A Compilation of Oral History Tape Transcriptions of CDR Harold R. Gordinier, USN (Ret.) Naval Aviator World War II and Korean War

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Des Moines, Iowa

I was born in Des Moines, Iowa, in 1921, fourth of a family of ten children. We first lived in Des Moines for a while and then moved to a farm until I was nine years old. I really didn't learn much about farming, but I knew that I didn't want to be a farmer. I do recall one incident where my father asked me to go into a barn and drive a horse out. My older brother also heard what he said, and he went in another door, the horse came flying out, jumped over me, and kicked me in the head. Maybe that's why I decided to become an aviator.

At any rate, we moved back to Des Moines and my father went to work for a dairy where he became a milkman, spending many years driving a horse drawn milk wagon. As a boy I started delivering newspapers to earn spending money, and I worked for an employer who was so enthusiastic about aviation and aircraft that he talked about it all the time. His enthusiasm caused me to develop an interest in aviation to the extent that, as a teenager, some of my friends and I would ride our bicycles out to the local airport to watch the airplanes take off and land. This was in the early 1940s, and our interest was further influenced by Canadian recruiters who would come to U.S. airports recruiting pilots for training in the Royal Canadian Air Force to participate in the war against Germany.

The Canadians put on flight demonstrations, which at one time included a performance by a Spitfire; however the fighter developed engine trouble which required it to wait there for delivery of another engine. After the engine was installed, it required a run-in in the air for a certain number of hours before they could go anyplace. The aerobatics run-in was also very impressive to me, and further whetted my interest in aviation.

When I graduated from high school, being in a family of ten children, and my father's income coming from employment as a milk deliveryman, my parents could not afford to send me to college. Instead, I continued to deliver newspapers and eventually took charge of the local branch distribution office where the papers were delivered, and I distributed them to the carriers. I continued in this business and paid my way through the Capital City Commercial College in Des

Moines. This took two years. After graduating in 1941, I went to work as a cashier at the Pratt Paper Company, and worked there for a year, at which time the war started.

I remember that I was teaching a girlfriend how to drive when we heard the news of the Japanese attack on Pearl Harbor. I was 19 then, and I have often wondered if now, today, if something like that happened today, if the people would act the way they did then. I had friends who immediately went down and signed up for the Navy; I had a friend on the *Lexington* when it was sunk. People wanted to get in the services; of course they were going to get drafted if they didn't sign up. Other people went away to work in factories making war materials. I wanted to get in as an aviator, which meant I needed at least two years of college.

Capital City Commercial College was not an accredited college, so neither the Army or the Navy would credit my two years toward entry into flight training. However by 1942, the Navy relaxed the academic requirements for flight training and allowed candidates, instead, to pass a battery of tests. I went from Des Moines to Kansas City and went through a whole battery of tests, physical as well as written. I passed the tests and applied for Navy service in May of 1942, at the age of 20.

Flight Training

There were a lot of people joining the services at the time, and there was a backlog of people waiting to go into flight training. One of the solutions to this backlog was civilian flight training done by flying schools under contract to the government. The Navy offered to give me flight training with one of these contract operations at Drake University, but with no pay or allowances. I was initially sent to civilian pilot training at the Des Moines airport with a group of people who had signed up with the Army and Navy to be aviators. Some of the army people were slated to become glider pilots. I lived in a dormitory at Drake, took flying lessons during the day, and took ground school courses at night in aerodynamics, aircraft design, and such other things that an aviator should know about.

I took primary flight training at the Des Moines airport for two months, after which my living quarters moved to Dowling Junior College where I went through secondary civilian pilot training which consisted of more familiarization type flying and aerobatics. In December 1942 I was ordered to active duty at the University of Iowa where I went through a three-month pre-flight school. Following that, in March 1943, I was ordered to primary flight training at Olathe, Kansas where I flew Spartan NP, Naval Aircraft Factory N3N, and Stearman N2S biplanes for three months. After that I was sent to Pensacola for basic training in what we called the Vultee "Vibrator", I don't know any other designation for it. (And it did vibrate.) Our advanced fighter training at Barren Field was in North American SNJs.

I graduated from flight training and got my wings and commission on 12 October 1943. From Pensacola, I went to Naval Air Station, Daytona Beach, Florida, for operational training. This was in Douglas SBD dive bombers, and I was there until December 1943. The training included not

only dive bombing, but also over water navigation training and field carrier landing practice, where a carrier deck was marked out on the runway. We had to learn to land within the confines of the "carrier deck." In our dive bombing practice we used practice bombs on a land target and on a crash boat with an armored deck on Lake Crescent near Crescent City, Florida.

Next I needed to get qualification in landing on real carriers. To do this, up on Lake Michigan, the Navy kept two old "side winder" paddle wheel ships, the *Wolverine* and the *Sable*, which were fitted with aircraft carrier decks. I went up to the naval air station at Glenview, Illinois, did more practice on field carrier landings, and then flew out to *Sable* where I made my eight carrier landings. Actually my first landing was in the back seat with the ship's landing signal officer flying the plane. Once on deck he got out and assumed his LSO duties, and I had to take off and come around to land; which counted as my first carrier landing. After seven more I was qualified to go to a squadron.

Assigned to Dive Bombers

I was assigned to VB-301 (Bombing Squadron 301) based in San Diego, California, and when I got there in January 1944, the squadron was just being formed. VB-301 was equipped with Douglas SBD dive bombers, and was to be a land-based unit operating out of Green Island in the Pacific New Hebrides. We trained at Santa Rosa, California, for three months, and then did our CarQuals again. The training included considerable more dive bombing training against targets out in the water upon which we dropped 500-pound water-filled bombs.

Being able to conduct dive bombing at night was a requirement for Far East operations, so we spent a period where we slept during the day and trained at night. This included night formation flying, and practice in joining up with other squadron elements in the dark. We also became qualified at landing aboard other carriers, such as *Ranger*, in the course of our squadron training. The training lasted until May 1944, then the squadron was converted from SBD aircraft to the new Curtiss SB2C, "Helldiver", dive bombers. One of the reasons for the conversion to the SB2C was the inability to fold the wings of the SBD, which caused them to require a lot of space in a carrier hangar deck.

