain

aloft, and then at supersonic speed with vapor trails streaming from the jet's wings and a rooster tail kicked up by the compressed sound waves striking the ocean's surface. The demonstration also included exhibitions of extreme in-flight maneuvering, in-air refueling and a grand finale in which each type of aircraft in the Air Wing flew over the ship in tight formation.

A "Sea Power Demonstration" on another day highlighted the speed and maneuverability of the destroyers and cruiser in Carrier Strike Group Seven. While the evolution of aircraft carriers in the 60 years after World War II left them resembling the carriers of that war, destroyers and cruisers had been transformed to the extent that they were largely unrecognizable. Gone were the guns fore and aft and the racks of depth charges ready to be dropped off the stern to engage an enemy submarine. Instead, the destroyers sported a single small gun forward, the cruiser a single gun fore and aft. Their new armament was a large variety of missiles, capable of strategic land strikes (Cruise missiles) and of defense against aircraft, other ships and submarines.

The destroyers were Arleigh Burke-class guided missile destroyers, the *USS Decatur (DDG 73)* and the *USS McCampbell (DDG 85)*, a later version of the *Decatur*. The third ship in the squadron was the Ticonderoga-class guided missile cruiser *USS Lake Champlain (CG 57)*, a larger and more lethal version of the destroyers.

Rounding out Carrier Strike Group Seven was the *USNS Rainier (T-AOE 7)*, a fast combat supply ship, decommissioned in 2003 to become part of Military Sealift and Control and manned by a civilian crew. She served as an oiler, ammunition and supply ship.

Some further random memories: three large urns of coffee in the Officers' Mess, rated in terms of strength (none were labeled weak); watching live World Cup soccer matches in the wardroom, courtesy of American Forces Network; watching

an RAS (Replenishment at Sea) in which lines were rigged between the *Reagan* and the supply ship along which cargo was passed while the ships remained in motion; and a Fourth of July celebration in which the fireworks were red tracer rounds fired from the ship's 50-caliber machine guns.

### **Aircraft Carriers of the Future?**

The *USS Ronald Reagan (CVN-76)* embodied the apex of carrier design and capability when she was commissioned in 2003, but just 14 years later, she and her *Nimitz*-classmates were superseded by a new class of carrier, the *Ford*-class, named after the first of these new carriers, the *USS Gerald R. Ford (CVN-78)*, which was commissioned in 2017. At least 10 of these carriers are envisioned to be built. The *Ford*-class is larger but due to increased levels of automation, requires 10-15% fewer crew members and a 30% reduction in maintenance requirements. It boasts 23 new or upgraded systems, including approach and landing systems based on GPS instead of radar; electromagnetic accelerator motors that replace steam catapults for launching aircraft; and a flexible, reconfigurable layout below decks to facilitate the addition of new equipment. Its nuclear reactors develop one-and-half times the power of the *Nimitz*-class, which supports the increased automation. The flight deck is larger and capable of handling approximately 10% more sorties per day, making use also of F-35Cs (fighter jets able to execute very short takeoffs and vertical landings) as well as unmanned (drone) aircraft.

Will carriers continue to become larger and more powerful, or will something else come along to shoulder them aside as they did the once-mighty battleship as the premiere naval platform? Will the cost of a *Ford*-class carrier (over \$13 billion, compared to a *Nimitz*-class carrier built for approximately \$4.5 billion [which would be \$9-10 billion in 2019 dollars]), make even the completion of the class feasible? Might further development of aircraft capable of vertical takeoffs and landings while still maintaining the range and striking power of conventional aircraft enable carriers to actually be reduced in size and cost? Would the advent of missiles or other weapons able to breach the defenses of a carrier and its group

render the carrier ineffective and require a different approach to naval warfare? These and other questions hover over the future of naval warfare in general and aircraft carrier development in particular – how will the cascade of history’s dominoes next fall?

### **Homecoming**

On July 6, 2006, the *Reagan* returned to San Diego for a joyous homecoming. Sailors, this time clad in their white uniforms, lined the rail, saluted by a small flotilla of civilian boats scurrying around the big ship. (The “Tigers” were confined below decks until the ship docked so as not to detract from the pageantry.) As the NPR affiliate KPBS noted in an “All Things Considered” segment aired that day, during the *Reagan*’s six-months deployment the Air Wing flew over 3000 missions, the crew pumped 13 million gallons of jet fuel, the reactors produced 78 million kilowatts of electricity and 600,000 pounds of laundry were processed. Whether *all* those numbers figured in their assessment, the commanders declared “mission accomplished,” and the maiden deployment of the *USS Ronald Reagan (CVN 76)* came to a successful conclusion.

## **THE MAIDEN DEPLOYMENT OF THE *USS RONALD REAGAN (CVN-76)***

(with a brief look at the development of  
the modern aircraft carrier)

by

Ronald Duvall

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## Ronald Duvall

### Summary Resume

Ron Duvall was born and raised in Portland, Oregon, in a stereotypical post-war family (two parents and a little sister). He graduated from Stanford University in 1974 with a BA in Humanities, where he witnessed two upset Rose Bowl victories and the incomparable play of Jim Plunkett, Heisman Trophy winner.

He came south to Pasadena to attend Fuller Theological Seminary, from which he graduated in 1977 with a Master of Divinity. He served two congregations in the Presbytery of Riverside as pastor, the first in Twentynine Palms and the second in Rialto.

He married Deborah Rada in 1990, and then in 1993, felt the call to a different kind of ministry, attending Loma Linda University School of Nursing, graduating in 1996. He worked for nine years in the hospital's Pediatric Intensive Care Unit, caring for seriously ill or injured children of all ages, and then transferred to the Transplantation Institute, where he worked as a Liver Transplant Coordinator until he retired in late 2016.

Deborah and he moved to Redlands in 2004. Ron now serves as an unpaid Parish Associate at the First Presbyterian Church of Redlands and is a regular volunteer at the Gateway Ranch project of the Redlands Conservancy, of which he and Deborah are active members.

Ron has three adult sons, one of whom lives close enough to play golf with a couple times a month, and a second whom you will encounter in today's paper. The third son lives outside of Tampa, FL. Ron also enjoys reading, gardening, watching selected sports on TV and anything to do with trains.