

Oral History of

**RADM Kenneth E. Wilson, Jr.
U.S. Navy (Retired)**



**Interviewed By
David Majeski**

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PREFACE

Rear Admiral Kenneth E. Wilson, Jr., was born in Philadelphia on May 29, 1926 and raised in Narberth, Pa. He attended Lower Merion High School in Ardmore, Pa., graduating in 1944. He then entered the U.S. Naval Academy and graduated in 1947. He also attended the Massachusetts Institute of Technology, from which he received a Masters Degree in Naval Construction and Engineering in June 1952, and was elected a member of the honorary engineering fraternity Sigma Xi.

Admiral Wilson served at sea on the cruiser JUNEAU in the Atlantic and Mediterranean areas in the late 40s and on the fast-attack submarine GUDGEON with the Pacific Fleet in the early 50s. However, he served principally in engineering posts during his almost 35 years military career. Among his early assignments was a Repair and Engineering Officer of the submarine tender PROTEUS during its initial deployment in 1961 to the Holy Loch, Scotland, the advanced base for the first Polaris missile nuclear submarines. He also served in the Bureau of Ships, responsible for the concept design of new nuclear submarines and advanced hydrofoil craft, and in the Navy's management office at Electric Boat Co., Groton, CT, where he was Inspection Officer, and later Design Officer, for the construction of twenty new nuclear attack and missile submarines.

After engineering management tours at the Polaris and Poseidon Missile Systems Office in Washington and at the Norfolk Naval Shipyard, he became the Commander of the Pearl Harbor Naval Shipyard in 1970, and at that time was the youngest commander of a naval shipyard since World War II. After selection to Admiral in 1972, he was ordered to Washington where he served in the Naval Sea Systems Command for six years. His final position was as Vice Commander of that office, responsible for the management of all ship research, design, and maintenance, and of the more than 100,000 officer and civilian employees at headquarters and in eight naval shipyards and other engineering support offices.

After retirement from the Navy in 1978, Admiral Wilson joined the Exxon Corporation as an executive manager in their Enterprises and International Divisions. With the oil shortage at that time, Exxon advanced the development of alternate energy sources, and Admiral Wilson managed all new business ventures associated with solar, wind, biomass, and other environmentally attractive energy opportunities. Later he became the logistic and personnel support manager for Exxon's 100 ships international tanker fleet.

Upon retirement from Exxon, he joined a group of retired utility engineering executives acting as independent management consultants for nuclear and conventionally powered public utilities, conducting performance assessments and recruiting new managing executives. Since full retirement in 1993, he has been an active volunteer at Chester County Hospital and several other community service groups.

Among Admiral Wilson's awards was the Navy Distinguished Service Medal. He is a past President of the American Society of Naval Engineers and an officer and life member of the Society of Naval Architects and Marine Engineers. He is also a life member of the Naval Academy Alumni Association, the Retired Officers Association, and the Naval Submarine League.

The Naval Historical Foundation would like to thank Rear Admiral Wilson for taking time to relate his story. The Foundation also thanks Mr. David Majeski for conducting the interview.

Kirsten Arnold
2009

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INTERVIEWER: It's 29 April 2007, around 2 p.m. We're going to be speaking with Rear Admiral Kenneth E. Wilson, Jr., USN. We're

located at his residence in Kennett Square, Pa. We'll be having a general interview about his life and the details of his career. So, welcome, and I thank the Rear Admiral for his time.

Just to give you a broad outline of his career and his life. Admiral Wilson was born in Philadelphia in 1926, educated at the Naval Academy, graduating in 1947, has a couple of degrees, including a master's degree from MIT. Served some sea tours initially. And most of his remaining career has been in submarines and in the Naval Sea Systems Command. He's done a variety of different things as well, including the fleet ballistic missile program. And after his retirement in 1978 from the Navy, he joined the Exxon Corporation and later had some other consulting opportunities. And now he's pleasantly retired. So with that I want to begin the interview with Admiral Wilson.

Thank you, Admiral. First off, I just want to ask very briefly about the beginnings of your life and the beginnings of your early family childhood.

WILSON: Thank you, David. In the past year, I have recently made rather detailed descriptions of my family background and early life, and these narratives are appended as attachments to this interview for our family. But I'll summarize those earliest portions of my life now very briefly.

THE EARLY YEARS

My family was all from Maryland. My father was born and raised in Baltimore, my mother in Calvert County, in southern

Maryland. They moved to West Philadelphia in 1921, soon after the birth of my sister in 1920, and lived in a second-floor apartment when I was born in 1926. I was actually born in St. Agnes Hospital on South Broad Street in Philadelphia.

When I was about six months old, the family moved to Narberth, a suburb about ten miles west of Philadelphia and a wonderful little town, in which I grew up. I went to the elementary school there in Narberth for the first eight grades, walking to and from school every day, and I loved it. I spent whatever spare time I could at the playground in Narberth. We had a wonderful playground and I loved sports. During the summers, I played more sports, and we also spent a couple of weeks at my Mother's old family home, Taney Place, in southern Maryland, which I am still very fond of. It was a 500-acre tobacco farm at that time. So I grew up a happy young boy. We were a very close family—Mother, Father, and my sister, Sue. I started high school after completion of the eighth grade at Narberth School.

In the summers when I was in grammar school at Narberth, I went to a summer camp in Maine called Ranger Lodge. Many of the boys in our school and in other schools in the towns nearby went to Ranger Lodge, and it was great fun. My Mother and Father didn't have a lot of money, so I worked there washing dishes and setting tables from the time. I was in seventh and eighth grades. Ranger Lodge was a treat for me in the summers. After Narberth School, after eighth grade—and by this time it was 1940—I went again for, I believe, the third time to Ranger Lodge and did my

chores as a dishwasher and table setter, and as before that was really fun.

I started ninth grade at Ardmore Junior High School and had to take the bus every day. Ardmore took the students from ten local grammar schools, so there were almost 1,000 students in our junior high school. Narberth just fed that school in ninth grade. However, the students from the other schools went into junior high school in seventh and eighth grade as well as ninth.

I went into a home room with about 25 other boys and girls from these other schools. A couple of boys from Ardmore high school befriended me and started pushing me to be our school Senate representative. And lo and behold, after a month or two of all this, I was elected, and then elected president of the whole school. Amazing! I had a lot of interface with Mr. Snow, the principal. He was a very stern person, but I withstood it. I was then about five feet three or four, and they had to build a box for me to stand on to read the bible during class meetings. This experience gave me my first taste of leadership, quite a confidence builder. I couldn't see over the rostrum without the box. I played baseball when I was in junior high school, ran the monthly meetings of our school senate, and got real good marks, A's and B's, and, once again, that was a very happy time.

At the end of that ninth grade I went again to Ranger Lodge, again washing dishes, and was in a cabin with three boys from Washington and two of my best friends from home, Dick Whiting and Bob Franklin. On August 4 of that summer, the summer of 1941, I got summoned by Mr. Fowler-- Pop Fowler, who was the owner of the

camp-- and he said that my mother and father and sister wanted me to come down to southern Maryland to join them. I thought that would be good, because it's probably celebrating their birthdays. All three of them had birthdays in the first week of August, and this was the 4th of August, and my Father's 50th birthday was the 8th of August, so I thought they wanted me to come down to join the celebration!

Two of the older boys, I guess about eighteen or nineteen, drove me from the camp the thirty or forty miles to the Portland, Maine, train station, and I boarded the train and took a night sleeper to Washington, where I was met by my sister and a cousin. They told me at that time that the day before, my father had died. What a shock! He was mowing the lawn at Taney Place, where Mother grew up, and had a heart attack. When my cousin found him, he was on the ground, but he still had his hands on the lawn mower handle.

When I got to Taney Place, his body was in my uncle's bed. Later, they placed him in an open casket. Many of the businessmen who were associates of his in the insurance business came down from Baltimore and Philadelphia to attend the funeral. It was at St. Paul's, a small old Episcopal church in Prince Frederick, the county seat of Calvert County, and burial was in our family plot in the front of the churchyard. The funeral was on August 7th.

The next days and months were difficult particularly for my Mother. I really didn't realize the impact until later; I had been very close to my father, with a lot of love, respect, and admiration for him, and he took care of me. My cousin, Y. D.

Hance, drove me back to Washington after the funeral, and I took the train back to Maine and Ranger Lodge, and stayed there through August. I guess that was a good idea to do that, to get me back into the camp routine. Sue and my mother stayed down in Maryland. The last two weeks at Ranger Lodge were difficult for me, but with a lot of help from my counselor and a lot of boys, I got through in pretty good shape.

I neglected to mention in the earlier part of the discussion that I had aims to go to the Naval Academy from the time I was about ten or eleven years old. My father had graduated at St. John's College in Annapolis, and with the family being from Maryland, we went through Annapolis frequently. And then later on, when I was in junior high and senior high school, my sister dated some of the midshipmen after an Army-Navy or a Penn-Navy game, and I thought they looked pretty neat in their blue uniforms. So I decided very early that I wanted to go to the Naval Academy. So still aiming for the Naval Academy, I graduated from junior high school and went on to Lower Merion senior high school, in September of 1941, a month after my father passed away.

In early December of 1941, our counselor at Ranger Lodge the previous summer, Ace Quinn, who was a teacher at St. Albans School in Washington asked the three of us from Lower Merion-Bob Franklin, Dick Whiting and myself- to come to Washington to spend the weekend with the three boys from our camp cabin who lived in Washington. We did go, and went to a hockey game and saw some of the sights. As we were coming back from Washington, we gathered

at Union Station on that Sunday morning, December 7th, the day the Pearl Harbor attack occurred. The loud speakers in Union Station and all of Washington were blaring, paging the senators, the representatives, the Cabinet members, and admirals and generals to go to their offices at once. We really didn't know what was happening at the time, but we soon found out.

I got back to school and I started to sprout up in height. I went from five feet three or four to almost five feet ten by the end of my sophomore year. I joined a fraternity in high school. That was sort of the focal point of social life and interfacing with the girls. And I did pretty well in my studies, but my marks went down quite a bit in high school. The loss of Father took its toll on me.

The first summer after my sophomore year I got my first real job. I became a messenger for Land Title Bank and Trust Company in Philadelphia, and took property deeds from the Philadelphia bank to the county seat offices of Montgomery, Chester, and Delaware counties. Back and forth I went in the trolleys and the trains to deliver the deeds and other papers. I got \$65.00 a month. I thought that was fantastic pay!

About that time, or perhaps it was earlier when I was in junior high, I had braces put on my teeth. My teeth were big and not very straight and in order to get into the Naval Academy something had to be done. When the dentist found out that my Father had died, he said he would take care of me and they straightened my teeth at no charge to us. I always thought that was a wonderful thing for them to do.

I worked at Davis' soda fountain store in Narberth during high school to make a little money. Mother didn't have much money and she needed to go to work. She was forty-eight years old and worked as a nursery-kindergarten "teacher." She was perfect for that. I played intramural basketball, but between jobs at the soda fountains and getting tutored--which I started to help pass the Naval Academy entrance exams--I didn't really have time for varsity sports.

In my senior year it was really more of the same. My grades were all right, but not really very good. They went down to B's and C's, and that wasn't up to the A's and B's I had earlier. I took a couple of the tests to get congressional appointments to the Naval Academy, but someone else got the principal appointments, and I got the alternate. And an alternate appointment wasn't going to get me to into the Naval Academy.

So my mother wrote to an old beau of hers in southern Maryland, who just happened to be a Congressman at that time. His name was Geeselim Sasser, and she asked him if her little Kenny could possibly get an appointment through him. And he wrote back that he would; his county was very rural and nobody else wanted to go at that time. So I got my appointment through that channel. From then on I was very careful when I answered the question: "Where are you from?" I wanted to know why they wanted to know! Actually, it was entirely legal.

In the winter of 1944, I took the entrance exams to the Academy. Our high school was a wonderful high school academically. I only had to take the substantiating exam, which

consisted of tests in math and English; at that time there were just eleven schools in the country from which the Naval Academy allowed a boy to do that to get in. In other schools, that weren't up to the academic levels of Lower Merion, boys had to take six exams—chemistry, physics, English, geometry, algebra, and history. So I was very lucky to have to just take the two, and I passed the exams! Wow! So I graduated from Lower Merion on the sixth of June 1944 and reported to the Naval Academy on the thirtieth of June. Then I had to take my physical exam; I passed it.

THE NAVAL ACADEMY

I was sworn in as a midshipman on the first of July in 1944 in Memorial Hall in Bancroft Hall, just twenty-five days after graduation from high school. Thirteen hundred plebes entered the Naval Academy that summer at various times during June and July. (Now the plebes all enter on the same day). I was assigned a room with two other plebes in the 3rd Company in the 1st Battalion. The organization of the midshipmen has varied some over the years. At that time, there were six battalions and twenty-four companies. During plebe summer—the plebes are the freshmen—we had training in marching, rifle handling, cutter rowing, and so on. And in my spare time I made a couple of new friends and we played basketball as much as we could. The pay for plebes was \$2 per month.

The most significant event for me of, the whole time I was at the Naval Academy, occurred in early August. The Academy took

all the plebe class out on a cruise in six LCIs on Chesapeake Bay. This was during the war so we couldn't go out in the ocean as the cruises usually did, because of German submarines. But we could go out in the bay. On the twelfth of August that summer, six planes—Navy SNJs-- simulated strafing our ships, as the Japanese might have done in the Pacific. I was standing on the bow of one of the LCIs talking to the two fellows I had played basketball with and another friend, and one of the planes came too close, hit the bow of the ship, decapitated my two friends, and I was knocked unconscious. I was out for twenty-six hours, and taken to a nearby Navy medical facility where I woke up the next day.

I spent two months in the hospital, first in the Solomons Island, Maryland, dispensary, and then in the Naval Academy hospital: I didn't get out until the end of September. So I really missed an awful lot of the plebe routine, including learning to sail. I didn't miss the rifle handling and the marching very much; it was a pleasure to miss that. But when I got out of the hospital—by then I was five feet eleven—I weighed 120; you could barely see me, I was so thin.

My academics in plebe year went fine, except chemistry. I never did really understand chemistry, I guess because I didn't apply myself or didn't have a good teacher in high school. But I passed everything else with flying colors. I played on our battalion football and baseball teams. We had two weekends a semester that we could leave the Academy grounds. And we went to all the away football games that the regiment went to. But other

than that we really didn't have much time to ourselves. My marks, as I say, were pretty good, except for chemistry.

On the last day of plebe year, before we were to go off on a month's leave, we were all told to report to the battalion office to see how long we'd be at the Academy! During the war the Naval Academy and the Military Academy curricula were reduced to three years so they could get more officers out and fighting our enemies. But in early 1945, near the end of the war and at the end of my first year, they decided to go back to four years. So they divided our class by academic standing the first year. By this time our class was reduced from 1300 to about 1100; 200 had either flunked out or resigned. I was luckily in the top half of the remaining plebes, so I was just going to be there three years; the lower half would be there four years.

So the plane accident at sea the previous August and that decision of how long I'd be there were really the major events of that first year.

Back to the accident in August. The Naval Academy and the Navy Department had apparently decided that our class of midshipmen would be the amphibious landing officers, the boat officers, when we invaded Japan for the final push to defeat them. So this LCI trip on the Chesapeake Bay was just the first step in that training. Of course, with the dropping of the atomic bombs on Japan in the summer of 1945, the landings and occupation didn't occur. Thank goodness!