A dive bombing run was started at an altitude of about 15,000 feet, and you descended at an angle of about 70 degrees from the horizontal. At such an angle you could easily go so fast that the pilot could not move the controls - because the dive bombers did not have "boosted" control systems. To control your speed it was necessary to extend speed brakes which folded out from the tops and bottoms of the trailing edges of the wings. In the Douglas SBD the speed brakes would slow you down to a maximum of about 270 knots, in the early Curtiss SB2Cs the speed brakes only slowed you down to about 310 knots, which was still too fast. It was necessary to give them perforated flaps, which, when deployed with the brakes, slowed the plane to where it could be controlled. Control was necessary because the wind could drift you off the target, and you needed to be able to turn to get back on. The dive brakes were used down to about 2000 feet, at which point you closed them, and began a pull up. At 1000 feet you would be out of your dive.

Squadron conversion to a new type of aircraft required us to start our training over. This time we bombed targets out in the desert, where we had to get a certain percentage of our hits within 50-foot circles marked on the desert floor, in order to qualify. We also bombed targets towed by ships in the ocean off San Diego. Training in the Helldivers took eight and one half months. There were not enough rooms in the bachelor officers quarters in the San Diego area for the squadron so we were moved into the Del Coranado Hotel, which was a very nice place and which we greatly liked. We stayed there until January 1945 when the squadron flew up to Alameda and loaded our planes aboard the USS *Bunker Hill* (CV 17).

Aboard *Bunker Hill*

Once aboard *Bunker Hill*, we steamed to Pearl Harbor where we stayed for a couple of days. Then we went on down to Ulithi Atoll in the Carolina Islands. It was a great big lagoon surrounded by islands, and had only a couple of entry-ways. There were 15-to-20 aircraft carriers, battleships, and cruisers moored in the lagoon. When the ships deployed from Ulithi they would divide up into groups having perhaps three carriers and three battleships or cruisers, all surrounded by a screen of destroyers. The first time we deployed with a group, in late January or February of 1945, nobody at our level knew where we were going. The senior commanders and intelligence people, of course, knew. We thought we would perhaps make the first carrier strikes against Japan.

We did find that we were going to attack an aircraft engine plant northwest of Tokyo. There were aircraft not only from *Bunker Hill*, but also from the carrier Essex. It was normal practice that the bombers would lead the raid and do the navigation, the torpedo bombers would follow, and fighters would provide coverage above us. We flew up the coast to the point where the planes were to turn and fly in to the plant. The leader of the *Essex* group became concerned that his planes did not have enough fuel to make it in to the plant and back out and down the coast to where the carriers were waiting southeast of us. So he decided to just hit some targets along the coast. The skipper of the *Bunker Hill* squadron was 'gung ho' and declared our group was going in anyway.

The *Bunker Hill* group was protected by one navy fighter squadron and two marine fighter squadrons. I had a distant cousin in one of the Marine Squadrons who told me the reason he went into the marines was because of his great dislike of flying from aircraft carriers. My cousin would be one of the first of our escorting aircraft shot down by the Japanese fighters. Our fighters above us would do a maneuver called a "Thatch Weave" so they could protect each other's tails. I was told later that he got too far from the rest of the formation on one of his weaves.

With our fighters we proceeded in to the target, while the planes from the *Essex* turned around and went back. (This will come up again later.) We had to fly about 75 miles inland with Japanese fighters flying all around our group. They tried to draw our fighters off by performing aerobatics and other enticing maneuvers near them. If they could get our fighters away from the formation, other Japanese fighters were waiting to attack the unprotected bombers. One of our fighter pilots did decide to go after a Japanese fighter, and he was grounded as soon as he got back

to the ship. He never flew again. It was considered a very serious lapse to leave your formation unprotected.

We dove on the engine plant, released our bombs, and went back out. I think we did a lot of damage to the plant. We saw a lot of damage around the plant that had been done by the Air Force in previous raids, but it looked like most of their damage was to structures outside of the plant. After returning to *Bunker Hill* we made raids on Okinawa and Iwo Jima and then went back to Ulithi where we had a short rest period. Then our task group deployed again to support the Iwo Jima invasion.

Iwo Jima and Okinawa

Unfortunately the weather was really bad and we were under low clouds, so we had to do glide bombing rather than dive bombing. Glide bombing is not as accurate as dive bombing because the glide angle is so shallow, making it hard to figure out when to release bombs. In dive bombing you are at an angle of 70 degrees from the horizontal, whereas in glide bombing you are at a much shallower angle, and you must get much lower to judge an accurate release over the target. We were carrying 500-pound bombs which required us to pull out of our dive, or glide, at 1000 feet altitude in order to avoid our own shrapnel. In glide bombing you could not get good accuracy with a 1000-foot pull-up.

When we approached the Iwo Jima shoreline in our morning attack, the first invasion wave was coming in, and the cloud ceiling was high enough to get fairly steep glides and fairly good results. When we went back in the afternoon, the weather had gotten so bad that we couldn't even do glide bombing without getting our own shrapnel. So we had to drop our bombs in the water and go back to the ship. The next day, part of our group went in and dropped some bombs, but the weather was still so bad that we were not very effective.

On our return to Ulithi, *Bunker Hill* was allowed to send some boat loads of personnel for a few hours to the island of Mogmog, a rest and rehabilitation stop. Part of the crew and most of the air group went in to have a few beers and relax. We had a good time at the rest facility, but there was an unfortunate incident at the pier on our way back to the ship. Boats from other ships were coming in, including air crews from the *Essex* air group. Our air group skipper had had quite a few beers, and when he recognized *Essex* air group officers, he called out that every one in their air group was chicken because of their turn-back on the Japanese airplane engine factory raid. This started a fight between the two air groups that ended up with quite a few people thrown in the water before it was all over.

We then went back to sea for a little over two months to support the Okinawa invasion. We went in almost every day to give close air support to the ground troops, primarily the Marine Corps. The Marines had the northern half of the Island, and the Army the southern half. They would give you specific targets they wanted you to hit. We carried either 500-pound bombs, or our Helldivers could be fitted with four air-to-ground rockets under each wing. We had been taught how to use the

rockets as part of our desert training near San Diego. We used the rockets primarily to try to dislodge Japanese troops from caves. That meant we had to try to get the rockets right in to the cave entrances. Using the rockets against caves called for a modified form of glide bombing, and it was hard to tell if you had hit a cave entrance or not. We would fire one rocket and then go around and fire again.