INTERVIEWER: Admiral, just one other question to keep you on board ...at the time that you entered the Academy, or even as a senior when you when you were in high school knowing that the war was going on, you never wavered from wanting to go to the Naval Academy even knowing the consequences of that decision.

WILSON: Yes. I never wavered, David, from wanting to go to the Naval Academy. I didn't even apply for the V-5 or V-12 programs, which were the government-sponsored officer courses at that time in various colleges. And a lot of my friends did end up in college in those government programs that would lead to commissions in the Navy. I just wanted to go to the Naval Academy. The only other thing I had in mind was maybe MIT, because I loved math and physics and some of those courses. But, I now think foolishly, I didn't even apply for anything else. As it turns out, I had to register for the draft when I was eighteen, which was on May 29, 1944, just before I graduated from high school. In June, I got "Greetings" from Uncle Sam telling me to report as a private in the Army in July of that summer; I wrote back and said: "Sorry, I'm already taken by the Navy." But I never wavered from wanting to go to the Naval Academy, whatever the consequences were. I just had that as a constant goal.

The summer after my plebe year by then I had gained some of the weight back and I was more normal looking, our class went on another cruise. It was then mid-1945 and the war in Europe was over. We went out in the Atlantic on the USS *Raleigh*, a four-

pipe, four-stack cruiser, an old World War I cruiser. I was an ammunition loader for a 6-inch mount.

As a result of being in the three-year course instead of four, we skipped the sophomore year, which in the Naval Academy is the "youngster year." So I now became a junior, a second-classman, in 1945. We had about 550 by that time in our class, and there were about 500 in the four-year group that followed us.

My marks got better each year as I went along, perhaps because I was helping my roommate, who was having a difficult time with a lot of the academics. After the second-class year the class went to sea on the USS Washington, an old battleship, and I was a 3-inch mount loader. I think that had something to do with my current bad hearing. The 3-inch mounts were very, very noisy.

By the time my last year came along, I stood number ten in my class of about 500 for that final year. Combined with my lower standing in the earlier two years, I was number 82 when we graduated on the sixth of June 1947, three years to the day after I graduated from high school. My Mother came down to see graduation. She was the first person to arrive in Dahlgren Hall at our graduation. She didn't want to miss a thing.

Back to earlier times. When my Father died the insurance company of which he was assistant manager, the United States Fidelity and Guaranty Co., gave my Mother the company car that he had used. She never drove, but my sister drove it a little. But during the high school and Naval Academy days I drove it after I became sixteen and could get a license. When I graduated from the Naval Academy, I bought my own car, a 1947 Ford, for \$800. I say

I bought it—what I really did was borrow money from the First National Bank of Scranton, Pennsylvania and the bank and I bought it.

During my time at the Naval Academy, we midshipmen had a single curricula. There were no choices to make. But, although my marks came up in the latter years, I always did better in marine engineering, thermodynamics, mathematics, and those kinds of technical subjects. English and languages just weren't my thing, although I was able to pass them. I did enjoy physics and enjoyed its laboratory work, so it was that kind of course that I was more interested in.

As we were getting ready to graduate from the Naval Academy, in the last month or two, we were able to select what kind of ship or career that we would start on in the fleet, after we'd graduated. I had firmly decided that I did not want to be a pilot. I had been forced to take some pre-flight examinations earlier, and I passed them with flying colors. I thought they were going to draft me to be a pilot because at that time pilots were needed. Thank the Lord that didn't happen.

THE LEARNING YEARS--JUNEAU

I hadn't really gotten enamored with submarines at that point. I knew I didn't want to get on a great big ship, like an aircraft carrier, because I'd probably have a meaningless job. And I didn't want to get on too small a ship, because I'd just have too much thrown at me at once. In any case I ended up on a light cruiser, the USS Juneau (CL-119), the second Juneau. The

first Juneau was sunk in the Battle of Savo Island in 1942. It was hit by Japanese torpedoes and went down in five minutes. The five Sullivan brothers were on the first Juneau, and all, were killed. A destroyer was later named The Sullivans. Subsequent to that event, the Navy and Army changed their policies about having brothers all at the same duty assignment at the same time.

In early July 1947, I flew from Westover Field, Springfield, Massachusetts, to Frankfurt, Germany, in a propeller plane, stopping along the way at Gander in Labrador, and in Ireland, and then on to Frankfurt. I spent three or four days in Wiesbaden, Germany, and got an impression of post-war Germany that I'll never forget. The streets were still littered with debris. Houses and buildings were in shambles. The streets had been swept and cleared but nothing had been restored from our heavy bombings. And people were begging. It was a tough time. And, of course, our Marshall Plan was the thing that revived Germany and Europe.

After three or four days in Wiesbaden, which is close to Frankfurt, I was flown in a single engine plane over the Alps to Leghorn, Italy. I caught a train up to Pisa, Italy and then to Rapallo, on the Italian Riviera. My ship, the Juneau, was anchored in Rapallo Bay. That's where I first sighted "my ship." She was a beautiful ship, very sleek and speedy looking. There were, I believe, six ships built in this second group of the Atlanta class, and the Juneau was one of those six.

The new Juneau was a 6,000-ton cruiser, 540 feet long with a complement of 620; it was commissioned in February 1946. We had six twin 5-inch mounts, and the below-decks spaces were all

magazines and machinery. So like the first Atlanta and Juneau class, torpedoes really would do us in.

My first job on the Juneau was in the gunnery department. Once again, class standing at the Naval Academy helped. There were three of us from the class who reported at the same time, and I had the first choice of what job I wanted. One of the other choices was the ship's secretary, which sounded like a clerical job to me; and the other was in the communications department, which I wasn't keen on. I later became even more sure that I didn't want those kinds of jobs.

We were, as I say, in Rapallo at that time and the ship, in the next twenty-four months, went to, almost every port in the Mediterranean, to show the flag, to be sure that there weren't any rumbles of dissent in these countries that had just been at war. The Juneau and other ships of the Sixth Fleet roamed around the Mediterranean to make our U.S. presence known, to be a stabilizing presence. We went to Nice, Monte Carlo, Naples, Venice, Taranto, and Trieste, Italy, Athens, Greece, Gibraltar, Istanbul, and many other spots. It was quite an experience. At that time a pack of cigarettes was worth "gold" over there. If you had a carton of cigarettes you could exchange it for a suit. A pack of cigarettes would buy a good painting. The black market was in full swing.

Coming back from the Mediterranean in the late Fall of 1947, our ship hit a hurricane and the main deck cracked athwartships in three places. I was seasick during some of that storm—about half of the officers couldn't perform at all. I at least could

stay on my watch station. The ship rolled up to 45 degrees, and at times I just wished the ship would hurry up and sink. It was really a miserable experience.

About this time, when we were coming back from the Mediterranean, I was transferred to the ship's engineering department. I had made enough noise that that was my desire, and so they let me change. I was made head of the M Division, the main engine's division, a lieutenant billet, and I was still an ensign. I thought that was great.

I decided at that time, even more than I had previously, that I did not want to spend a career shuttling back and forth amongst administrative jobs, such as the ship's secretary, supply, communications, and even executive officer. That wasn't what I wanted to do. I would love to have been Commanding Officer of a ship, but you had to go through all those other jobs to get there. I was really just interested in engineering, or at least more so than other areas.

So in chatting with a pal in the ship's administrative office, I found that some of the postgraduate opportunities looked good. And there were two: one to MIT for a three-year course in naval construction and engineering, naval architecture, ship machinery, and that kind of thing. And another one in civil engineering--shore facility design and construction-- at Rensselaer Polytechnic Institute, RPI, in Troy, New York. And I thought either of those would be good, but I was more in favor of ship engineering, so I applied for MIT in 1948, with a second choice for RPI. And about six or eight months later I was

notified that I'd been accepted at MIT to start in June of 1949. I felt very fortunate with that news.

After coming back from the Mediterranean and being in the Norfolk Shipyard for a few months we went north to Greenland and Iceland waters, and then started a second tour in the Mediterranean. I was detached from *Juneau* in Norfolk in May of 1949, before the ship left for Korea. The ship did a wonderful job in Korea; it was known for having shot and hit a train along the shore and knocked the train off its tracks. That was really unusual for a cruiser!

LEARNING YEARS—MIT

After being in Narberth, my home, in May of 1949, I reported to MIT in June of '49. I didn't have many civilian clothes so I had to go to all the nearby thrift shops and buy a few sport coats and pants. We weren't going to wear our uniforms for the next three years: that was fine with me. I sold my first car that I (and the bank) had bought upon graduation, and bought a new '49 Ford club coupe. Once again, I say I got it; I got it along with a bank.

At MIT there was a Navy administrative office, which checked us in, told us where we were going to live and what courses we were going to take. I, as a bachelor, went across the street and lived in what was called the Graduate House, on the corner of Memorial Drive and Massachusetts Avenue, on the Charles River. That summer we took refresher courses in calculus, physics,

thermodynamics, electrical engineering, and I surprisingly did well in all of them. There were thirty-eight in our class, thirty-five Naval officers and three Coast Guard officers, and I was one of the most junior of the whole bunch, so I, once again, considered myself fortunate.

I had decided early on, if I could possibly do it I was not going to study on one day of the week, and I picked Sunday. I'd go into sports and other things and just drive around and see the countryside, but I wasn't going to study seven days a week; I stuck to that pretty well through the whole time at MIT. My roommate was a fellow one year ahead of me at the Naval Academy named John Reynolds. He was a wonderful guy. That summer when I had spare time I went to see Red Sox baseball games to watch Ted Williams and that great team, and I loved it.

In the fall semester I took six or seven courses including; naval architecture, hydrodynamics, modeling of hulls, turbine design. And we had wonderful professors, the ones that had written all the books that were the tops in those subjects at that time. So once again I felt lucky. On Sundays and occasionally other times, I played softball and basketball.

In the Fall, on October 7, one of the fellows came over to me and said, "Ken, there's a dance tonight we ought to go to, one of the colleges is throwing it." In Boston there were many girls' colleges. Harvard, MIT, and Boston University were among the many men's colleges, so there were a lot of activities between girls and boys. I said I couldn't go because I was busy, and he said, "No, you've got to go you've got the car." So I went, and cut in

on a good-looking blond; it turned out that she Shirley Smith, my future wife

We had a couple of dates that fall, but at that time I was really trying to avoid getting serious with any girl. I don't know why, but that's the way I felt. But she was pretty neat; and before we both went home for our Christmas vacation, I made a date for January when we returned to Boston. So we went out in early January, and dated steadily thereafter. We went to movies, pops concerts, drives in the country, and so on. It was a great time, but I studied hard, and we really had to at MIT. But the classes went well and I got A's and B's, actually all A's one semester, and I loved it. MIT was the cream of the engineering college crop as far as I was concerned.

The longer I went to school, it seemed, the better I got at academics, and my marks went up. I think I finally learned how to study. If I'd gone to school another fifteen years I'd have really been good, but that wasn't to be. I had to get to work one of those days.

In the spring of 1950, John and I left the Graduate House and moved in with our more senior (2 or 3 years more senior) classmate Russ Bryan. His wife, Petie, had returned home to Iowa to have a baby. Russ was a submariner, and his influence was to significantly impact my future career.

In May of that first year, 1950, I had three impacted wisdom teeth pulled, and the doctor gave me three shots of penicillin in my backside. About ten days later, I broke out in hives all over my body and ended up in Chelsea Naval Hospital. I found out the

hard way that I was allergic to penicillin. Being in the hospital, MIT decided because my marks were good that I didn't have to take semester exams to keep going, and I was pushed forward. I was in the hospital for a month and a half, and it was pretty miserable. They had a hard time figuring out what was wrong with me because penicillin was relatively new amongst the civilian population, and the doctors weren't really up on it at that time.

Also in that May, I think just before I broke out in hives, I took Shirley to New York to a play, "Kiss Me Kate," and then to Narberth to meet my Mother. But soon thereafter, as I've said, I got sick, and went to the hospital.

When I got better, in about August, I went to work in Boston Naval Shipyard as a welder apprentice, good training for a young man who was headed for shipyard duty eventually. I went to Rutland most weekends to see Shirley. We were getting pretty serious by then, and I liked that.

In the Fall I went to classes again- six or seven classes. They really got the most out of us. And I studied many, many nights till 2 a.m. and did not get much sleep. But I didn't study Sundays, still.

As I said earlier, in the spring of 1950, near the end of our first year, my roommate and I moved in with another member of our class, Russ Bryan, who had been on submarines before he came to MIT. He told us about submarines and I thought that sounded really exciting.

I thought subs were great because they were small ships. Officers had a lot of responsibility, and the enlisted men and officers were very close. It was a real camaraderie. All the crew knew their jobs and their ship. A slacker wasn't going to last long. I thought that would be great. Also, submarines were really developing at that time. The Nautilus, the first atomic submarine, was launched in 1954, shortly after I graduated from MIT, and it was in design and construction while we were at MIT. Missiles were also coming along, although they were really rather rudimentary missiles. Our Navy employed a number of German scientists to help in missile development. I thought subs were going to be more exciting and challenging than anything else, and it turned out they were.

In October of 1950, on the 14th, I proposed to Shirley and she said, "yes." We ordered her engagement ring; it was a miniature of the Naval Academy ring I received when I graduated from the academy. We went to Narberth in early December and announced our engagement at that time. We were married on the 2nd of June, 1951 at Trinity Episcopal Church in Rutland. That was at the end of my second year at MIT. That was pretty smart of me to coax her into marrying me, wasn't it? She shaped my life and it would have been entirely different without her; I am very, very lucky. Some of the officers in the services aren't so lucky. Some of the wives just say: You have a choice-me or the service. But she dutifully followed me around in my duties after that.

We're now in our twenty-third home. I think we've had a wonderful life together with four great kids, all married to the

same husbands, and eleven grandchildren. Family life couldn't be better.

Shirley graduated from Simmons College in June of 1951, but she didn't attend her graduation ceremony, because of our marriage on June 2, 1951. After we were married, we had a long four-day honeymoon at Ocean City, Maryland. It rained the whole time we were there! We then lived in a basement apartment at 9 Shipwright Street in Annapolis. I had been ordered to the Annapolis Naval Engineering Experiment Station, where I did acoustic work on quieting I-beams, working under a German scientist named Kurt Muller. What we did was put different coatings-anechoic treatment-on the outside of the I-beams and test them acoustically. This would dampen any noise going through the beams. For instance, if a turbine or a motor were mounted on one of these I-beams, you don't want the noise from the turbine or the motor to go through the I-beam, into the hull, and out to the sea, because that noise could be detected by an enemy. These were the early stages of trying to devise means of noise reduction. Kurt Muller was a real expert in that kind of thing, so this was exciting to me.

Annapolis was Shirley's first naval station. Annapolis has now blossomed into a big city, but it was a wonderful small town then. Occasionally we went over to the Academy grounds and watched the midshipmen march around. I think she enjoyed that a lot. I did, too.

In the Fall, we went back to Boston, moving into the second floor of a house in Brookline. It was a little flat, but that's

about all we could afford. Shirley got a job as a librarian at MIT, but she became pregnant and had to quit work. So she was home practically every day, as I went to MIT to do my thesis with John Reynolds, my roommate the first year, and with Dr. Leo Beranek. He was a very famous acoustics expert, and president of a firm in acoustic design of buildings, including Lincoln Center and other major auditoriums. As a professor at MIT, he was our thesis supervisor.