After a return to Ulithi we deployed to the north (Japan) again [15 Feb. - 4 Mar. 1945] to raid targets around Kyushu. On one raid we were to bomb a number of defense sites around Kure Harbor on the Inland Sea of Japan, but when we got there we found that most of the remnants of the Japanese fleet were anchored in the harbor. We quickly changed from the shore targets to the ships. We had targets galore, including aircraft carriers, battleships and cruisers. We each picked a target and went to 15,000 feet to start our dives on the new targets of "opportunity." I got hits on one of the aircraft carriers, the *Unryu*, but my best friend who flew wing man on the squadron skipper (I flew on the skipper's other wing) was hit on the way down and had to bail out. He was taken aboard the same carrier that I had hit. I met him again after the war and we were able to discuss the battle. He told me that he had been ill treated aboard that carrier. I am not sure whether his crewman survived. Japanese fighters attacked us over Kure, but my crewman was able to drive them off, though he left a few holes in my tail.

The harbor was full of anti-aircraft installations, and I think about three fourths of our aircraft took hits. I had a hole shot in my wing big enough to crawl through, but nothing critical was damaged, and I made it back to the ship. When I landed, they didn't even repair my airplane, they just pushed it over the side. If a damaged plane could not be repaired overnight, it was the policy to get rid of it and requisition a new airplane. The new replacement airplanes were carried aboard a "jeep" carrier that sailed with the refueling ships, and the next time we refueled I was sent over on a destroyer to pick up the new plane and bring it back to the *Bunker Hill*.

Attack on *Yamato*

On 6 April 1945, Intelligence told us that the Japanese battleship *Yamato*, one cruiser, and ten destroyers were headed down from the Inland Sea of Japan to interrupt the allied landings on Okinawa. Our dive bombing squadron, as part of a group of about 500 airplanes, was sent out to stop the group. When we went after them [on 7 April], they were just coming around the end of Kyushu, and were still quite a way from Okinawa. I would imagine it would have taken the *Yamato* group another day, or day and a half, to reach Okinawa.

As it turns out, the *Yamato* group did not have any air cover, so they were sitting ducks. Our squadron skipper judged that a 500-pound bomb from a dive bomber would have little effect on *Yamato*'s armor plate, so the 12 or 14 dive bombers in our squadron selected destroyers. I picked one and got a near miss, which stopped it. Then the guy behind me, from my squadron, sank it. The torpedo planes in company with us went in on the *Yamato*, and they got ten hits. After we got the destroyer, we moved away from the action and circled, waiting for the torpedo planes to finish and join up with us.

I was flying wing on the squadron commander when suddenly I saw huge splashes in the ocean below us. We were on radio silence, so I had to try to get his attention. When I did, I pointed down and we both realized that *Yamato* was firing her 18-inch guns at us; evidently using everything she had to defend herself. We were now 20-to-25 miles from the center of the battle, but we decided to move out further. The explosions from the torpedo planes created a spectacular show. We watched what looked like a water spout come up from the battleship to the low clouds at about 35 hundred feet ceiling. The 'spout' then rolled out into flames at the base of the clouds. We had moved out so far that I could only see the explosions the torpedoes were making, but did not actually see the *Yamato* sink.

We sank all the Japanese ships except two destroyers who managed to escape and start their way back to Japan at about two knots. Our planes were going to go back after them the next day, but the weather took a turn for the worse; so they lucked out. I learned from reading a book in later years that *Yamato*'s sortie was a "kamikaze" trip, because they had only enough fuel to get to Okinawa, and did not expect to survive. I have always thought it was curious to try to do something like that. They didn't even have air cover, and were completely on their own to defend themselves. They could have done a lot of damage if they had reached Okinawa.

Kamikazed

Bunker Hill was Rear Admiral Mark Mitscher's flagship [for Fast Carrier Task Force 58]. I had no direct contact with him of course, but could sometimes see him sitting in his topside chair with the chair usually facing aft toward the deck. When asked why he sat backward he said, "Only a fool would sit looking into the wind." Arleigh Burke was his chief of staff, and I have since read that there was this confrontation between them because Mitscher wanted an aviator as chief of staff, and Burke was surface line. I heard that Burke ran a good show regardless, and I could tell that Mitscher really looked out for the aviators. For example when the pilots were concerned about having enough fuel to get back from a mission, he wanted to know for sure that they were going to have enough, especially after some of those fiascoes where a bunch of them had to land in the water after dark - out of fuel. He sure ran things well in that task force.

In May 1945 *Bunker Hill* returned to the Okinawa operating area, and we commenced raids the morning of arrival [11 May 1945]. We had made one raid, dropped bombs, and landed back on the carrier. The Japanese kamikaze pilots had a practice of trying to infiltrate above and behind the tail ends of returning formations so that they could approach the ships undetected because our large formations would blank out the kamikaze's radar returns. We think they managed to follow a fighter sweep that returned soon after our squadron.

I had duty in the ready-room that day, and had arranged for a friend to take my duty while I was on the raid. When I landed I went back to duty in the ready-room. Almost as soon as I resumed my duty, we got a request from the flight deck to send a number of pilots back up to taxi planes forward on the flight deck to make room for the returning fighter sweep, which the kamikazes were

tailing. I sent most of the pilots in the ready room topside, and they were not too happy about having to do the chore. There were only five or six of us left in the ready-room when the kamikazes hit.

The first kamikaze dropped its bomb before hitting the *Bunker Hill*. The bomb went down through the flight deck and out the side of the ship. It exploded as it went out. The plane then dove into the flight deck forward and started a fire. The second kamikaze dropped his bomb right abeam of the island and it exploded on impact. Unfortunately the ready-room for the fighter and torpedo pilots was right under the flight deck at that point and many fighter and torpedo plane pilots and their crewmen were killed. Our ready-room was somewhat aft of the explosion.

After the first bomb hit, the five of us remaining in the dive bomber ready-room tried to make our way below the hangar deck, which was the armor deck. Four of us were on a ladder when the second bomb hit, and since I was at the top of the ladder, the deck hatch came down on top of me. The impact knocked all of us down the ladder. I saw my friend, who had been at the bottom of the ladder, lying on the deck. I don't know how badly he was hurt, but he did not survive. Before I could reach him, it suddenly got dark and I could not find him. I figured that the power had gone out, but you could see that the lights were still on, but very dim. It was smoke.

I got down close to the deck and started crawling. I was not sure where I was, or where the hatches and doors were, but I wanted to get to a lower deck, and out of the smoke. Nobody had their gas masks with them; mine was back in my room. On my stomach, I made my way down through hatches, and crawled through doors. Our ready-room, where I had started from, was forward of the airplane elevator, but when I finally found smoke-free air I found that I had gone down three decks and had somehow found my way around the elevator to its after side. I ended up near the sick bay, and, because I had inhaled so much smoke, they gave me oxygen.