Doing the classes and the thesis were hard work, and it was tough on Shirley because I had the car. But I was doing well in the academics, and I guess that's what counted most at the time.

On April 25th, shortly before my graduation our first daughter, Barbara, was born at Murphy Army Hospital in Waltham, a small Army base nearby. So when I graduated, Barbara was barely a month old, and off we went to Submarine School in Groton, Connecticut.

In addition to our first daughter, Barbara, being born while we were at MIT, I got promoted from ensign to lieutenant (jg). At that time we had to take written examinations to be promoted to lieutenant (jg). Amazing! That was the only rank for which I had to take an examination to be promoted.

Also, it is interesting that when Shirley and I left MIT in my blue club coupe we put everything we owned in the coupe. The only furniture we had was a hassock that I owned. Off we went, happy as could be. I, at the time, was making \$220 a month, but somehow we survived and got going.

Five of us, young Naval officers, had applied for submarines back earlier in the fall of 1951 and four of us were selected; so I, upon graduation from MIT, knew I was going off to Submarine School and submarine duty.

At graduation we received Naval Engineer's degrees; this was beyond a master's degree, and several professors wanted me to stay and get a doctorate degree, but I didn't want to do that. I wanted to get back to the Navy and get to work. Our Navy group was elected to the Sigma Xi society, an engineering and scientific honorary society. I was told that I stood 7th out of our class of 38.

LEARNING YEARS—SUB SCHOOL AND GUDGEON

As I said earlier, I was excited at that time about going into submarines, with Russia building submarines rapidly, the Cold War going on, nuclear power and missiles coming into the forefront. I knew it would be exciting, and it was.

Now, on to Groton. In June of 1952, just after graduation from MIT, we went to the submarine base, and moved into quarters on the base. It was the 95th submarine officers' course, and there were about a hundred junior officers in our class. Four of us from MIT were way ahead of the others in academics, so it was easy for us. But we had much more than academics. We had extensive operational training. We went up the escape tower, went in the bottom of a hundred-foot tank full of water and went to

the top, simulating getting out of a submarine. Frequent submarine trips out the Thames River to Long Island Sound became routine. We trained and practiced various watch stations-the helm, the control planes, the control board, engineering, maneuvering, torpedoes, and all aspects of submarine work. The submarine we were training in were World War II diesel submarines. Not too old then, but they weren't the newest.

Submarine School was a six-month course, and we finished in December 1952. I think I was third in the class. Once again, I found that academic standing helped. There were four ships that we four future engineering officers were designated to go on, and I picked the Gudgeon. It was a brand new submarine being constructed in Portsmouth, New Hampshire. It was a fast attack submarine, snorkel, post-World War II, and was headed, after completion, for the Pacific Fleet in Pearl Harbor. So Shirley and I drove upon graduation to Portsmouth, New Hampshire, and to the Gudgeon.

Gudgeon was almost finished construction at that time. She had been commissioned in November of 1952, and I reported in December. My Gudgeon was the second submarine to bear the name. The first had been sunk in the Pacific in 1944. This new one was one of six in the class-- attack-type submarines, all with new high-speed diesel engines, deeper depth, more maneuverability than the earlier ones with a lot of new equipment on board, some of which worked, some of which didn't work! The Gudgeon displaced 1800 tons. It was 270 feet long with a 27-foot beam. And we had seven officers and seventy-five enlisted men on board.

Shirley and I lived in Admiralty Village, a small temporary wartime housing complex that was erected in Kittery, Maine, on dirt roads. We didn't know that it was not very good housing. We thought it was great, as least I did. It was our first real house, and that's what counted.

I had the watch every other night while Gudgeon was completing, so I was only at home the odd nights. I was assigned to be the Assistant Engineer Officer. I learned the ship in detail, all the valves, all the systems, during that period in the shipyard, aimed toward qualification. Qualification and getting your dolphins in submarines is all-important. It's like getting your wings in the air arm of the Navy. So my job at that time was not only to help in the engineering department, but also to learn the ship.

We had five months of finishing construction, fitting out, and sea trials and we left Kittery in June of 1953. Shirley went back to Rutland to be with her parents, of course taking Barbara with her. And we on the Gudgeon departed for Pearl Harbor by way of Newport, Rhode Island; Groton, Connecticut; Key West, Florida; and Havana, Cuba; and then the Panama Canal. Going through the Panama Canal was exciting. And when we arrived in the Pacific, we had live dolphins following us, or leading us, halfway across to Hawaii.

We arrived in Pearl Harbor in July of 1953, and Shirley and Barbara came on a Navy transport to Hawaii soon thereafter. We lived in temporary quarters for several weeks and then found a one-bedroom home near the beach in Kailua, across the mountains

from Honolulu. The mountain pass was called the Pali. Hawaii was beautiful to us then, and it all was very exciting! I had to drive every morning to work to Pearl Harbor, which was some thirty miles across the mountains. But there were two other officers, including the Commanding Officer, who lived in Kailua and we all carpooled together.

Our submarine operated out of Pearl Harbor on a continuing basis with other submarines, destroyers and planes through the rest of that summer and fall of '53 and into '54. I was learning more and more about our submarine, and meanwhile building a notebook, which was a requirement for submarine qualification. My qualification notebook ended up being about two inches thick, which Shirley typed. It had diagrams of all the piping and electrical systems in the submarine, all the valves, how to do various drills--man overboard, fire, collision--and torpedo firing, and every aspect of submarining. Very soon after that, in early '54, I was examined by two Commanding Officers of similar submarines for two days and demonstrate all that I knew, or hopefully knew, and if I passed, then I'd get my dolphins.

In April of 1954, Gudgeon sailed off to the state of Washington and operated in the Straits of Juan de Fuca with planes from Whidbey Island, a nearby naval air station. We visited Victoria, British Columbia; Port Angeles, Washington; and then Portland, Oregon. But most of our time we did operational work with the planes from Whidbey Island. When we went into Portland, Oregon, the Captain asked me to be the Officer of the Deck on the Columbia River passage. It was about a hundred miles

long from the Pacific Ocean to Portland. I felt proud that he had asked me to be the Officer of the Deck for the whole trip, going down there and coming back, because it was a curvy, tortuous river, and the object was not to run aground!

In late June we went south to Eureka, California. During that passage we developed bad leaks in our engine water systems and we had to be towed from Eureka south to Mare Island Naval Shipyard at the north end of San Francisco Bay. I gained a lot of experience in submarining while I was on the Gudgeon, in engineering, supply, and in the qualification experience. I was detached from Gudgeon in early July when we arrived at Mare Island and also had my Navy designator changed from Unrestricted Line to Engineering Duty Only (EDO).

EARLY PRODUCING YEARS—PEARL HARBOR NSY

Shirley was then expecting Nancy, our second daughter. Nancy was expected to appear in mid-July. I arrived home for three weeks leave, spent the entire three weeks waiting, and no Nancy! So I started work at my next assignment at Pearl Harbor Naval Shipyard. I was a lieutenant by then. I was going to be a ship superintendent, responsible for coordinating a ship overhaul in the shipyard-- coordinating all the repair and alteration work that had to be accomplished during the overhaul. It was about a six-months overhaul.

The day I reported to work Shirley delivered Nancy! One of her good new friends from Kailua, and also a naval officer's

wife, drove Shirley across the Pali to Tripler Army Hospital, in Honolulu.

Shortly before Nancy was born we rented a two bedroom house on Kaimake Loop, a development of about 15 new houses, all much alike, also in Kailua. Like most houses in Hawaii, it had no heating or air conditioning—they weren't needed in Hawaii. It had no basement; it was built on a cement slab and it had a car port. It wasn't very luxurious, but it was ours and it was fine. My Mother came over to see us in our new house. That was a treat for her and us. We drove her around Oahu and saw all the sights—Waikiki Beach, Diamond Head, Pearl Harbor, and all.

Shortly after I reported to the shipyard, I again joined a carpool with shipyard officers driving to and from Kailua, so Shirley could have our car occasionally. I enjoyed the work immensely, coordinating all the work that had to be done. And I soon found that I was one of the few officers in the shipyard who knew submarining. The others were engineering duty officers, supply officers, limited duty officers, which were ex-enlisted men, but none with engineering experience in submarines, so that really put me in a good position to make a lot of decisions. And I'm sure that experience built up my confidence immensely, because my bosses put me in charge of all kinds of submarine related matters, including talking with Washington officers about what we had to do with problems. I was operating as the submarine officer in design and planning as well as being on the waterfront coordinating.

I also met a lot of wonderful workers in the shipyard and experienced the shipyard as an amalgam of the many nationalities who lived in Hawaii. It was a very interesting place to work, with the Chinese, the Japanese, the Philippine, the Portuguese, and native Hawaiians all working together. Only about five percent were haoli, or Caucasian. Less than that were black folks. It was really a cross-culture like nothing else I had ever seen, but it was wonderful with everyone living and working together. But all the nationalities were all slightly different in their sensitivities and tendencies. I made some good friends among the Hawaiian workers in the shipyard and that was going to stand me in good stead later on.

The first submarine overhaul that I was responsible for coordinating was the Wahoo, which was a sister ship of the Gudgeon. And since none of the shipyard people had ever seen this class of ship before; they all came to me to ask questions about what it was all about and how this and that worked. And, as I say, it really built my confidence, and I became the focal point of getting the job done on Wahoo. The overhaul went well, and after two sea trials we completed the overhaul in early-1955.

I then moved from the Production Department to Planning, the "type desk" for submarines. The Planning Officer was a Captain, and his assistant was a Commander, and under him there were three or four lieutenants who were "type desks" for destroyer planning, aircraft carrier planning, auxiliary ship planning, and me. So I had all the submarine planning then, and that included design. So all the shipyard officers then came to me and ask questions; I

thought that was neat. I'd also coordinate with the fleet material people and with the Washington Bureau of Ships submarine desk. I gained an awful lot of experience, and was probably starting to pay back for all the wonderful training I had had.

In December 1956, I received dispatch orders to report to the Bureau of Ships in Washington. I always thought Washington must be in big trouble if I, a lieutenant, had to get there that soon; was the place going to fail without me? So we sold our house for \$15,000 and made a \$2,000 profit, which was just enough to buy another car. We came back on a transport and I bought a Ford station wagon in Los Angeles when I got there. We drove across country with the two girls and Shirley five months pregnant. It's interesting, when we were in Massachusetts and Barbara was expected, the doctor wouldn't let her drive a hundred miles. Now we were driving 3,000 to get across country. It was fun for all of us.

EARLY PRODUCING YEARS—BUSHIPS DESIGN

I reported to the Bureau of Ships in January and stayed a short time with Sue and Trav, my sister and her husband. Then we lived in an apartment for two weeks in Falls Church before renting a house in Bethesda, Maryland, purposely being near the hospital there. Our son Kenny was born on March 13, 1957, and that was a real treat, although by that time I would have been very happy with another girl. We had all those girls' clothes to pass down! Kenny's birthday was exactly 100 years after that of my grandmother, Susan Bourne Hanoë.

In June of '57, we bought a 2-story, 3-bedroom house very close to the hospital on Elsmere Avenue. We thought that was a really neat house.

At work I reported to BuShips and the Chief of BuShips, Admiral Mumma, called me in to talk to me about what I had done and what I wanted to do; I told him I didn't see any reason why he didn't get a project going on firing a missile from a submerged submarine. Little did I know that such a project had been going on for six or eight months--the Polaris program--but he didn't tell me that. They just sent me over there to work with that project.

I also found that I was in demand by two Admirals in BuShips. One wanted me to get into the acoustic section in BuShips. I didn't want that because I didn't want to specialize in any area that specific. I really wanted to be in submarine design. And the Admiral from design won out, I was sent to Preliminary Design to work. Preliminary Design was a group of about fifty civilian designers and six or seven officers.

The sequence of design in BuShips was as follows: we did twenty or twenty-five general plans to establish the basic parameters of a ship in Preliminary Design. Then in the Contract Design section, the specifications for construction were written and about sixty more detailed plans were developed. Then in detailed design of a submarine there are about six thousand plans that are required to build the submarine. That work was done by a shipyard.

My boss in Preliminary Design was a captain, and there were three commanders, two lieutenant commanders, as I recall, and two lieutenants, I being one of the lieutenants. We did new ship designs, conversions, and we studied and worked with new concepts as they came along. It was really exciting. We also worked with CNO's new ship office: the Ships Characteristics Board, which was headed by an admiral, with several captains and commanders assisting.

In October 1957, Sputnik was launched by the Russians. And in mid-1958 studies were started on how to expedite the delivery of the Polaris submarines. I had been the project officer for design of a new Polaris submarine class, which was going to be called the Ethan Allen Class. But that wasn't going to come along until late 1961 or 1962. More on that later.

Now, in the middle of all this, I was sent with a surface ship engineering captain to Eniwetok, out in the Western Pacific, to be the submarine representative from BuShips for atom bomb tests that were going on at that time. That was exciting, but it was a terrible trip in propeller planes from Washington to Hawaii to Eniwetok, halfway around the world. That was in the spring of 1958. Atom bombs were detonated underwater, and then I'd get on the target submarines with some civilian experts and determine what kind of damage had been done to any of the systems and their valves and machinery.

Several memorable things that happened that trip. One night we were awakened early (about 3:00a.m.) to watch a hydrogen bomb test. The atoll was about twelve miles in diameter. That night an

H-bomb was exploded across the atoll, and it was just like high noon, or even brighter, when that thing went off. It was just unforgettable. After finishing our work on those tests we flew back to Washington.

Another assignment I had at that time was project officer for hydrofoil craft. There are two types of hydrofoils--surface-piercing and submerged. We had research contracts, and I was the officer-in-charge of bringing one of those research hydrofoil crafts down to Washington for a demonstration for all the admirals and captains, so they could see how they operated. This ship's advantage was that the hull rode out of the water, on the wings or foils which were underwater. The drag on the submerged wings was far less than on the hull; so they went up to thirty and thirty-five knots instead of fifteen and twenty knots. They were a lot faster and more maneuverable than a comparable sized conventional craft.

INTERVIEWER: These are the ships, the Flagstaff, the High Point?

WILSON: Exactly. The Flagstaff and High Point were the outgrowth of this research program. As I said, this was 1958. The only problem with those kinds of ships was that they were a lot more expensive, with all the computer controls and the wings a normal ship doesn't have. But air cushion ships and hydrofoils have come along now in the Navy. I also was involved in the air cushion ship development later on.

But back to the Polaris submarines. As I said, the Sputnik went off in October of '57. In early '58, President Eisenhower said we've got to do something and do it fast to catch up. And four of us engineering officers who had had submarine experience were called in one Saturday to look at ways that we could expedite the Polaris program. We were each given an existing nuclear attack submarine hull to work on, and I was given the Skipjack(SSN-585), the latest body-of-revolution hull nuclear submarine, to work on. Also being considered were the Skate class, which was smaller, the Triton, which was the long submarine that had gone around the world underwater, and the Nautilus, to see if they could be modified to incorporate the Polaris missiles. Each of us did "preliminary design looks" at how we could cut these subs in two and place a long missile compartment in between, as well as necessary added auxiliary machinery. And after a day of this, just one day, we all decided that the ship I had, the SSN-585, was the best candidate. So we did many more detailed design studies on it, and the first two George Washington class Polaris missile submarines were really attack submarines of the Skipjack class that had been lengthened during construction and converted to carry the Polaris system. As a result of all this the first Polaris submarines were operable in January of 1961.

INTERVIEWER: What made the 585s more suitable than the others?