The sick bay was filling up with injured crew members, so it was decided to start transferring them to the cruiser *Wilkes-Barre* which had come close along side to shoot streams from hoses on our numerous gasoline fires. They managed to get me and others back up to the hangar deck, from where we were transferred over to the *Wilkes-Barre*. *Bunker Hill* turned and headed south to distance itself from Japanese air units which were expected to come back to try to finish off the burning carrier. Aboard the cruiser I met one of my former squadron mates who had transferred to fighters. He had been issued one of the new nylon flying suits, which had burned in a flash when ignited. There was nothing left of the suit but the zipper and a piece of collar around his neck. He was very badly burned, and I did not recognized him until he talked.

I learned later that Admiral Mitscher had been badly shaken up in the kamikaze attack, and that Capt. Arleigh Burke had carried him down to the boat on his back to get him over to the *Wilkes-Barre*. They then went aboard the carrier Enterprise, as the new flagship, and a kamikaze hit it a couple of days later.

The following day *Wilkes-Barre* did shore bombardment off of Kyushu, and then joined up with a hospital ship; to which I was transferred. The hospital ship put in at Guam, and I was taken to the hospital there, where I remained about a week. I had no possessions. We didn't carry money when we flew, so I did not even have any spending money. I mainly wanted to get out of there and get back to the *Bunker Hill*. I kept trying and finally convinced them that I was all right. When the hospital discharged me I caught a flight back to Hawaii, and, when I got there, I found that *Bunker Hill* was going to arrive at Pearl Harbor in a few days on its way back to Bremerton, Washington, [Puget Sound Naval Shipyard] for repairs.

I boarded the ship when it arrived at Pearl Harbor, and once back aboard, found that the squadron had divided up my flight gear and issued it to others. They had not expected to see me again. I found that a number of squadron pilots were missing because many of the pilots whom I had sent up to the flight deck to move airplanes had been forced to jump from the deck to avoid being burned in the fires started by the kamikazes. The squadron had no record, or witness to tell, that I had been transferred to the *Wilkes-Barre*. There had also been a lot of unidentified bodies from *Bunker Hill* buried at sea.

Every able bodied person left in the crew had tried to help in the recovery and identification of bodies, but some had been so terribly injured that when they tried to pick them up, they got nothing but bone fragments. So as far as my squadron was concerned, I was missing at sea. I learned later that our squadron lost two of our non-aviators and one pilot in the attack. The losses among the torpedo plane pilots and fighter pilots were much greater, they were decimated. Altogether 346 men had been killed in the kamikaze attack, 43 were missing and 264 wounded.

My oldest brother was assigned to a tug which had towed supply barges out to Ulithi, and he had boarded *Bunker Hill* when it returned from the attack. He was told that I was missing, and unknown to me, had written our parents that I was missing. Of course, I didn't know that he had done that until I got to Bremerton and called home. One of my other brothers was assigned to a mine sweeper, and another went into the Army during the Korean War. All of my family members survived both wars, but we did lose a brother-in-law who had gone into the Army Air Corps and was shot down over Germany.

Bunker Hill had several hundred feet of flight deck badly damaged, including a big hole where parts of the deck stuck noticeably up in the air. When we arrived in Bremerton, the war in Europe was over, and a lot of the shipyard workers were leaving to return to their civilian jobs; even though the Navy wanted to keep them on at the yard. The Navy wanted to leave the *Bunker Hill* in its badly damaged condition to let workers know that the war was not over.

After a few days at Bremerton, I got orders to Cecil Field at Jacksonville, Florida. My assignment there was to take five new graduates from flight training and train them to be a "combat team." After that we were slated to go back out to combat duty, either to fill out a squadron, or make up the nucleus of a new squadron; where I would be a combat team leader. On my way to Jacksonville, I took leave in Des Moines and married my girlfriend Sally Harvey. Suddenly the war

was over, and I had enough 'points' to get out. It seemed that everybody having enough points to be released was getting out, so I did likewise in October 1945.

I had made 36 carrier landings during my tour on the *Bunker Hill*. I can recall two or three of those were ferrying replacement aircraft from a jeep carrier, and some anti-sub patrols. I left the war with three Distinguished Flying Crosses, four Air Medals and a Purple Heart. My wartime days were over, I thought. Little did I know that within a few years I would be flying combat missions again, this time off Korea.

Talking about awards and medals, and such. Most of my records had been aboard the *Bunker Hill*, and not only was I listed as missing, but many of the records were burned. Furthermore the intelligence officer, who was the one who usually wrote up awards and commendations, had been killed. I know he had recommended me for a Navy Cross for my hit on the *Unryu* in Kure Harbor, but the award was downgraded to Distinguished Flying Cross because, as I was told, the ship was at anchor. I know there was some confusion between his recommendations and Admiral Mitscher's staff regarding what I was supposed to be awarded. Recently I have been in contact with some old squadron mates, and in discussing the Kure raid with them, and seeing the reports of squadron activities, I found that one of the pilots behind me saw my bombs hit, and so did his, and that he received the Navy Cross.

One Year as a Civilian

After I got out of the Navy, queries regarding my service kept coming from the government, but then being a civilian, I didn't pay too much attention to them. I do know that the pilot behind me, who had sunk the destroyer during the attack on *Yamato*, and had seen my near-miss disable the destroyer, had gotten the Navy Cross. I also know he had told them that my bomb had disabled the destroyer. I think now that if I had paid more attention to the government's questions, my award probably would have been upgraded if I had done it at the right time. There was a lot of confusion about what had happened, but I never went back to the Navy Awards Board about it. There was even more confusion. They later gave me Distinguished Flying Cross number "four," even though, at the time my DFCs were designated "one" and "three." When I asked why it was number four, they said send number four back and we will send a number "two." Furthermore, when reading the citations that came with them, none of them make any sense.

Returning to Des Moines, I took a job as a workmen's compensation insurance auditor, with an assigned territory near Des Moines; and my boss was offering me a promotion to take over a newly established office in Kansas City. However, after about six months working in the Des Moines office, I got a letter from the Navy asking if I wanted to apply for a regular navy commission. I discussed the offer with my wife, who had enjoyed our period of active duty Navy life; furthermore, I had always enjoyed naval service so I answered yes.

I went to Glenview, Illinois, and took the required battery of tests, but I heard nothing from the Navy for months. My boss was still urging me to take the Kansas City auditing job, so we

moved down there; however, soon after starting I heard from the Navy about the regular commission. They said I had four months to either accept or decline. We did stay a little longer in Kansas City, mainly to placate my boss, but I accepted the commission in February 1947.

On Saipan

I returned to [Naval Air Station] Glenview to get my orders; which were to COMFAIRWESTPAC on Guam. I traveled to San Diego to check in for active duty, however there was some confusion there about my orders. The Receiving Station in San Diego thought I had orders to COMFAIRWESTCOAST, so they sent me to electronics school at Ream Field. After about two months in electronics school, my orders suddenly got sorted out, and I was told that I was to leave for Guam immediately. I was not even allowed to take the time to drive up to San Francisco to catch a Military Airlift Command flight, but was directed instead to fly to San Francisco to take the next available flight to Guam. Upon arrival at Guam, I was assigned to the seaplane base at Tanapag on Saipan.

At the seaplane base they assigned me as First Lieutenant, so I was in charge of things like trash truck services, and the shops - such as the paint shop, woodworking shop, etc. Until this point in my career I had been in flying jobs and rarely had people working for me. Now I found I was responsible for a fairly large work force, including many chief petty officers who had elected to stay on active duty after World War II. I found I had about 25 chief petty officers, and I asked myself, "How do you use so many CPOs?" To make good use of them was difficult, but I put one on each truck, and had a couple of them in charge of each shop. Things worked out fine, and it was an interesting tour of duty.

Somewhere along the line, the Island Commander came over to talk to our captain at the seaplane base. The Island Commander was particularly upset by the 'ugly' appearance of our many quonset huts, and gave the order to paint them all white. I had to triple the number of people in the paint shop and set up three shifts of painters; working on the huts around the clock. It was a challenge to find enough white paint to cover all the huts on base. The Island Commander demanded a weekly count of huts painted and huts to go, and it was so important to keep up the count that, if a hut had wood or other material stacked against it, we didn't move it, we just painted around it. As it ended up, the Island Commander was court martialed because of some of the other things he did on Saipan; such as having a private golf course built for himself, not to mention setting up a distributorship for alcoholic beverages on the island.

From Saipan I was ordered to the University of Kansas for five semesters of study; taking two years. In 1950, the Korean War had started, and I was transferred to flying helicopters. The Navy had started using helicopters in 1948, just two years prior, and I had never even seen a helicopter. Navy helicopter use had started with an experimental squadron at Floyd Bennet field in New York, where those first navy helo pilots received their training from the Coast Guard. The experimental squadron then divided up into an East Coast training squadron and a West Coast operational squadron; based at Lakehurst, New Jersey, and San Diego respectively.

Conversion to Helicopters

I was ordered to the Lakehurst School, and drove there from Kansas to attend the two-month course. The training included forty flying hours divided evenly between Bell HTL-1s and 2s, and Sikorsky HO3s. From Lakehurst I was ordered to Helicopter Unit-1 (HU-1) at San Diego, where they made me Maintenance and Material Officer. I was not too crazy about that job.

Our first helicopters were very rudimentary, completely unstable, aircraft. The HO3 had a 985 hp engine that sat vertically behind the pilot (behind the cockpit). The maximum allowed travel of the center of gravity was three inches, and, properly trimmed, the aircraft could carry a pilot, a crewman, and one additional passenger. The third person was usually someone you had picked out of the water. If you took on any more passengers, say a fourth person, then you would have to land and put your life rafts back into the baggage compartment, which was behind the CG. With just the pilot and no crewman, the pilot placed the rafts on the instrument panel in front of him to get them out in front of the center of gravity.

Flying helicopters in those days took both hands and both feet to handle the bird, so you had to memorize maps, etc., before you took off. We usually flew low; 500 feet was our normal operating altitude and we didn't ever wear a parachute. Although it was difficult, I did manage to master the aircraft after a few months' training.

By the time I joined HU-1 in June 1950, the Navy had assigned helicopters to all aircraft carriers, battleships and cruisers; which created a severe shortage of helo pilots. Right after reporting to the unit, I was ordered to the amphibious base in San Diego to undergo gun spotting school. This training was necessary so we could spot guns for naval bombardment ships. A few weeks after I joined the squadron, the carrier Princeton was in need of repair parts which were to be ferried out by helicopter. I was selected to take the parts out, and so made my first carrier landing in a helicopter.

The following week I flew out to a carrier operating off San Diego to learn how to fly "plane guard." This involves flying off the starboard quarter of the carrier during flight operations. The position is in line with the cross-wind leg of the aircraft landing pattern, and you can also see the planes coming off the bow of the carrier. When I got back from qualifying for plane guard operations, because I was a former carrier pilot, I was told to take a number of other new helo pilots out to a carrier and teach them how to plane guard.

Aboard *Valley Forge*

In December 1950 I suddenly got orders to the Carrier *Valley Forge* which had just returned from the Korean Conflict, and was slated to go into overhaul. The ship had been in San Diego for only a few days, and had just offloaded their air group in preparation for shipyard overhaul when the Chinese made their advance across the Yalu River. This intensification of the war resulted in

orders to *Valley Forge* to load a new air group and return to WESTPAC. We had 48 hours notice that we were going to WESTPAC on the carrier, and things were rather hectic, including rapidly assembling all of our spare parts.

As *Valley Forge* readied to leave San Diego, the Navy realized that many more helicopters would be needed in the Korean theater. As a result a number of new helos were disassembled on the East Coast and air transported cross-country to the *Valley Forge* at San Diego. Also, a number of helo pilots in training at Lakehurst had their course cut short and were ordered to ride *Valley Forge* to WESTPAC. The ship quickly loaded the airplanes for the new airgroup, and I was assigned to be their senior helicopter pilot, with Chief Aviation Pilot Dan Fridley assigned as my assistant and second helo pilot. We were also assigned five helicopter mechanics who also doubled as flight crewmen.

Dan Fridley was a more experienced helicopter pilot than I, and at the time, I didn't feel I was very experienced. However, after meeting some of the other pilots who were reserves and had volunteered, or had been called back into service, many without completing their helicopter training, I realized that I was much better off than they were. I spent a week out on the Bataan off San Diego flying plane guard while their air group was undergoing CarQuals, so I was able to gain additional experience before we headed into the war zone.

We pieced the Lakehurst helicopters back together on the way out. We offloaded the reassembled helos and their new pilots in Yokosuka Harbor, Japan. Some of the pilots and their helos were assigned to Japanese-manned LSTs in Wonsan Harbor, and others went aboard other U.S. navy ships; however I remained aboard *Valley Forge* which was to operate off the East Coast of Korea. Once we arrived at Yokosuka, I found myself continually flying ship's pilots around so they could get their flight time. In addition, we were flying the admiral and his staff to various meetings, as well as transporting other officers to operational planning meetings, ashore and afloat. We were in the air continuously, so Fridley and I decided to split the daily schedule. I would take the morning flights and he would cover the afternoons. Every week we would swap schedules, and our days became more routine and bearable.