WILSON: The 585s were larger in diameter- 32 feet. This accommodated four levels, which made a lot more space-bredth- for the missiles, the missile controls, and the 585s were the newest of those four submarines that I mentioned, with the latest nuclear reactor plant. And there was also more room in them, with the 32 feet, to install the necessary additional auxiliary machinery. They were more adaptable to the requirements of the Polaris submarine, and we all agreed with this. It was just happenstance that I got that one to look at, but I was pleased that I did.

Somewhere along this time I got a notice in my in-basket that I had been promoted to lieutenant commander. I didn't feel that that was a very suitable way to find out that you were promoted, but that's what happened.

One of the things I did while I was in Preliminary Design in 1958 or 59 was to design a rescue submarine, or of what one might look like. And, of course, I patterned it after the existing rescue bells. But the rescue bells had no propulsion; I put small motors and batteries in it, and submitted the design to the CNO for consideration. They didn't do anything with it then, but in mid 1963, after the loss of the Thresher, that rescue submarine design was dusted off and we built it. That was the Deep Submergence Rescue Vessel (DSRV). Since about 1970, we have had one DSRV on each coast at all times. And I was deeply involved in the Thresher loss evaluation and response later on.

So there were a lot of interesting design projects that I found myself involved with, not all submarines. One of the

projects I had was design officer for a new submarine tender that was coming along, and that tender got built finally. It was the Hunley and I'll mention that later on in this career recap.

I'd frequently find myself making presentations in meetings with admirals, and was involved for the first time with Admiral Rickover. My boss was not a submariner, and his boss was not a submariner, so when the admirals wanted something on submarines they'd say, "Get Wilson up here," That was good for me.

Also, in the late '50s a board was convened in CNO to look at the organization of the Navy. For reasons I don't remember, a recommendation was put forth that the Navy do away with us Engineering Duty Officers. Engineering Duty Officers had been deeply involved in all design and engineering work in our ships for many, many years, but some in the line operational said let's do away with them. "The operators can do the EDO jobs as well as the EDO do." I was put on a board (as the junior member), led by a BuShips admiral and two captains, to give a rebuttal to this recommendation to the Secretary of the Navy, Franke. I wrote our report, after many meetings on the subject telling our CNO approximately: "You're crazy; you don't want to do that! We're needed." Franke accepted our position on it.

I was involved in the Albacore and all the modifications to that research submarine. Albacore had been built before I got into design. But we did a lot of tests on alterations we made to it; such as an X-stern instead of a cruciform stern; lift spoilers on the sail to prevent the ship from heeling so far in fast speed turns, and counter-rotating propellers.

INTERVIEWER: How about the use of polymers on the hull?

WILSON: Yes, we tested polymers on the hull, one of the many evaluations we did in conjunction with the David Taylor Model Basin. A lot of excellent data came from the Albacore that helped the fleet later on.

Near the end of my time in BuShips, an officer from CNO came over, named Captain Richard Laning. He had been the first skipper of the Seawolf, which was the sister ship to the Nautilus, except the Seawolf had a sodium-cooled reactor instead of water-cooled reactor. The sodium-cooled reactor didn't pan out, but Captain Laning by this time was back in Washington studying other new future submarine possibilities. He came to BuShips to get us to do design studies and asked to have a design officer assigned to him; I was assigned to help him. He was a big advocate of small, miniature submarines, and I was not. But I did the studies he wished, and we became fairly close associates during that time.

In about March or April of 1960, after a little over three years in BuShips, I received orders to Portsmouth Naval Shipyard to be in the design division there. I was a lieutenant commander and was looking forward to that. That was a normal step in a submarine engineering duty officer's career. But about this time, mid 1960s, the first Polaris submarines were coming along, and the Polaris tender, Proteus, which was a World War II tender, was starting conversion in Charleston Naval Shipyard, being lengthened to put in several Polaris missile storage tubes and

all the necessary new shops to support the Polaris submarines. And Captain Laning had been ordered as the Commanding Officer of the Proteus.

About two weeks before I was to leave for Portsmouth, Captain Laning got to the Chief of the Bureau of Ships and others. There were three engineering duty officers, of which I was one, who were nominated to go on that ship. They needed an engineering officer to be aboard because it was a new concept at an advanced base and we had no shore support in Scotland where the ship was going. In any case I think Laning's work with me had convinced him that I was a reasonably decent kind of fellow and could help him, and I was selected over the other two fellows—both were nuclear officers—to go on the Proteus. So my orders to Portsmouth were cancelled and in June of that year off we went to Charleston, South Carolina, where the Proteus was being converted.

During this late-1950s period in design the new Special Projects office had been established. I was in it for a very short time at the beginning of 1957. It was set up to coordinate all the missile-related functions of a Polaris submarine—navigation, fire control, missile tubes, the missile itself. The decision was made in 1956 or '57 to stop considering liquid-fueled missiles (like the Jupiter and other land-based missiles, of that time), and consider solid-propellant rockets. These were later used in the Minuteman and in Polaris missiles.

So there were a lot of developments in the late '50s and early '60s ones related to improvements in nuclear power,

improvements in development of the missiles, and the ability of the missiles to land accurately where you wanted them to land. That took an awful lot of work in navigation and fire control. I ended up in charge of Polaris navigation in a later assignment, but not yet.

AT THE COLD WAR FRONT LINES—PROTEUS

I had heard of the Proteus in my design work. Another division of our design group in the Bureau of Ships had done some preliminary design work on the conversion of the Proteus to a nuclear and Polaris-capable tender. The detailed design work was to be done by Charleston, and that's where we moved to in the summer of 1960.

The Proteus was a World War II submarine tender, and had been put in the reserve fleet at the end of the war and not used since. It was taken out of the reserve fleet in late 1959 to do this upgrade for our Polaris program: the work was being done in Charleston Naval Shipyard. The work to be done was to add about a hundred feet in length to the ship and a couple of missile storage tubes, which would enable Proteus crew to work on the actual missiles and to transfer missiles back and forth between the submarines and the tender. Also added were technical shops, such as fire control and navigation. Also nuclear facilities, to permit refueling and other repair work if need be on the nuclear

plant on the submarines were added. Charleston was a nuclear capable shipyard and was able to do all this work.

Shirley and I and the children went to Charleston in the early summer and thinking that it was going to be but a temporary place to stay for a few months-we didn't know the details of the ship's schedule at that time-we rented a furnished place, which turned out to be awful. It was hot as could be that summer and there were bugs galore. The house had no air conditioning, and it was just an unsatisfactory place to be. Later on in the winter we moved to a better house, an air conditioned one. But during that summer and fall we lived in this small, hot, furnished house with all three children in one bedroom under mosquito netting.

At work, I met the administrative boss of the ships repair and engineering department and I was assigned under him, although he really didn't get involved in any of the submarine technical or repair work or the details of our preparedness for our mission. He was an ex-enlisted man and a very fine man named Bob Blakely.

Our mission was to go to Scotland to Holy Loch within a year and be ready there to tend to the Polaris submarines as they came back from their patrols in the North Atlantic. More of that later.

While in Charleston I became acquainted with the repair department group, with whom I was going to be deeply involved. The crew was about 700 on the Proteus and over 400 were in the repair and engineering department, 16 officers--all ex-enlisted--and about 400 enlisted men, members of all the trades that were

going to work on the submarines. There was an electrical shop, TWG machine shops, an delectronics shop, a shipfitter shop, and all the various trade facilities that exist in the shipyard, except of course the shops were much smaller and less capable that in a shipyard.

While we were in Charleston I found out quickly that our ship had a small, totally inadequate technical library, where all the manuals for the submarine equipment and systems as well as the Proteus systems and equipments were to be stored. So I, working with Charleston Naval Shipyard, had a storeroom in the second deck aft expanded and converted into a technical library that our crew on the Proteus could use in obtaining reference material for work on both the submarine systems and ours.

Also during that time Captain Laning identified the fact that there was no crew recreation facility on the tender. There was no place for the crew to go, really, to relax, other than in the mess hall. He asked me to go to work on that. So I designed the layout of a large recreation room on the main deck forward, determined the plating, framing and other materials needed and ordered the material. Our crew built the recreation room while the shipyard was doing its work on the major conversion items.

During the time that the Proteus was completing its conversion through the summer and fall of 1960, the Polaris submarines were being completed. The first was the George Washington. It had a large section with sixteen missile tubes, and support shops and auxiliary machinery put in the middle of what was previously the Skipjack attack class submarine.

Actually, the Permit was the first to be converted. As I said previously we had decided that converting the Skipjack class was the most attractive and expeditious way to get Polaris to sea as soon as possible. The George Washington and the four follow ships of the class were being converted in the four shipyards—Electric Boat, Newport News Shipbuilding Company, and Portsmouth and Mare Island Naval Shipyards. These were the subs we were going to tend in the Holy Loch.

The conversion of the Proteus completed in December of 1960 and we got underway the first of January and headed north for New London. In New London we tied up at the State Pier across from the Electric Boat Company, and the George Washington came in for its and our very first upkeep alongside. The concept was that they would be out on their patrols for sixty days and then would come in to us for thirty days, twenty-one of which were allowed for upkeep for our repair and maintenance work. And we had to finish on time—no more than 21 days!

The driving force for both the submarines and the tender was to maintain schedule at all costs. We had to keep our missiles on station, and we could not be late with our upkeeps. So that was one of the premises that I tried to infuse in all of our sailors.

From the onset the Executive Officer of the ship, Commander Chuck Almy, wanted me to line up our officers for quarters every morning, and I, as politely as I could, talked my way out of doing that. We had fifteen ex-enlisted mustangs, wonderful officers: lieutenant (jg)s, warrant officers, and lieutenants. By this time I was a big lieutenant commander. And it was going to

be much better for them and better for our mutual morale if we just met in the repair office and I gave out the morning orders and told them what we were going to do, and made fun of it as well as business. And so we did that for the entire time I was on the Proteus. I resisted the call to militarize things quite so much.

In the upkeep of the George Washington at State Pier in New London we were able to finish the work that was needed on that ship and she went back on patrol with a new crew in three weeks. Each Polaris submarine, of course, had two crews, a Blue and a Gold, and they alternated in a ninety-day cycle, going on patrol, and then their upkeep and training period.

As soon as the upkeep of the George Washington finished, we got underway from New London, crossed the Atlantic, went up into the Firth of Clyde to the Holy Loch in Argyleshire, Scotland. The Holy Loch was about twenty-five miles due west on the Clyde from Glasgow. We anchored in the middle of the loch, abreast of Ardanadam Pier. I could see right away that the countryside was beautiful, and this was going to be a wonderful place to be.

INTERVIEWER: Admiral, why did they choose Holy Loch, Scotland, to be the forward site for ballistic missiles?

WILSON: The Holy Loch had been a British base for submarine operations in World War II as well as before the war. Also, in the loch off the Clyde to the east of where we were, the Gare Loch, the British had a submarine base, and they had command

headquarters across the Clyde in Greenock. So there was a heavy British military presence there that would be supportive. Also, on the River Clyde toward Glasgow, there were about twenty shipyards, commercial shipyards, that could be available to help us and support us if need be. It turned out I used their shops to advantage several times. And then, of course, the Clyde, being in the North, at about fifty-five degrees north latitude was close and convenient to the places where the submarines were to operate. I never did know, and I didn't want to know, exactly where they operated, but I felt sure it was off of and north of Norway.

When we arrived in Scotland from New London it was the first of March, 1961. And on the third of March the second of the Polaris submarines, The Patrick Henry, arrived from her patrol and came into the Holy Loch for her upkeep.

We were not greeted with great enthusiasm by some. There were many "Ban the Bombers" who were there when we arrived. As a matter of fact, they stayed on and tried to picket us for the next month or two. As long as it was in the news and on television, they kept at it. These "Ban the Bombers" were not the Scottish local people, who we were to become so fond of in later months. They were paid marchers from England and elsewhere who came up and tried to prevent us from doing our work.

They would lie down, maybe fifteen or twenty of them, on the pier, thinking we couldn't get ashore if they were there. Instead a bunch of us walked right over them, on top of them, in order to get on or leave the pier as we went to and from Proteus.

They would try to climb up the anchor chain and man our ship, and we'd get rid of them with fire hoses and we'd grease the anchor chain so they couldn't climb on it. The same thing with the mooring lines. We were anchored out in Holy Loch at that time. And so we were able to get our job done, but we had this little interference for a while.

The local people also deplored these protesters being there. When the protesters camped in tents nearby, the local people went after them; they tore down and burned down their tents. But the protesting didn't last long—just a few weeks—because as I say, as soon as they stopped being newsworthy T.V. cameras departed and the "Ban the Bombers" did too.

INTERVIEWER: What was the security arrangements? Did you have a Marine detachment aboard?

WILSON: We did have a small Marine detachment aboard. We had a Marine stationed at the piers where we came to board the ship. We also had sentries of both Marines and some of the Sailors topside twenty-four hours a day, so that we were sure that no one could get aboard. Also, we had boats on our ship and we would check our sides and be sure no small boats had come alongside and put any kind of explosive against us that might harm us.

Some of the work that would be conducted during and upkeep would be the rewinding of a motor, or the overhaul of a valve pump. I personally climbed in the main condensers through a manhole at their base and went up to the top to see if the upper

tubes were all right or not, and frequently they weren't. They had been impinged with the wet team from the turbines and some of the tubes needed plugging. We made lockers for the ships. We did some highly technical work, but also some rather simple jobs that we could do as time permitted.

INTERVIEWER: At this time too, Admiral, the British had a submarine nuclear deterrent as well. I guess their submarines operated a de facto deterrent for Britain

WILSON: That's right. The British nuclear capability didn't come along until the late 60s, after we agreed to provide them with our 55W nuclear power plants and with missiles, the same as those in the George Washington class. And the British designed the remainder of their submarines to mesh with our nuclear plants and missile systems. I was involved later on in some of that technical exchange work. But at that time, 1961, their submarines were all non-nuclear, so they couldn't provide any support for us in the nuclear or missile areas at that time.

When we were in Charleston, Admiral Rickover sent me to Westinghouse in Pittsburgh for a week of nuclear training on refueling, on the various modules and equipments that we would have on Proteus, so that if the need ever arose, we could use those equipments while deployed. I did actually work with these equipments and simulated doing various repair work. But we had to use very little of these nuclear support equipments. And, of course, if we really had had to have a major refueling, we would

have been provided with a lot of help from the United States. But that never occurred during my time there, nor has it since. We did some highly technical work, but also some rather simple jobs that we could do as time permitted.

There was no technical capability of either our Navy, or the British Navy, around the Holy Loch. There was administrative support but no technical support. So early on I visited three or four of the biggest nearby Scottish shipyards, including the John Brown yard where the Queen Elizabeth and Queen Mary had been built, and made contact with the design and production people knowing that we might need their help later. And that was a good move because we did need their help from time to time. Occasionally, we wouldn't have proper materials. If I had to make a valve body and couldn't make a casting, I'd get a big piece of material, a forging, from one of the Scottish shipyards and machine it on the Proteus. We'd also be able later to get some electrical equipment that we didn't have aboard.

I also would frequently call Washington, the Bureau of Ships, and ask for their technical help, and occasionally would ask for somebody to come to the Holy Loch from Washington to observe a situation or to lend us support. And Washington, in general, was very supportive of us. Also, Electric Boat Company design people and some of the contractors for the various equipment on the Polaris submarines visited us frequently. So we had a good number of visitors from home, as well as a few technical support people from the Scottish shipyards.