We were in port just two or three days before going up to the combat zone for the first time. We had to go down and around the southern end of Japan and up the other side past Sasebo. We would normally operate 50 miles north of the DMZ. Chief Fridley and I would each average about five helo flights a day in the operating area. We always took off before any of the other aircraft, and got into position, which was off the starboard quarter aft, and in line with the cross-wind leg of the landing pattern.

Whenever a mail plane came aboard, we would carry mail out to the small ships of the force, and lower mail bags to them, dropping off and picking up mail. We usually had around 15 destroyers with us, and we delivered mail and other small packages to them. Of course, we continued to carry the Admiral and staff members to the other ships for meetings. On one occasion I had taken some of the admiral's staff over to the *Philippine Sea* for a meeting. Fridley had brought

the group back, and one gent was particularly upset when they landed. It seems he was carrying some classified envelopes under his arm, and they had been blown into the water when he exited the helicopter.

I went up with a crewman and went out looking for the envelopes. Of course, it was a refueling day so there was a lot of trash and garbage in the water. We finally found what we were looking for, floating on the surface. The only problem was that we were far up north, it was wintertime, and the water was very cold. My crewman didn't have on an exposure suit, so I couldn't lower him down into the water because the water temperature was below 50 degrees.

We tried various things. He tried scooping it up with the mailbag, but was unable to do so. He had a grappling hook, and he tried to drop it and pierce the envelope. But, as we continued with these retrieval efforts, the ship was moving away from us. I finally called the ship and had one of the other crewmen put on his exposure suit. We dropped a smoke bomb and went back to pick up the other crewman. We went out again, but by now the envelope was so far behind us that we couldn't find it. The envelope had TOP SECRET material in it concerning the United Nation's operating plans. There was an investigation and I was asked whether I thought it had sunk or not. I had no idea how long such material would float, so the investigation was closed and the incident reported.

Later when we were in Sasebo for refueling and rearming, the Captain and Chaplain wanted to make a trip to Nagasaki, so off we went to look at the devastated remains of that city, We circled a few times around the city surveying the damage and then landed in a schoolyard. My crewman stayed to keep an eye on the helicopter, and the rest of us walked down into the city to get a closer look at the streets, houses, etc. It was a depressing sight; one that remains with me today.

Flying around Japan in a helicopter was really difficult since the Japanese had run power lines out to the little islands off the coast. In some cases those lines would go from mountain top to mountain top across the water, so you would always be on the lookout for them. I remembered that we had lost a pilot to similar lines back in California, so we were fully alert for them, especially since we were flying at about the same altitude as the lines.

Back out at sea one evening, "Man Overboard" was called over the 1MC [ship's announcing system]. Since it was not called as a drill, I thought it was the real thing and raced to the flight deck where I joined my crew. We untied the aircraft, took the blade covers off, and started the engine, all in quick time. When we were aloft we learned that it was indeed a "drill". A dummy had been thrown overboard, and we had to go look for it. Thinking about it when returning to the ship, I decided that taking off without warming up the engine was a pretty hazardous thing to do. The problem was that I thought that it was a real man overboard. We got that problem resolved once we got back aboard.

On another occasion we were scheduled to fly our commanding officer and the air boss from Sasebo to an Air Force base on the northern end of Kyushu, where they could log some flight

time. As I mentioned earlier, flying a helicopter is not easy if you are trying to navigate at the same time. Anyway, I got the charts out and tried to memorize our route and the location of our destination. There seemed to be nothing but mountainous terrain with two valleys going northeast. I selected the one I thought was our best course, and noted that it eventually split into two more valleys. When we got up there, our valley split into three instead of two.

As it turned out, I took the wrong valley and ended up somewhat lost. We eventually came out into a plain and saw a schoolyard. We landed in the schoolyard and the air boss got out and talked to a teacher who spoke English. We found out where we were, and discovered that we didn't have enough fuel to make it to our destination. However, there was another base, Oshii, nearby where we could refuel. We refueled and this time went down along the coastline to ensure that we didn't get lost again. It was a longer route, but we didn't want to take a chance going through mountains. It was an embarrassing situation for me.

In late March it was decided that the *Valley Forge* was going to return to the U.S. for repairs. When they had rushed out from San Diego in December, they were about to start a normal shipyard overhaul, but they had been sent back to Korea because of the Chinese attack across the Yalu. As the ship was preparing to return, a helicopter pilot who was operating from one of the LSTs in Wonsan Harbor asked if he could trade his badly worn copter with *Valley Forge*'s helo. The trade was approved, he flew his craft aboard, and left with mine.

We found our new helo was a mess, partly because it had to set outside all the time, and partly because it had been in combat operations. It had bullet holes, and the engine leaked oil. The pilot who got my helo told us that in the early days of the Korean War, the Koreans were usually so amazed to see a helicopter make a rescue that they just watched and laughed, without shooting. However, the crew of my exchanged craft had soon mounted a machine gun in the door so they could strafe the Korean Army during a rescue. Thus the bullet holes from return fire.

Even though *Valley Forge* was returning to the U.S., our helicopter still had to be flyable. For one thing, the skipper wanted us to take the ship's photographer up to get photos of the ship. My crewmen had to do a lot of repair work to get the craft flyable enough to take the photos. We took the photographer up to about 3000 feet and he got some shots of the ship's crew arranged on the flight deck to spell out "USS *VALLEY FORGE*."

When *Valley Forge* got around to the east side of Japan, the decision was made that the air group aboard the *Philippine Sea* was going to transfer to the *Valley Forge* and go back to the states because they had been out there long enough, and the *Valley Forge* air group was going to transfer to the *Philippine Sea* and stay out there. As we went back around the southern tip of Japan, we started launching aircraft from each of the ships to exchange them. The day was kind of strange in that there was hardly any wind, so the carriers had to go pretty fast to get up enough speed, even though the planes were going to be catapult launched.

The *Philippine Sea* launched 25 jets, and we launched 25 Corsairs. There was such a land swell that the carriers were really bobbing up and down, and spray was coming over the bows of both carriers. Some of the planes would go down until it looked like they were going to hit the water. *Valley Forge* was a straight deck, and *Philippine Sea* was an angled deck, so the first jets were brought aboard the *Valley Forge* by a landing signal officer. It was a pretty hazardous operation, and the skippers finally decided to cancel the at-sea transfer, and recover their remaining airplanes; then they offloaded from each and exchanged them when we got into Yokosuka. Before the *Valley Forge* departed WESTPAC I , my helo, and crew, were transferred to the permanent helicopter detachment at Opama near Yokosuka, Japan, where the detachment gave the helo a long-needed thorough overhaul.