In June of 1961, the President of the United States, then John Kennedy, changed what had previously been a prohibition against our families coming to Scotland, and they were allowed to come. In June, Shirley and the children arrived at Prestwick air base about forty miles south of the Holy Loch. I went down to meet them and, of course, was delighted that they were there.

In the meantime I had negotiated to rent a house in Dunoon. That's a long story. Our Proteus dentist, my best friend on the ship, went into Dunoon and found an elderly lady who would rent her house. First, she wanted me to come to meet her before she agreed to rent to me. And I went immediately. Then I had to go out two or three more times, and each time I met with her we had a couple of Scotches together. She had in mind that I was going to bring a governess and a gardener and a few other helpers over there, but I told her my wife was our governess and I was the gardener! But we learned to love this lady, Mrs. Pearson, and we were very fortunate to have lived in her home during our year there.

During our time in the Holy Loch, many dignitaries came to visit us, to see what we were doing, because we really were blazing new trails. Our kind of operation had never been tried before the Polaris nuclear submarines came to Britain and certainly a deployed U.S. submarine tender like Proteus had never before been used and trusted to do this extensive kind of work. So then British Prime Minister Wilson (no relation) came aboard for a briefing, and later Lord Louis Mountbatten came aboard, and I took him around the ship. Walter Cronkite was on board for

almost a week to do a broadcast. We became accustomed to all these dignitaries coming aboard and were able to do our job with or without visitors being on board.

As time went on, the submarines kept arriving. After the Patrick Henry there was the Theodore Roosevelt, which had been built in Mare Island; the Robert E. Lee, which had been built in Newport News Shipbuilding and Drydock; and the Abraham Lincoln, had been built in Portsmouth Naval Shipyard in New Hampshire. So they came in one after the other from their patrols and we carried out their upkeeps. Sometimes we were able to get all the work required completed rather handily, but other times the work was extensive and it was a fight to the end to meet our schedule. We frequently changed periscopes and masts, and overhauled pumps and valves. We'd have to improvise sometimes to get the jobs completed on time, but we got them done.

Into the summer and fall of 1961, things were going well. We were all working hard. As I said, we had a wonderful group of officers on board. In late summer, the Repair and Engineering officer, Commander Blakely, retired from the Navy and left the ship. The Captain asked me if I could handle being both Technical Assistant and Repair and Engineering officer. I said sure, and so they didn't replace him and I took both jobs. It was just a little additional administrative work. I had an excellent assistant under me, a young lieutenant commander who had been an enlisted man. He was a real go-getter and doer, John Wilkens.

During the upkeeps, John and I had a meeting every afternoon in our little conference room. We sat at the head table and the

other fifteen officers and their leading chiefs attended, and faced us; we talked about each job working on each of the subs that we had alongside. Usually there was just one meeting daily, but sometimes we'd have two if there was a real press for us to get the job done on time.

Occasionally, we had SSNs, attach submarines, come alongside for some work. The SSNs operated in the area, in Europe, in Great Britain waters, at the time, and if they needed some work, we'd try to do it.

In May of 1962 I was shocked to find out that I had been selected for Commander a year ahead of time. I really didn't even know the selection boards were meeting, or didn't think about that possibility at all: but it was, needless to say, a pleasant surprise. And Captain Roseborough, who was one of the top engineering submarine officers in the Bureau of Ships, had come over for a visit to see how we were doing, and he asked me where I wanted to go next. And I recall answering, "Well, I don't think it really matters, because I've never gone where I've asked to go in the past." And he said, "Well, you will this time." So I said, "Well, I'd like to go to the Navy office Electric Boat, SupShip Groton." And he said, "That's where you'll go, then." That was nice. I think they all thought that we had done a good job blazing new trails in shipboard maintenance. The Polaris submarines were brand new and we as a tender were brand new.

Meanwhile, back in preliminary design in BuShips, one of my projects, which was to design a new Polaris tender, was nearing completion. New submarine tenders would be completed soon. And

the first of these, the Hunley, would relieve the Proteus in the Holy Loch a year or two after I left the Proteus. And then subsequently there were others, the Holland and the Simon Lake, and they in turn relieved each other so that the tenders could get back to the United States and get work done on themselves and provide leave for their families.

This was in the middle of the Cold War, of course, really the peak of the Cold War. The Americans were keeping their forces at the ready--the Air Force with their B-1 bombers, and the Minuteman was coming along with its solid propellant in the Air Force, and, of course, the Polaris submarines were at the forefront of our deterrent against the Russians during that time. I really felt that I had personally kept us out of war. I think we all felt that way. That sounds rather self-serving, perhaps, but it's true; we knew the importance of doing this, and there we were, one ship out alone, keeping the Polaris submarine going at a steady pace. The Navy was able to say that we met all of our commitments on time. We completed 22 upkeeps on time during my tour on Proteus. We all felt very proud of this.

INTERVIEWER: Admiral, when you were out there, I think, when you were on Proteus, I think they also had the Berlin Crisis, when the Berlin wall went up, and the posture of the defense forces increased once that happened. Did you notice anything for yourself?

WILSON: No, I didn't. Of course, I knew that the Berlin Crisis was happening, in 1961, as I recall. But it really didn't affect us. We were pretty well insulated from the rest of the world so that we could get our job done; and the Naval establishment, supply and all commands back in the United States, supported us completely. So, no, we were already on a "wartime pace." So while aware of the Berlin Crisis but it really didn't seem to affect us.

The Scots and the British in general were very supportive of us over there. I could tell many personal stories of dealings and interfaces with the Scottish people in Dunoon, the town of about 10,000 was right next to the Holy Loch and took us in. They couldn't have been better to us, and we, with our two older children in school there, really became part of the communities. Also, the British, the Scots, and the Irish, particularly the Irish, loved President Kennedy. He was Irish by heritage; they all thought he was a wonderful man.

Some of our experiences as a family in Scotland are probably worth telling. The big home that we lived in with Mrs. Pearson was right on the River Clyde. It was a beautiful situation. But the inside of the house was a little different than we had been used to. There was no central heat in the house—in that house, or in any house, except one in all of Dunoon! We had a fireplace in every room of our house and Shirley was in charge of the fireplaces, because I wasn't home a lot of the time. I was on the ship. And she burned two different kinds of coal in the fireplace. And she cooked on a coal stove and used two different

kinds of coal in that stove--one to make a fire and the other to bank the fire for overnight, because we didn't want to be making new fires every morning. Her washing machine was about the size of an orange crate. It would hold two sheets at most. When it was fifty degrees outside, it was fifty degrees inside!

Being right on the water, it seldom snowed in Dunoon, even though we were at a very high latitude. The Gulf Stream coming up the Clyde warmed the area. So it didn't snow much but it rained very frequently. It was frequently 33 degrees and raining!

INTERVIEWER: How did the children adapt?

WILSON: The children adapted beautifully in Dunoon. Our two daughters were nine and seven, and our son was four. So he wasn't in school yet, but the two girls were, and they went to fourth and second grade. They wore uniforms and fit right in with the other children.

Shirley reminds me that the elementary school there was excellent. Our second grader was learning fractions, and the fourth grader didn't know what they were: but her older sister could name all the kings and queens of England! Also, our second grader just loved her teacher; and she and the teacher exchanged Christmas cards for the next fifteen years. Little Kenny, who was four then, befriended our next-door neighbor, Ian Wheeler, then about eleven; Ian's family and ours became good friends, and have been ever since we left the Holy Loch.

When Shirley went shopping in Dunoon, she went to the butcher—with meat hanging on a hook—and the greengrocer. There were no supermarkets. There were no theaters or neon signs, nothing modern like we had. It was like the United States in the twenties or thirties. Mrs. Pearson, our landlady, insisted I use her car to go to work so that Shirley could have our little Volkswagen to do her chores around town. We became very close to Mrs. Pearson.

And we really loved the Scottish people. We joined in Scottish dancing classes. We went to the Presbyterian church there, partially because it was big and every fifth pew was heated! So the Americans would be lined up in every fifth pew. The church rector, Mr. Robertson, asked Bill Peterson, my dentist friend and me, to sit with our wives in a session with all the congregation to talk and answer questions about life in the United States.

As a result of our performance on the Proteus during this first tour in the Holy Loch, the ship was awarded the Navy Unit Citation, and I and our junior repair and engineering officers received a Navy Commendation Medal. Rather unique for a whole department to get that. In some of the write-ups for those medals the admirals wrote that the Proteus was in the vanguard of an undertaking of staggering proportions, and I guess that's really what it was.

When I was detached from the Proteus in June of 1962, our family went in our little Volkswagen, Shirley and I in front and the three children in the back, on a fast trip to Italy. I had

been in Italy in the Juneau almost fifteen years before and loved it, and thought the family ought to see it. So we went to Venice, Florence and Rome to see the sights. And then I drove back to Le Havre on the coast of France, and we boarded the liner United States for the trip back to the States—pretty plush, and a unique experience to all of us.

When we returned to the United States, we were met in New York by my old pal, Dick Whiting and his wife, Em. We had maintained close relationships with Dick and his family from the time we were in grade school together. Em and Dick had visited us in Scotland in early 1962.

LATER PRODUCING YEARS—ELECTRIC BOAT

I reported to SupShip Groton in July of 1962. I was made Inspection Officer on the waterfront at Electric Boat Company for the construction of about fifteen nuclear powered submarines. I had eight officers (again ex-enlisted men) and forty civilians working for me, and there were then 18,000 workers at Electric Boat. Some ships under construction were attack submarines, the Thresher class, and others newer Polaris missile subs which followed the first five. The new SSBNs were of the Ethan Allen Class. They were more spacious, had newer machinery than those of the George Washington class. As I have said, the George Washington class was actually an enlarged Skipjack, which was started even earlier than the George Washington itself.

Our job in Inspection was to witness tests, to attend construction schedule meetings, and to liaison with the crews of all these submarines during construction. We tried to facilitate their getting experience with their submarines and learning the various systems and witnessing tests on their ships. It was helpful to me that I had known many of these attack submarine and Polaris submarine crew members, because many of the more senior ones on the newer subs had previously been in the Holy Loch while I was there.

I believe I mentioned that each Polaris submarine had two crews, a Blue crew and a Gold crew, and therefore there were ten crews for the five initial submarines. I was always very impressed with these crews and their capabilities. They were hand picked because of their excellent records, and the ten skippers were particularly competent.

I loved my work at Electric Boat, and once again I was in the kind of work that I was trained for.

We had a shocker, of course, and the world had a shocker, on April 10, 1963, when it was announced on radio and TV that a submarine had gone down. I was out on sea trials at the time. I went out on the first and usually all the subsequent three or four sea trials of all of these submarines as they were completed. We identified deficiencies and fixed these problems as they occurred. The announcement in the press was that a submarine had gone down, and our families in New London didn't know whether it was the Alexander Hamilton, which was the submarine we were on for trials that day out of Groton, or some other submarine. Of

course, it turned out to be the Thresher out of Portsmouth, New Hampshire.

The Thresher was a new advanced design of the Skipjack, attack submarine type, again nuclear. It was out on its post-shakedown availability sea trial, the last post-construction sea trial, when it went down with 120 Navy men and civilians aboard. Captain Bill Hushing, my boss at SupShip Groton, went to Portsmouth to be on the Board of Inquiry to determine the cause of that tragedy. The design officer at SupShip Groton and I were on the phone with him constantly trying to feed information and get information about our submarines at Electric Boat.

In that summer, the Design Officer at SupShip Groton was detached and I took his place. The Design Officer was the number two position in SupShip Groton.

After the Thresher went down, we started a program in conjunction with the submarine desk in Washington (Code 525) to address all the failures which could have possibly caused this disaster. Although it was subsequently known through the investigation that the basic problem was a leaking 4-inch silver-brazed joint in a main seawater system, we addressed every possibility that could have caused this loss—a leaking casting in a saltwater system, a failed hydraulic system valve, or a defective silver-brazed joint in large piping. We identified about a dozen items that we put together as possible causes—they were called Submarine Safety Program items, SubSafe. All subsequent nuclear submarines then under construction and design

were to be delayed to get the necessary modifications to correct these possible causes.

That SubSafe package was continued and applied in all the new designs. Also, when I was Design Officer, I, mainly from my experience on the Proteus, had often felt that there was too much leeway in the construction shipyards. They could change many very important features essentially designing the various systems their own way.

As a result, there were many different kinds of equipments on very important systems on the various submarines of the same class, depending on where they were built. This made it doubly hard for the tenders and the fleet to support the submarines. Obtaining replacement equipments and materials become doubly hard. So I started a program of "Non-Deviation plans." On critical systems, such as stern plane and steering hydraulics and main ballast tank blow, and similar vital systems, the design plans were designated "non-deviation" and the shipyards who were building these submarines were not allowed to deviate from the design yard's plans. There was a great uproar from the shipyards on this, and I was visited by top design men and owners of shipyards trying to get us to depart or cancel this program. My boss at SupShip Groton would always refer the complainers to me, which was fine. I just refused to back down. I said no—if this non-deviation plan system is to be cancelled, one of my bosses will have to cancel it, not me. And it was never cancelled.

During our time at Groton, my life was really intense with frequent sea trials, commissionings, and for the new submarines

just being started, launchings. But it was fascinating and I found it challenging. In design I had ten officers working for me, and about fifty civilians, and our job was to check on all the Electric Boat design plans and be sure they met all Navy specifications and requirements.

In 1964, Captain Hushing was selected for admiral and he was sent to become Commander of Portsmouth Naval Shipyard; an old design friend of mine, Captain Harry Jackson, who was a Design Officer in BuShips Preliminary Design when I first arrived there in 1957 became my boss. He was really less suited to that top job than Captain Hushing. He told me a couple times he wished he had my job and I had his, but that's not the way it was. I was then a junior commander and he was a captain.

Also, very importantly, at that time our daughter Sarah, who we called Sally, was born on the 22nd of April, 1965, at the Submarine Base clinic. When Shirley produced Sally that night, we were the only ones at the clinic—it was in the middle of the night. So I went in to the clinic to wait, and the doctor said, "Why don't you come on in?" So I came on in and I watched Sally being born. That was a wonderful experience.

My sister Sue had married an officer in the Class of '42, Travis Tabor, at the Naval Academy in 1945. He was a destroyerman. On the 12th of October 1964, while I was at Groton, he died of congestive heart failure. In the subsequent year, in October 1965, just before I finished my tour at Groton, I was on sea trials on the Benjamin Franklin and got word when I returned that Dick Whiting's father had died. Dick's father had been

wonderful to me during my youth after my father died, so this was important to me. I left Groton that day and went to his funeral. I had been close to the Whitings for years before then and have been since.

After the Benjamin Franklin sea trials I was detached from SupShip Groton and, having told the EO personnel people: "Please don't send me to SP, the Polaris Missile System Office in Washington. I wanted to stay in the submarine design and construction business and not get back in the missile business." So guess where I was sent? S.P. the Special Projects Office in Washington!

LATER PRODUCING YEARS—POLARIS AND POSEIDON

I reported to the Munitions Building in Washington in October 1965. The Special Projects Office was then run by Admiral Levering Smith, who had been the top technical man in the Navy on Polaris missiles, and I was told I was going to be head of the Special Projects Launcher Branch. The launcher group designed and took care of all the technical interfaces and aspects of the missile tube and the missile ejection system. I went to the West Coast to visit the people who designed the missiles and got pretty well checked out on what that was all about in the first two or three weeks. Just after getting back from the West Coast and becoming a launcher "expert," my boss, Captain Bob Gooding, who was also an engineering duty officer but not a submariner, called me in and said, "What do you know about navigation?" I said, "Nothing." He said, "Well, you're going to be head of the

navigation branch." I soon found that the previous navigation branch boss had been fired!

We had six officers and fifteen civilians in our Navigation branch office, and helping us were two major contractors, Sperry on Long Island and Autonetics in Los Angeles. Our job was to maintain the navigation systems for the Polaris submarines that were operating and design the new navigation systems for the Poseidon subs that were to come. Our civilian staff included a senior civilian leader, who was just about to retire, and two underlings, one in charge of systems work and the other in equipment work. I soon decided I liked the whole arrangement and was happy to be in SP.

Another system we were responsible for was the just-starting satellite navigation system. Four satellite stations had been established to control the satellites in orbit. One was in Minnesota; the others in Maine; Africa; and Australia. I never did go to the ones in Africa and Australia, but I visited the other two a number of times. That helped me to understand the concept and the system. The Johns Hopkins Applied Physics Lab near Washington designed the satellites and their support systems and equipment. The satellites were launched from Vandenberg Air Force Base in California. Working with the Applied Physics Lab, we aimed to make those satellites as reliable as possible. Each satellite was very expensive, and if they didn't work, it would be a big problem!

Other equipments in addition to the satellites for which we were responsible were LORAN, ship's inertial navigation systems

(SINS), and Type 11 advanced periscopes. Bottom-sounding sonar/fathometer equipment and very accurate depth charts, which had been previously made, could be used to pinpoint a submarine's location. All of these equipments were vital to determining the submarine location at any time. In the first month I was at SP, I asked to go to sea on one of the SSBNs as the assistant navigator. I went on the Benjamin Franklin for three weeks and worked with the navigator day and night, hand and foot, to learn what he did and what the problems were with the navigation system. This always helped me later on because the various people, civilians and others, had a hard time telling me I didn't know what I was talking about (even though I might not have) because I had been to sea and had been far more familiar with the equipment than many of them. But much of the technical work was really done by Sperry and Autonetics, and it was our job to direct it, monitor it, keep it going, and we of course, supplied the funding for all their work and their equipment.

While at SP directing the Navigation Branch, I made monthly trips to Sperry and to Autonetics; and four or five times I went to Cape Canaveral, and out on the submarines for test launches, to review how the navigation systems were functioning, to be sure everything was on an even keel. I had to be sure that we met our development and production goals, and that Electric Boat and Newport News, which were producing the new Polaris submarines, were getting the support that they needed all the time, both in terms of technical people, and top performing equipment and systems.

Admiral Smith taught me a lot. He was a much more patient man than I was. He, I think, worked under the thesis that: "Don't make a decision until you need to make it." And I worked under a different premise: "If you know enough to make a decision, go ahead and make it and get on with the job." So I had a little bit of a conflict with him occasionally on that. But usually he won. He was very competent.

In the late spring of 1967, I was surprised to be told that I had been selected to Captain. Another promotion, and like the previous one—to Commander in 1962—I was selected a year ahead of my normal selection time. It was gratifying that my work on Proteus and SupShip Groton, and now Special Projects was being recognized.

While I was at SP, I tried to take a week or so off each summer to go visit my mother and Shirley's parents, who were in Rutland, Vermont. In '68 we went to Vermont in July and I fulfilled a dream that I had had for the last twenty years. Soon after I first met Shirley, in 1949, I found that I loved the state of Vermont. It's a beautiful state, and I decided that I wanted to own a piece of Vermont someday. In 1968, in our week with her parents, her Mom told us that Shirley's best friend, Anne Brush, and her husband, Gor, were visiting her parents in Belmont, a little village south of Rutland, and that maybe we'd want to go see them. We did go see them and found that Anne's stepmother was thinking of disposing of the house two houses down, which had been her parents' house before they died. We looked at the house and to make a long story short, we said we

would buy it. Belmont was a lovely little village, the highest village in the State of Vermont, and the house backed onto a small lake. It was built in the 1840s and was in terrible shape; it had been vacant for five years after the grandparents died. But it would be ours. So we bought it for \$12,000! Twelve thousand dollars seemed like an awful lot then. In fact, it was. I borrowed on my life insurance in order to pay for the house.

I found the work in SP extremely rewarding although initially I had tried to avoid going there. The technical competence was extremely high. Admiral Smith had a topnotch staff technically. Captain Bob Gooding was my boss and Captain Bob Wertheim was my missile branch counterpart. Admiral Smith's senior staff member met once a week to discuss our progress against our goals—how we were doing. It was always at the highest technical level. But I will confess I liked the operational end just as much as the technical, and getting things done on the Proteus or at Electric Boat was perhaps even more interesting and rewarding to me than the technical stuff in Washington.

In the late summer of 1968, I started hearing rumors that I was going to be moved to a Naval shipyard. I had been in Pearl Harbor back as a lieutenant, but hadn't been in any naval shipyard since. And the first rumor was that I was going to Charleston, South Carolina. This was not what we wanted personally. I can say now that the only place that we'd ever been that we really didn't like was Charleston. It was so hot and buggy and, when I was on the Proteus I seldom got home to see my family. But that Charleston rumor went around a couple of times

and pretty soon, no, it wasn't Charleston. I was going to Norfolk and I was going to be Planning Officer, which is one of the top two officers under Shipyard Commander. I thought that was great. Norfolk was not a Polaris submarine yard, but it was a nuclear shipyard, and that was important.

LATER PRODUCING YEARS-NORFOLK NSY #2

So in September, 1968, we moved under orders to Norfolk Naval Shipyard and moved into Quarters B, next to the Shipyard Commander. It was an old, very spacious home, built before the Civil War—I think in the 1820s. It had thirteen-foot ceilings and many, many rooms. It was a lovely old home. So the family was able to settle there. By then, of course, Sarah was about three years old and the other children were advancing in school, with our oldest, Barbara then being a junior in high school.

I, as Planning Officer, was responsible for the design work and the issuance of specifications for repairs to all kinds of ships. And although we had some nuclear submarines, in the yard, we had more surface ships, and I became familiar with aircraft carriers and cruisers, as well as destroyers and other smaller ships. In carriers, I was in close touch with a captain named Lee Fisher, who was in ComNavAirLant. He was a real carrier expert, and he was very helpful to me at that time.

We had two aircraft carrier overhauls during my time there, the America, which was later commanded by a classmate, Tom Hayward (Tom became an admiral and later CNO) and the Franklin D. Roosevelt, which was then commanded by a Captain Jim Mayo, who

also became an admiral. I found myself being the focal point of determining and presenting to various people where we were going as a shipyard, what our goals and aspirations were, and what our progress was, both to our own officers and top civilians and to official visitors. That was fun for me.

I was able to become familiar with some of the equipment that I had not known about in the past, like pressurized boilers on destroyers. I frequently went down to the waterfront to see how some of the ship work was coming along. This was a revelation, I guess, for the leading civilians, for the Planning Officer to leave his office and get down to the waterfront and see the ships and the work, but that's what I liked best. I found that I was much more effective if I knew what was going on on the waterfront and got down there to talk to the ships' crews and the civilian workers in the yard.

Also, while there, our job in the shipyard entailed work with the civilian shipyards nearby. And one of the programs I was involved with was the building of patrol craft for the Thai Navy, in a nearby private shipyard. I was the speaker at the commissioning of one of those ships later on. I guess by that time I had been made Admiral and was no longer stationed in Norfolk. But I recall that I was introduced by the shipyard manager as "Rear Admiral Kenneth Wilson, who has the Navy Condemnation Medal." And everybody, of course, laughed as did I.

So during that time in 1968 and '69 we worked on many ships, and I felt I was doing fine at the yard; I enjoyed the time there. My boss was Admiral "Moose" Brown, who was twelve years my

senior. His wife was quite sick with cancer at the time so that was difficult, but otherwise it was a pleasant time. The Browns and Shirley and I walked around the shipyard almost every morning to get some exercise.

Rear Admiral Frank Jones came down to our shipyard for one of his inspections in late November or early December, 1969. Admiral Jones was the Vice Commander of the command which had been BuShips, called the Naval Ship Systems Command (NAVSEA). I remember saying to Admiral Jones, "Admiral, just don't do anything with me. Forget that I'm here, because I love it. And I particularly don't want to go back to Washington, but I really don't want to move at all." That was on the first of December, 1969. The end of the next week I received orders to report to the Pearl Harbor Naval Shipyard as Shipyard Commander. He didn't mention that when we talked the week before—we talked and laughed about that later.

That sudden move was extremely hard for the family. Nancy was then at Norfolk Academy, Barbara was a senior and a cheerleader at her high school, and Kenny was in junior high school. Barbara wanted to stay where she was at that high school and we said fine. There were three families who volunteered to keep her for the rest of the school year. By about Christmastime, she was wavering and not sure whether she wanted to go to Pearl Harbor or not, but by the time we had to leave in early January she had decided she wanted to come with us, and of course we were delighted with that.

So in early January of 1970, just a month after we got the orders to go to Pearl Harbor, we left by air from Norfolk. Shirley and I and the four children went to Los Angeles, and in the stopover there went to Disneyland, and of course the children enjoyed that. And we then flew to Pearl Harbor to commence that new adventure in life.

INTERVIEWER: Admiral, how does this all play out with your career aspirations? When you first entered the Navy were you thinking about a twenty-year career? Twenty-five-year career? Were you thinking about ten years in, you're out?

WILSON: That's a good question. From the time I left the Naval Academy, I really didn't think too seriously about getting out of the Navy, although I did occasionally when with my civilian friends. And, of course, some of the officers did depart from the Navy along the way. But I made two changes in my professional life that had a huge effect on my career. First, getting into ship engineering work, which I found that I loved, and second, becoming a submariner, which I found exciting. Then after I finished my early training assignments I had wonderful jobs at Pearl Harbor shipyard, at BuShips design, on Proteus, all of which were very similar in that they applied my engineering and the submarine expertise, but were different enough to provide new challenges and keep me interested in what I was doing. So both the fact that I could serve in the Navy and serve my country, and by doing work I enjoyed, I never seriously thought of getting

out. I really never thought much about how far I might get in the Navy, but all the jobs were interesting and rewarding, so I just stayed in. And Shirley and the children never complained with all the moves involved in my career.

INTERVIEWER: Did you ever give a thought to what you would do in civilian work, like to a shipyard, when you left the Navy?

WILSON: No, I really hadn't come to that kind of thinking yet, but later on, after I finished my tour at Pearl Harbor and back in NAVSEA as an admiral I was asked once if I would run for Congress. I said I wouldn't. And I had decided by then that I really wanted to get into a different kind of work than shipyards or submarine engineering, and I certainly did not want to work in a consulting firm around Washington. I wanted to try to hold a fairly high level job in a whole new area and see how I'd do. I did think about going into a civilian shipyard one time. I was offered a job when I got out of the Navy at Electric Boat Company, and one at Lockheed, out on the West Coast. Another offer was in Iran in their national shipyard. But I wanted to stay in the Northeast. That's where my family was, and I wanted to try something new. So that's the way it played out. Now, back to my time in the Navy.

PEARL HARBOR-MY SHIPYARD COMMAND

In early January, 1970, we flew from Los Angeles to Honolulu, and at the airport we were greeted by a typically wonderful Hawaii Pearl Harbor welcome. Many of the officers and the leading civilians were at the airport, and they draped leis on all of us as we got off the plane. We went to parties in the first week or so with shipyard and submarine officers. Our family stayed in the admiral's suite at the Submarine Base during the two weeks between our arrival and the Change of Command. And through the help and understanding of the headmaster we were able to send all three older children to Punahou a wonderful private school in Honolulu. It was really far better than the public schools in Honolulu and a wonderful opportunity for our children. So they were there for the next two and a half years.

I relieved Captain Bob Barnhart of the shipyard command about the 25th of January. The ceremony was in Shop 11 in the shipyard. I was told by Admiral Jones, or one of the other Washington based senior admirals, that at age 43, I was the youngest shipyard commander since World War II. I really felt that this was a great opportunity for me. I had been doubly lucky by having served there as a lieutenant, so I knew a lot of the workers at the shipyard, even though it had been almost twenty years earlier. And I said this in my change of command speech that I was delighted to be back with the friends that I knew. I remember one of the young civilian fellows who I had worked with and liked a lot said, "Gee, do I have to call you Captain?" And I

smiled and responded, "I don't care what you call me as long as you work hard." So I had a great time just being associated with the wonderful people there. It's really an amazing place with all the nationalities working together. I remember feeling that way when I was there as a lieutenant, and certainly I felt the same thing later.

By my time in Proteus, in Groton, in Norfolk, I really had developed a mode of command, a mode of operation that I always followed, and that was to be personally knowledgeable about what was happening in the yard or in whatever project I had and not just listen to the reports of the people under me. And so I drove down to the waterfront-I had my own government vehicle and driver- almost every morning I would see what ships were there and to be knowledgeable of the work that was going on, and to let the ships' skippers know how important I felt they and their ships were.

I met with the civilian shop heads in the shipyard frequently, and went to the office of the head group superintendent occasionally so as not to have him always have to come up to my office to see me. I had a meeting with the leading shop superintendents at least every month. I let the Production Officer and Planning Officer, both captains, know that I wasn't bypassing them with these meetings. There would be no policy decisions made that way, but I wanted to let all the yard know that I felt that these top civilians were important. After I came back from meetings in Washington or in other shipyards, I'd meet

with all the civilian and military leaders in the shipyard to tell them what had transpired.

I remember back in my first tour in Pearl Harbor in 1954 or '55, when I was working hard one Saturday morning on the Wahoo getting her ready for sea trials, the Shipyard Commander came down to the waterfront on a Sunday with his wife and asked me what ship that was. That always stuck in my mind that if they Shipyard Commander doesn't even know what ships are in his shipyard and where they are docked, he must not be very good. So I made sure I always knew what ships were in the yard, where they were, and what major work was being done on them. This helped me be in a position so that people couldn't pull too much wool over my eyes.

Also, I got personally involved with the nuclear work. I found out after I got there that Captain Barnhart, my predecessor, had really been let go because of failures in the nuclear area. He had not had the kind of background and training I had in nuclear work and he was not a submariner. So he didn't know an awful lot about the kind of work a nuclear shipyard did.

Soon after I arrived at the yard, in the first month, I had a visit from Washington from Admiral Rickover's head radiological control man. I knew him well, and I asked him to come into the office and tell me what he thought should be done. He said, "No, we don't do that." The nuclear people didn't usually let you develop your own plans and then they'd kibbitz them, which frequently wasn't pleasant. I said, "No, no, we're not going to do it that way this time. I need your help. I need your advice if

I'm going to get this shipyard on an even keel in the nuclear area." We talked for three hours and I wrote notes constantly on what he thought our problems were and the right things to do, and who were the good people and who weren't. At the time I took command, the top nuclear people in the yard were all borrowed from Portsmouth and other shipyards, because the people in those jobs in Pearl Harbor had been moved out of their positions.

I had enough experience in the nuclear business to be able to sift what was good from what was bad in the advice I had to know who was doing a good job and who wasn't of the shipyard nuclear managers, and to make decisions on that basis. I remember some of the nuclear barges that we had to house the repair work. Some of them were not clean or in good shape when I took over, and I told the masters to get them fixed promptly, and other directions like that. So they knew that I knew what I was talking about in the nuclear business.