In early April I got orders to go aboard the *Philippine Sea,* which was in Yokosuka and getting ready to go to the combat zone. I was directed to fly back aboard the *Philippine Sea* and ride it around to the other side of Japan, where I was to fly off and land in Sasebo. The people who issued the orders, however, did not realize that we would be passing Sasebo at night, and that our helos were not instrumented for night flying. After querying headquarters ashore for directions, we were told that an LST would be joining the *Philippine Sea* group at first light the next morning, and I was to land aboard it for transport to Sasebo.

With the Royal Navy

We launched in near darkness, and when I reached the LST I could just make out that the tank deck, on which I was to land, was lined on both sides with life rafts fastened to stanchions. I judged that my rotor blades would be high enough to clear the rafts when turning under power, but was concerned that as they slowed down the wind could make them flop up and down so that they might hit the rafts. I touched down and stopped the blades as quickly as I could, with no hits on the rafts.

Once aboard the LST, I learned that the captain, executive officer, and crew of the LST were reserves called back for active duty. They had originally left San Diego with a group of LSTs, but had hit an unmarked rock in the Bay of San Diego, and had been laid up for repairs while the rest of the LST group proceeded to WESTPAC. They had thus proceeded west by themselves, and when they got to WESTPAC, they were given special solitary-ship assignments. For example, they had been sent up into the Inland Sea of Japan to drop off some cargo, and they were on their way back to their base when they picked me up. The skipper asked me where I needed to go, and I replied Sasebo, so they turned around to take me down to Sasebo.

I had only one crewman on the helo with me, and they gave me a room and him accommodations in crew's quarters. We both went to bed, but the ship rolled like a bathtub. After a couple of hours we got out to open sea, and my crewman came to my room and declared he was really seasick, and wanted to fly off the ship at the first opportunity. I told him we were too far away from Sasebo, but we would leave as soon as we were close enough.

The next question was where would we go, once in Sasebo? It was a strange situation. I had gotten messages from Chief of Naval Forces, Far East, assigning me to the Philippine Sea, and about the same time another message from Commander for Air, Japan, telling me to go to the Royal Navy carrier *Theseus*. All the senior commands seemed to think they were controlling helicopter assignments, but, in reality, nobody was. I knew that HMS *Theseus* was in Sasebo, and that they had asked the NATO Commander for a helicopter. Up to that time they had been using an amphibious airplane for rescue. It would take off from the flight deck, land in the water for a rescue, and then return for a deck landing. They had made one rescue with the amphibian, but apparently lost it on another try.

We flew off the LST at first opportunity, and proceeded to Sasebo where we spotted *Theseus* in the harbor. We landed aboard, and crewmembers came up to ask if they could help us. I responded that I understood they needed a helicopter, and, "Here we are." They took me below to talk to the captain, who proposed that we go over and talk to the task force commander. CTF 95 concurred that I should be attached to *Theseus*. I called the helicopter base at Opama and told the rest of my crew members to come over to Sasebo by train. It took them a couple of days to get aboard *Theseus*.

We had good relations with the officers and crew of *Theseus*, and my crew's only complaint was the Royal Navy's food. Whereas I could order just about anything I wanted for breakfast, they had narrow choices, such as kippered herring, in the crew's mess. My crew, however, was quite resourceful about their limited food choices. Whenever we made our frequent helicopter mail deliveries to American ships, the crewmember would send down a note asking for some decent food when we made our next delivery. The result was a good supply of food like fresh fruit and eggs, so they made out OK. It really helped to supplement their diet, and they shared it with the people in their mess.

About the food on the British ships; my first morning aboard *Theseus* a steward came into my cabin at about 7 o'clock in the morning with a big glass of half tea and half milk. It didn't start my day very well so I went down to breakfast and ordered coffee. They brought me just a little demitasse cup of coffee, and I said, "No, I'd like a cup of it." When they brought it back I was sorry I had changed it because the coffee was so thick and so heavy and strong that a demitasse would have been quite enough. I didn't have any problems with the food in the officer's mess because, if I was served something I didn't want, I could order whatever I desired, and they would just charge me a little extra fee for it. For instance, on one of the first mornings that I was aboard, they were having kippered herring. Although the smell of the herring was strong and it didn't look too appetizing, I tried it and liked it. However, if I wanted eggs or pancakes, I could order them with no fuss. They treated me quite well.

There were quite a few differences between the way the Royal Navy and the U.S. Navy lived at sea. For example U.S. carrier hangar decks were big because they extended right out to the sides of the ship, but the RN hangar decks were smaller and narrower with living quarters built outboard on both sides of their hangar decks. Furthermore, the Royal Navy crew members not only

slept in their quarters, but also their meals were brought to their quarters where they had their own mess tables that accommodated about 30 crew members in one group. My crew members, except for my chief, was assigned to one of these messes. The chief, of course, was assigned to the Chief's Mess.

Then there was the grog ration. Every day at 1100 a representative from each of the messes went with a tin canister to draw the grog ration for his mess. The petty officers were allowed to take their grog undiluted, i.e. neat, whereas non-rated men got a three-to-one mixture of water and grog. The men who went to draw the grog ration also got extra "nips" from the rest of the crew's ration. This meant that if one of my crewmen went to draw the ration, he usually needed the rest of the day off. I talked to the Royal Navy flight surgeon aboard the carrier about the effects of the grog ration. He theorized that the much lower venereal disease rate in the Royal Navy, as compared to the U.S. Navy, was due in great measure to the RN sailor's daily acclimatization to alcohol, whereas in the USN, the long at-sea periods between having a drink led to alcohol hitting U.S. sailors very hard when they went ashore; causing them to get into more trouble.

Dealing with the British was always interesting, for example the captains of their carriers were not aviators. This was obvious from the way they did things. In the U.S. Navy, when we were to start launching at 0500, the captain wanted to see an airplane going off the bow at 0500; when the first bell rings. We were really precise. The reason was, it's the most vulnerable time when you are into the wind. If someone wants to drop a bomb on you, it's easy then.