Also, Pearl Harbor, like every naval and private nuclear shipyard, had a separate representative in the shipyard who reported directly to Admiral Rickover. The best advice I got from the nuclear representatives at Norfolk was to treat Admiral Rickover's representative in my shipyard as if he were Admiral Rickover himself, whatever his rank was. And that was good advice. He really was the nuclear representative there, and was on the phone daily, or more frequently, with Admiral Rickover. The Rickover representative at Pearl was Lieutenant Commander Jim Taylor. Admiral Rickover did come to our yard three times in my 2 ½ years as Commander to talk to our civilian leaders and

"inspect," but Jim Taylor was there and "on top of things" all the time. So I made it a point to meet frequently with him, in his office, not necessarily in mine. And apparently those meetings and my meetings with shop masters and other people in their offices was something new to this yard. Everyone in the past who met with the Shipyard Commander went or was summoned to his office, but I didn't work it that way.

Also in nuclear Naval shipyards, each major department head, the Production Planning officers and a few others had a senior civilian under them who were responsible for coordinating and making decisions on the nuclear work that was being done in that department. These senior nuclear managers met every two weeks, as I recall; and I met with them down in the yard to lend that group the added prestige of having the Shipyard Commander be with them, and letting the rest of the shipyard know how important I felt nuclear work was.

Now, back to the beginning, when I reported to the shipyard. We had just been assigned the ship overhaul of the SSN-613, the Flasher and it was planned to be a thirteen-month overhaul. I looked into what work was to be done by the yard on this ship; the work package was 120,000 mandays as I recall. I always felt that any good nuclear shipyard could do 10,000 mandays of work in a month: so based on the kind of work assigned and the total workload, I told Washington we would do the overhaul in twelve months instead of thirteen. I think half the shipyard people thought I was nuts, but I set tight goals on all shipwork—goals that they could be proud of when we met them.

I led the shipyard in hosting a beer party at the yard for all the crew of the Flasher the week before the overhaul started to welcome them and have our top civilians meet the crew. I made a little speech about working together and when problems arose, we should work to solve them right away. I think this helped set the tone. That overhaul was finished on time in twelve months, the first overhaul of a nuclear submarine ever finished on time by Pearl Harbor!

We worked on aircraft carriers, destroyers, and all types of ships, but there was one other ship that stands out in my memory. The USS Roark was a destroyer escort that was on the way West operating out of Pearl Harbor and had a terrible fire in its engine room. It completely burned most of the engine room equipment. The ship turned around and headed back to the West Coast to be repaired. I made calls and sent messages to stop them from going back to the West Coast, and said we could fix the ship in Pearl Harbor. We did! We took the ship in, and I started a practice then that I did two or three times during my time there of having one of our top civilians take charge of all aspects of doing the work on that ship. I didn't want to disrupt all the other overhaul work going on in the yard, and yet I wanted to concentrate on this difficult task. So the leading civilian assigned took charge of the job—in the case of the Roark it was estimated to be a ten or twelve-week job to get the ship repaired. The main problem was getting all the material to replace the many burned-up valves, motors, and so on. To make a long story short, we finished it in six weeks, and this really

saved the Navy a lot of money and time, not only the ship not having to go back to the West Coast, but being completed in a shorter time at Pearl Harbor. As a result of that work, the shipyard received some nice messages from the CNO Admiral Zumwalt personally, COMNAVSEA and others in Washington who were happy with the result.

Sometime during my time there, in 1970 I believe, I was summoned into the Commandant of the Fourteenth Naval District's office and presented with a Navy Commendation Medal for my work in Norfolk Naval Shipyard. That was nice.

I mentioned earlier that our older children were going to Punahou School. Barbara was only there six months before she graduated, and she flew off to go to college at Mary Washington University in Fredericksburg, Virginia. She was eighteen years old, and flew from Hawaii to Washington alone: that was a little scary for us and for her. Her boyfriend, Lloyd Cowley, had come out to see her in Pearl Harbor, and when Barbara left the boyfriend was left with us in Hawaii. He turned out to be a wonderful man, and has been her husband for over thirty years.

Near the end of my tour there at Pearl Harbor, the selection board met in April of 1972, and, lo and behold, I was selected for rear admiral, again ahead of time. So by this time I was several years ahead of my classmates in promotion. Shirley and I took a week's trip to Hong Kong as a reward for ourselves. We enjoyed that immensely. I got her several jewelry items; also furniture and rugs.

We had a wonderful time in Pearl Harbor. We had large quarters at 4 Halealii Rd. We did a lot of entertaining, but we had a steward in our house to help. Shirley couldn't have done much of what she did without the help of our steward, because I brought officers home for lunch or dinner frequently—foreign ship captains, submarine friends and shipyard officers and civilians. We had parties at the quarters for a number of local officers. I tried to work hard and have a lot of fun at the same time.

Unfortunately, soon after I was selected for Admiral and put on the Admiral's stripes I was greeted with orders to report to Washington to be the Vice Commander of NAVSEA—the Naval Sea Systems Command. That, of course, was a nice accolade, but if I had had my choice, I would have stayed as Commander of Pearl Harbor for another ten years. I loved the job and working with the civilians and all the people there, and our yard was doing well, and recognized as doing well.

When I first became an engineering duty officer, I gave up the ability to become a ship commanding officer. By Navy Regulations, an engineering duty officer can't command at sea. But I could have command of shore establishments, and the Pearl Harbor shipyard job was that opportunity for me. I have always felt that the Proteus and the shipyard command job were the two that really suited me most. I was most in my element when working on and in operational situations: I think both the Proteus and the shipyard at Pearl Harbor were doing well by the time I left.

I completed what I thought was the whole story on my tour as the Shipyard Commander at Pearl Harbor, but I did have a few

additional thoughts that I want to interject in the Pearl Harbor story before going on to my next tour at the Naval Sea Systems Command.

Before taking over at Pearl Harbor, and when I was first notified that I was going to be ordered there, I was called up to Washington to meet with Admiral Rickover, and went to his office. He grilled me for three hours on what I was going to do and why wasn't I doing better things at Norfolk, and a general tongue-lashing and warning about what was coming. Finally, he didn't like one of my answers, and threw me out of the office. I went back up to the other admirals in NAVSEA and told them they'd better get a new Shipyard Commander for Pearl Harbor because I had flunked Admiral Rickover's interview, and I took the plane back to Norfolk that afternoon.

The next morning at seven o'clock in Norfolk I got a call from Admiral Sonenshein, the Commander of Naval Sea Systems Command, and he told me to get back up to Washington; Rickover wanted to see me again. So I flew back to Washington, went to Admiral Rickover's office, and he had an entirely different tone. He said that he wanted to help me in any way he could and he would have some suggestions along the way (That was an understatement!). But he was very supportive and told me his staff would support me, and he'd be out to see me in short order. That was an interesting interlude with him. So I really didn't flunk after all!

Thinking a little bit more of Admiral Rickover—as I mentioned earlier he had his representative in the shipyard—the

Naval Reactors office representative, Lieutenant Commander Jim Taylor. He had one representative in very nuclear shipyard; he reported directly to the Admiral to tell him what was going on in that yard and what was wrong. So Admiral Rickover knew what was going on in my shipyard, sometimes before I did, and he'd call me frequently, at least once a week, sometimes at two or three in the morning. Two or three in the morning was eight o'clock in the morning his time. But he'd wake me up and start jabbering about something and I was barely coherent, I'm sure. But that's the way it was.

Also, Admiral Rickover came out to the shipyard three times while I was Shipyard Commander. He stayed in the Submarine Base BOQ and slept there in the same quarters that we stayed in the first two weeks we arrived at Pearl. The leading shipyard civilians would go over and talk to him and tell him how they thought things were going in the yard. He had his staff inspect various aspects of the shipyard, and then he'd call me over and tell me what he thought of things. He was rather charitable to me, and told me he thought I was doing a pretty good job, but I'd better do better. So, like it or not, I had a frequent interface with Admiral Rickover at that time.

There were several other responsibilities of my job at Pearl Harbor. First, one of the ancillary duties was that I was Supervisor of Shipbuilding for the Fourteenth Naval District. That involved, at that time, overseeing and taking care of the conversion and modernization of three wooden-hulled minesweepers (MSO's) at Dillingham Shipyard in Honolulu. This was the first

big Navy contract that the Dillingham yard had ever received, and it didn't all go smoothly. But from time to time, at least every week or two, I'd go down to Dillingham and look things over. The ships, in my judgment, were not clean and neat, and it was not going to get much better, I didn't think. So I was a little bit easy on Dillingham while continuing to push them to get a good, completed ship. Finally, we did complete those ships and were subject to trials by the Board of Inspection and Survey, led by Admiral John Bulkeley. Admiral Bulkeley, a lieutenant during World War II and a famed PT boat skipper, received the Congressional Medal of Honor. So we got through the conversion of those three minesweepers and I think we got a couple of complimentary messages on it. I don't know how much they were deserved.

Another of our jobs there was the support of all Western Pacific industrial activities that either were United States activities or related thereto. I made one or two trips to Vietnam and to the Philippines Cavite shipyard, and the Vietnam Naval Shipyard in Saigon. This old Vietnamese yard was prehistoric in its capability. They were using very basic hand and power tools and had a very limited capability. We tried to help them all we could and I'd send staff members, shop leaders, out to Vietnam and to the Philippines to provide help when they requested.

Meanwhile, at our shipyard itself, we were continuing to do our submarine overhaul work and also more minor repairs to submarines, such as nuclear valve replacements. And occasionally we'd get something big. There once was a collision of a submarine

with another ship. I never asked what other ship, but when the sail area, the topmost part of the submarine, was badly damaged, you knew it was a collision, when they had been submerged and were hit by a surface ship, or maybe another submarine.

One day a *Honolulu Bulletin* reporter came down to the shipyard to interview me. He said they had heard that the shipyard really couldn't accomplish the kind of work that it used to during World War II and it wasn't as capable as it had been. I took issue with that and told him I didn't know where he got that, but his sources didn't know what they were talking about, that the shipyard could do just as much or more than it did in World War II. And I explained some of the things we were doing; he went away calmly. The next morning in the *Honolulu Bulletin* there appeared a cartoon with a salty sailor, which was me, slamming down a beer on a table, saying, "Obsolete, am I? Why, those blankety-blank guys." I thought I was going to get the devil for that. But all the shipyard people and the people of the Pacific Fleet thought it was great.

The change of command from Pearl Harbor was on the first of July, 1972. I had been there almost two and a half years. And, as I've said previously, I loved the job and everything about the tour there. But we were now headed back to reality in Washington.

NAVSEA-AT THE TOP

We had a relaxing trip to San Francisco on the Navy transport President Cleveland. I picked up a new car there, and we drove across country, doing a little sight-seeing on the way,

visiting my Mother, and then up to Vermont to see Shirley's family, and the house we had bought in Belmont 2 ½ years previously. It was going to need an awful lot of work.

Leaving Kenny and Sally behind with their grandparents, we and the two oldest girls went to Washington to look for a house, and get the girls ready for college. Barbara, back to Mary Washington, and Nancy, entering Bucknell University in Pennsylvania. We found a suitable, but not great, house in Annandale, Virginia; but our furniture hadn't arrived from Hawaii yet. Investigation found it still on the dock in Hawaii. In time we got settled.

AN ADMIRAL IN WASHINGTON

In about the middle of August, after travel from Hawaii and a little leave, I reported as Vice Commander of NAVSEA, the Naval Ship Systems Command. It was responsible for all the design, construction, conversion, of ships in the Navy and for all shipyards and other ship maintenance facilities. At that time we had nine operating shipyards, of which I believe five were nuclear capable, 110,000 civilian workers. Part of my responsibility was the training, the education, the selection for duty assignments of all the 1100 engineering duty officers in the Navy. And as Vice Commander of the Ship Systems Command, I took care of all "the inside functions," the running of our command's many headquarters offices. My boss, the Commander, was Vice Admiral Bob Gooding, who had been, as a captain, the technical

director and my boss in the Special Projects Office in the late '60s when I was the head of the Navigation Branch of that group.

We had seventy officers in the NAVSHIPS headquarters, including ten rear admirals, and about a thousand civilians. Our offices were in National Center 3, one of the new high-rise office buildings in Alexandria near the Pentagon. There wasn't any more room for offices in the Pentagon building, so the Armed Services spread out in Alexandria and Washington.

Soon after I got there, Admiral Gooding sent me on a trip to the Far East to visit and inspect all the NavShips facilities out there, and to visit the countries that we had business arrangements with at that time. This included going to Thailand, Japan, South Korea, the Philippines and our own Navy facilities in Guam and Pearl Harbor. I also made a trip to Europe in that first year to the Navy's London offices; to the Holy Loch, Scotland, with which of course I was very familiar; and to Rota, Spain; and Naples, Italy. With all the traveling I was doing, maybe Admiral Gooding was just trying to get rid of me for a while.

At the end of my second year as Vice Commander of NavShips, the decision was made to merge the Naval Ship Systems Command with the Naval Ordnance Systems Command. Back in those days there seemed to be a reorganization every two or three years, with our merge with NavOrd, and thus was started NavSea, in 1974. An ordnance trained rear admiral was ordered to become Vice Commander of NavSea, and I was ordered to become commanding

officer of NAVSEC, the Naval engineering command that did all the technical work for NavSea, or previously NavShips.

Soon after NAVSEA was started, Admiral Rickover got in the act and changed my orders. He didn't want me to be out of headquarters where he didn't have any influence over me. And I was made head of the Naval Sea Systems branch that directed all the submarine design, construction, and maintenance work—SEA 93. And, of course, Admiral Rickover was deeply involved in that. That change was all right with me, because I relished any and all submarine work.

In SEA 93, I had frequent technical interchanges with Admiral Rickover and his staff, and with CNO's submarine operational groups.

Admiral Rickover's staff was very competent. With Admiral Rickover's pushing, they wanted to get everything "their way." If you disagreed with something that they wanted, you'd better have a good reason and be selective in disagreeing. If you did everything they wanted Admiral Rickover wouldn't talk to you. If you did nothing and fought everything he wanted he wouldn't talk to you. And the worst thing to happen is to have him not talk to you. Then you knew you were in trouble. So, your disagreements or arguments had to be on matters you felt very strongly about.

I spent two years in SEA 93 running in the Submarine Directorate. Then Admiral Gooding retired at the end of 1976 and the question was going to be: Who would be the new chief of NavSea? Rear Admiral Russ Bryan, who had been my roommate for a short time while we were at MIT and the one who got me interested

in submarines, was three years senior to me. He had been a shipmate with Admiral Jim Holloway and Admiral Hal Shear, who were then the CNO and Vice CNO. I didn't know Admiral Holloway at all. And they wanted Admiral Bryan to be the Chief; that was fine with me. I wasn't sure what job I would get.

But I was called over to the Secretary of Defense's office several times to talk to the Deputy Secretary of Defense, Mr. Bill Clement, who later became Governor of Texas. He and one of his aides tried to talk me into saying that I wanted to be the Chief of NAVSEA. If I had said that I did want to be Chief of NAVSEA, which meant I would have taken Admiral Bryan's place upon Admiral Gooding's retirement, then they would have made this happen. This move was pushed by Admiral Rickover. He knew me much better than Admiral Bryan. But I wouldn't say that I wanted to be the boss NAVSEA. I just didn't think it was proper that I step in and counter what the Chief of Naval Operations wanted. And, as a matter of fact, I really didn't want to be Chief. It would have been just too much pressure and strain for me at that time.

I was asked by Admiral Michaelis, the Chief of Naval Material, and Admiral Shear if I would stay on as Vice Commander for Admiral Bryan. I said: Sure, I'd be honored and delighted to. So I was made Vice Commander and during the next two years, we worked on integrating the various functions in the Ship Systems Command with the Ordnance Systems Command. That had been going on for the previous two years and we continued with it and refining the interfaces.

In 1978, the time had come to pick who of the EO admirals was going to retire, to create a vacancy, so that they could select some more young admirals to fill in, and I said I'd be glad to retire. Well, that was delayed a while but eventually, in August 1978, I did retire.

Along the way my Mother, who by this time was almost eighty, had a major stroke in November 1972, and we took her from her home in Narberth, Pennsylvania, to a nursing home in Falls Church, Virginia. That became a difficult situation for Mother, of course, and for us, because we spent a lot of time taking care of her and tending her. She had a continuation of strokes and finally died in June of 1980, the last two years of which she didn't know who I was. That taught us a lot, which we thought about later, about nursing homes and taking care of the elderly.

During my tour in NavShips and NavSea from 1972 to 1978, the action I was most proud of was to conceive and create the Engineering Duty Officer school at Mare Island Naval Shipyard. In my experience in Pearl Harbor, I found that the supply officers and the civil engineering officers knew more about the nuts and bolts of a ship engineering duty officer's business career than our own EO officers did. We were technically competent, but the young officers didn't know what the organization was of a shipyard, what inspectors of naval material, or a supervisor of shipbuilding were. Our young officers didn't know our relationship with other officer groups and activities in the Navy. And, at times, it was embarrassing. When I was out in Pearl

Harbor, the new junior engineering duty officers needed a lot of training and I, frankly, didn't have time for it.

So in 1973, I proposed that we create an ED school and all young ED engineering duty officers be required to go through the school—about six weeks in duration and then be required to pass a qualification test. The other admirals in NavShips at the time accepted this idea, and the nuclear people also agreed. So we picked two good officers, one a submariner and one a surface ship man, ordered them as the officer-in-charge and assistant officer-in-charge, and set up the school in Mare Island Naval Shipyard. And from then on, all young engineering duty officers were required to go through that school. That was in early 1974, and now in 2008, that school is still running very effectively.

INTERVIEWER: Where's it at now?

WILSON: The engineering duty school is now in Port Hueneme, California, moved there after Mare Island Shipyard was closed.

I was pleased at my retirement ceremony when I was given the Navy Distinguished Service Medal, the highest award afforded a naval officer during peacetime. And in the ceremony a lot of the submarine admirals were there from the Chief of Naval Operations office, and mention was made of the creation of the Engineering Duty School. It was a nice retirement, on the first of August, 1978. That night, I think it was, they had a party at the Bethesda Officers' Club for Shirley and me and our children. That

was a lot of fun. Foolish gifts, and just fun with Hank Hoffmann, Russ Bryan and many of our friends.

I mentioned that soon after I became Vice Commander of NavShips in August 1972, Admiral Gooding asked me on a tour of the Western Pacific facilities. When we visited a foreign country we always took some little token or gift we could present to that country's senior offices to represent our cohesion with that country's Navy. In the case of Thailand, I presented their Chief of Naval Operations with our typical gift, a little anchor link, which was made of stainless steel and brass fused together, as a token of our working together on various projects. At the time we were designing and building patrol craft for the Thai navy. In return the Thai Chief of Naval Operations gave me a beautiful hand carved model of the Thai royal barge, about two and a half feet long, in a glass case. It was an awesome gift. I think my reaction to him was "Holy mackerel," or something as inappropriate. I had it put in the chief of NAVSEA's office in the vestibule and it sat there for six years during my time in Washington. When I retired in 1978, Admiral Bryan and others told me to take it with me; it was mine. Well, it wasn't really mine. It was NavSea's or the Navy's. But they insisted, and I think they got some lawyer in the Chief of Naval Material's office to declare that it was only worth \$50. So I took it and I still have that model. But when I pass on, or even earlier if they desire, I have made arrangements to give the model to the Naval Historical Museum.

Upon retirement, and since, I have reflected back on my almost thirty-five years in the Navy and I was honored to serve. I felt that I was in a career niche that was perfect for me, in engineering and in submarines, and for whatever reasons I did well and progressed along in rank.

Some of the personal things while I was in NavSea or NavShips that happened that I've alluded to; were Nancy being in Bucknell from '72 to '76, Barbara in Mary Washington College from '70 to '74. Kenny in Cornell from '75 to '79, so he was almost a senior at Cornell when I got out of the Navy. Barbara and Lloyd were married in 1975 and Nancy and Bill in 1976; Sarah was in elementary grades when we were in Washington. And Shirley was in charge with Marge Barnes, another Admiral's wife, of the Navy Officers' Wives 1976 Spring Festival at the Navy Yard. That was a huge undertaking for Shirley and Marge. With two marriages that year and that festival Shirley developed stress diabetes, and it took her a few years to get rid of that.

When I was in my last weeks in the Navy in mid-1978 I wrote to a few universities to ask if I might get a job in some capacity. I think I wrote to about twenty; five of them answered "No." About fifteen didn't answer at all. But I received one real long nice letter from the President of Yale, Bart Giamatti, who really explained the situation well. He said: "you don't have a doctorate degree, and you'd be eaten up by the professors and faculty here, who are just looking for someone who didn't have all the advanced degree credentials they had. Plus the Vietnam War was still a sore subject on campuses. A military person at

that time was just not too welcome, particularly in the liberal colleges, and all the Ivy League, and most of the Eastern colleges were very liberal." So I didn't get a job with a university, but that turned out to be best for me. President Giamatti was right.

INTERVIEWER: Is that Bart Giamatti the future major league baseball commissioner?

WILSON: Yes. That Bart Giamatti left Yale very soon thereafter and became the baseball commissioner. But I always treasured that letter, and it was obviously personally written by him. Unfortunately, he died shortly after becoming baseball's boss.

CIVILIAN LIFE

So when I retired from the Navy on August 1, 1978, I didn't have a job. So Shirley, Sarah and I—the two girls had finished college and were married and Kenny was in Cornell—went to our little home in Belmont, Vermont. I didn't know how long we would be there.

I had a friend from grammar school days who then worked for Fortune magazine. He wrote in early 1978 and asked if he could help me find a job when I retired from the Navy. I wrote back saying yes, I'd be happy to have some help to get a good, meaningful job. Also the president of a hydrodynamics research company who I had dealt with in the Navy offered to help. Well, these two people both suggested that I interview with Exxon

Corporation. I told them I knew nothing about oil and gas and didn't know what Exxon would want me for, but they insisted that I go up and interview in New York with the executives there. I interviewed with the vice chairman of the board. To make a long story short, I told the vice chairman that I did not want to leave the East Coast. And then he said, well, I've got a good job you'd be suited to in New York; and I said, "I don't want to work in New York." At which point he asked me, "Do you really want a job? Why are you up here?" I said, "Yes, I want a job, but I'm going to be selective at this time because for the last thirty-five years I haven't had much of a vote." That interview was in June.

Back up in Vermont, in August two or three weeks after retiring, I received a call from Exxon that they wanted me to join their new-business development area. They were hiring some top executives in that group to bring in some new ideas, particularly in alternate energy. So I accepted; they offered me more money than I had ever heard of and I was to be in their offices in northern New Jersey. We bought a house in Convent Station and I went to work for Exxon in their "Enterprises Division." I was the head of planning in the group and within a year I became head of the Enterprises alternate energy group. Our group evaluated conducting research and developing businesses in biomass, solar, wind, and geothermal projects. All were great research and engineering projects, very interesting, but none of them had any near-term business economic attractiveness. And

Exxon at that time, and now, wouldn't spend much money on anything that didn't have a positive economic return.

So at the end of two and a half years, from 1978 to 1981, in Enterprises, I disestablished that group. About seventy engineers and planners who were in it were either moved to another group in Exxon, or laid off. They decided to keep me, though, and I moved into the International Division, and directed the maintenance and logistic activities for their International Tanker Department.

When I entered the Tanker group, they had 120 tankers ranging from 50,000-ton small ships to 500,000-ton very large crude carriers, and they all were operating constantly, mostly between the Middle East and the East Coast. All the Exxon International ships were flagged by foreign countries and manned by foreigners. And as a result Exxon tanker fleet costs were far less than if they had been U.S. controlled and manned. Exxon's U.S. Fleet, which operated out of Houston, Texas, had to be controlled by U.S. admiralty laws and marine laws, and we had to pay the U.S. crew much higher wages.

In 1975, Exxon had scrapped or sold almost a hundred of the tankers, because they weren't making a profit. And at that time, there wasn't enough foreign oil to be transported to keep these Exxon-owned ships fully employed. It was more economical for the company to lease those tankers than to own them. This is hard to believe now because we get so much oil from the Middle East, but that's the way it was then. When Exxon, or any of the oil companies, doesn't make a profit on a ship they don't wait long to get rid of it. In the Navy we had ships that lasted twenty-

five, thirty years. In Exxon some of the brand new ships were sold or scrapped in five years.

In 1985, Exxon made the decision to move all the tanker operations to Rotterdam, Netherlands. We had about eighty people in nearby Florham Park in our offices there. They moved twenty of them to Rotterdam and either laid off or transferred the other people. I had, as I said earlier, no experience in gas and oil businesses. I did not want to go to Rotterdam, so I departed Exxon.

I was asked to interview for the position of President of Webb Institute of Technology at that point, and I felt "a duty" to at least consider this situation. I just didn't have what it took of me to say: "No, I won't do it." Webb institute is one of the three best naval architecture schools in the country, a small school in Glen Cove, Long Island. I was interviewed for the job, I guess about ten people were interviewed. The candidates were whittled down to two, of which I was one. I really didn't have my heart in it. Shirley didn't want to go at all, because it would have been living alone on a campus with no other neighbors, and perhaps this showed in my interviews. In any case, the Coast Guard Vice Commander, a Vice Admiral who was a good friend of mine and a Webb graduate, got the job. It turns out I was very glad I didn't get it. That's not sour grapes, because in 1986, less than a year later, I had a severe heart attack, had a quadruple bypass, and soon thereafter had half my colon removed. I had all kinds of complications medically in 1986 and '87 that

would certainly have interfered with my trying to run Webb Institute.

In 1986, after I recovered from these medical problems, I consulted for seven or eight years with a group of retired utility engineering executives, most of whom knew something about nuclear plants. We consulted for the utilities on their management performance, particularly in the nuclear area. And we would search for new executives for these utilities when they asked us to. The good part of that consulting work, particularly after I had my medical problems, is that I only worked three or four months a year. And when I had something important to do, like seeing a grandchild, I said I was unavailable. I stopped consulting in 1993, and that was really the end of my working career.

As I said, the consulting for the utilities was more management consulting than technical consulting. We all had a technical background, so we knew what they were facing, what their challenges were, but at this point in our careers—we were all over sixty—we weren't up on the latest aspects of the technical work. So the utilities confined their requests of us almost solely to management consulting and direction or management recruiting.

So I had three careers. One in the Navy, which, of course, was the primary one. One with Exxon, and I enjoyed that too. Exxon was a very ethical, fine company, always trying to do things the right way, and I admired them immensely. They had a lot of lawyers and auditors, and the people there were always

amazed that I could get along so well with them. Well, I had had a lot of experience with lawyers and auditors in the Navy. The consulting work thereafter was a pleasant part-time conclusion to my working career, and I was easily able to fit in with the retired utility executives.

After we left the Navy, in 1978, we moved to Convent Station, New Jersey, for the time that I worked with Exxon. I had to drive less than a mile from our home to the offices of Exxon International and Exxon Research and Development. We stayed there after I left Exxon for sixteen years and were very active in Grace Episcopal Church in Madison. I was asked to join the Morris County Country Club. I had never been in a country club before, but that turned out to be very nice. I played golf a good bit, although I wasn't too excited about practicing; and the less I played and the less I practiced the worse I got, which isn't very surprising.

Convent Station was a lovely place to live, in the suburbs of New York, about twenty-five miles west of Manhattan. From my Philadelphia experience as a youth and going to the shore in southern New Jersey, I really didn't know there were any decent parts of New Jersey, but northwest New Jersey is lovely with hills and trees and all kinds of pretty towns and rural areas. Both of us enjoyed our time in Convent Station.

Along the way, and I'm sure I was influenced to some extent by my Mother's awful experience in the latter years of her life and by the fact that Shirley's Mother and Father were getting along in years, and we heard about and became interested in

continuing-care retirement communities. So in about 1990, twelve years after I had left the Navy and four years after I had left Exxon, we started to explore.

We wanted to continue to live within a day of Vermont so that we could visit our Belmont retreat which we were continuing to fix up. I really haven't talked about our Belmont home. That became a real anchor for Shirley when she wanted to escape from Washington. And the children enjoyed it too. They always loved going to Belmont as they were little, and have to this day. Even now, in 2008, we all get together there for a week; the whole family, four children, their spouses and all the eleven grandchildren, twenty-four of us all together for a week up there in the summer. I always joke that I bought a garage right next to the house so that I could escape from the noise of all of us together when it gets too bad, but we love it and I think the whole family loves it, too.

In any case, in about 1990 we looked for continuing-care retirement communities in the northeast and I wrote to about thirty of them. We visited twelve in 1991 and '92. Shirley spent the night at two or three. And finally we decided that Kendal-Crosslands in Kennett Square, Pennsylvania, was the kind of place we wanted. It was a nonprofit operation, and affiliated with a religion. We didn't really care what religion as long as it was connected in some way, closely or loosely, with some religion. And Kendal-Crosslands was a Quaker affiliated establishment. We found the Quaker people to be very caring, and also financially

astute. A good combination! Kendel-Crosslands had been in existence for over 20 years and was sound financially.

So we applied to move to their independent living section, called Cartmel. In 1992, we were asked if we would like to look at two units there. We selected one and in October 1994 we moved in. So here we are in Kendal-Crosslands. We're now in the Crosslands section of the operation. This is our twenty-third home in our married life, surely our last one. And we've had a very happy life and I've certainly had a happy career along the way. We are in contact frequently with some of our Navy friends. About every five years I go to a Naval Academy reunion, including the last one this past June.

There are several high school classmates whom I've been close with and corresponded with over the years, since now we're closer to Philadelphia where I grew up, we're really closer to my high-school friends than we have been to the Naval Academy friends, who are spread out all over the country.

In 1986, when I had the heart and colon problems, I decided to shift my priorities a good bit. I had really been a Type A person, and was warned by the doctors to take it easy. So I became much more interested in travel and other family-oriented activities than I had been during my time with the Navy and Exxon. I had really concentrated on my work, doing the best job I could during the previous years.

So since 1986, we have done a good bit of traveling. We've been to Scotland and England six or seven times, and to an Elderhostel in France. We went to Capetown, South Africa, and to

Victoria Falls, and to Kenya on safari, and to Turkey, as well as Costa Rica and Panama. I think at this point we have decided not to go to Europe anymore, but we are interested in shorter trips in the United States, and I hope we continue to be. We're both in reasonably good health. I'm eighty-two years old, and Shirley's seventy-nine, and I'm delighted and surprised that we've lasted so long and hope to keep going.

INTERVIEWER: This concludes the interview with Admiral Wilson.

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