But, first, the British would start up their engines as if they were going to take off on time, but while still going down wind, and then the CO might stay going downwind for 10 or 15 minutes beyond that. Well, with an aircraft engine being air cooled, when you're going downwind there is not enough wind across the engine, and you get a lot of detonation, and that kind of thing from overheating; which an aviator would understand, but a non-aviator probably wouldn't. The air officer had no control over it; whenever they turned into the wind is when air operations would start. When they did turn into the wind, they might wait ten minutes to launch because it was more important to navigate to stations than to launch their aircraft. You could tell the skippers were surface officers.

Theseus would go out for ten days and operate in the Yellow Sea around on the West Coast of Korea, where one of the U.S. light carriers would rotate with us. Our normal operating area was about 50 miles north of the lines and about 50 miles out. On the 12th of April, I rescued Warrant Officer Bailey, a Royal navy pilot. He was two miles off the coast of Korea, but we were not fired upon. Another time when we were operating in the Yellow Sea off Korea, one of the *Theseus* pilots was shot up quite a ways north. He made it out into the ocean, but then his engine quit and he landed in the water. I was sent out to get him.

A helicopter only flies at a speed of about 60 miles an hour, so we had about an hour's trip to pick him up. The water was very cold, and we knew that, at those temperatures, after about thirty minutes of immersion you loose the use of your fingers. So, by the time we got there he was in

pretty bad shape, however, he was floating and we tried to get him to get into the sling. But, he was unable to get in. I had my crewman hook onto the cable and I sent him down to put the pilot in the sling. I brought the crewman back up and disconnected him, and then brought the pilot up. He was very cold, but we got him back to the carrier, and he was fine after a few days. I got a very nice letter from his parents, over in England, which I greatly appreciated.

Every time Chief Dan Fridley or I picked up one of their pilots out of the water, I was invited to the bar in the officer's mess. Dan couldn't come into the officer's mess, but I would have to go through having cocktails with these people. The bar was open daily from 11:30 AM to 1:00 PM and in the evening until 11:00 PM. They didn't abuse it, but I had toasts of all kinds every time we picked somebody up. I must admit I enjoyed it. Each time we returned to Sasebo, the first night the British command ship would have a party for us and some of the destroyer officers. The second night, one of the destroyers would have a party, and then the third night our ship, the *Theseus*, would have a party down on the fantail, and all of those people would be invited. That was kind of the routine of things. After ten days (it might have been a little less) we would go back out again.

On either our second or third deployment we operated off the east side of Korea, near where the Royal Navy cruiser *Manchester* was stationed off Wonsan Harbor. *Manchester* had a helicopter, and one of its primary missions was to rescue downed pilots. They had picked up a British Pilot who was very severely injured, and the communication would keep coming back that he was in serious condition. The ship's doctor aboard *Theseus* questioned, "What does that mean?" I said, "Well, I'm not medical, but I think he's not critical." Then he asked' "What does critical mean?' I said, "I think they mean he will live."

The doctor was still very concerned and wanted to go over to the *Manchester*, so when things quieted down, they allowed me to take him over to the *Manchester*. Just the two of us went, so he could see the aviator, and talk to the medical people. We got there, but found that their helicopter crew had their helo all apart on the fantail, so there was no place to land. I took the doctor up to the bow, got him in the sling, and lowered him to the deck. I brought the sling back up and went over and landed on a nearby LST. I talked to the people on the LST and arranged for the *Manchester* to send me a flashing light when they wanted me to come back and pick the doctor up.

When I got the flashing light, I proceeded back to the cruiser, but what I didn't realize was that when I had brought the sling up, it had come up so hard that it had bent the guard switch that keeps the sling from jamming into the hoist motor. The switch was bent in such a way that it would not let the motor run in the up direction. I didn't know that the hoist could go down but it wouldn't come up. I got back over the cruiser to pick the doctor up, he got into the sling, and I was hovering over the bow, but I could see that the hoist was not working. I motioned to the helicopter handlers below that I was going to come down as close to the deck as possible so that they could throw the cable back up into the helo so I could go back over to the LST and get it fixed. Well, the doctor was there, and when he saw me move down close to the deck; he came running out, jumped and caught his elbows in the step going up inside the helicopter, climbed up, and got in. That shocked me!

Anyway, I had him pull the cable in, and we headed back to *Theseus*. I think he was somewhat bruised around the elbows where he hit the helicopter.

On one of our returns to Sasebo, I was in the Officer's Club and met some of my cohorts from the helicopter squadron. One of them, a friend, was on one of the larger ships where he often delivered mail out to the supporting ships in his task group. On one occasion he was asked to make a delivery to a submarine. A sub is very hard to hover over because you really don't have much of a reference, whereas with a ship you've got the bridge at your level, and you can kind of use that as a guide as to how high you are above the deck.

He hovered over the sub aft of the sail, and four people came out to take the mail out of the bag. As I said, it was hard to stay put over a submarine and the mail bag was swinging back and forth. As the bag swung across the sub, its commanding officer, for some reason reached up, grabbed, and held on to the bag. This caused the helo to gyrate pretty wildly as his added weight swung back and forth. The ship went out from under them with its skipper hanging from the mail bag. My friend finally got him swinging back over the sub, where the CO's crewmen grabbed his legs and he lowered the skipper down. In fact the skipper of the submarine was at the officers club while my friend was telling us the story, and he told us everything worked out fine, but it was an interesting time.

I was aboard *Theseus* for about one month and was then assigned to another Royal Navy carrier, the *Glory*. During the last days on *Theseus*, the ship and its crew honored my group. They had a testimonial dinner for me down in the officer's mess, and it was quite an evening. We had cocktails at the bar and then went in for dinner; everyone in their dinner dress uniforms. The meal was spectacular, consisting of several courses, each served with an appropriate wine. Prior to going into the dinner, one of the officers told me that they were going to give a toast to President Truman, and they wanted me to offer a toast to King George VI, which I certainly agreed to do. However, by the time we had finished dinner and imbibed all that wonderful wine, and the moment came for me to offer the toast, I wasn't too sure which King George I was to toast. So I just got up and toasted "The King" and mumbled something like "the sixth", and all went well. They were really a delightful group of people, and I certainly appreciated everything they did for us.

While aboard the RN carriers, I was supposed to send back a monthly report of my activities, but the British would not let me send messages or correspondence from their ships. I had to wait until we were in port and go over to one of the U.S. commands to mail my reports, and also to get paid. I got along with the people on *Theseus* very well because they had been there for quite a while and had lost some pilots and they were happy to have us. The captain and crew were anxious to have a helicopter.

When I was ordered to the *Glory*, I had several meetings with the air officer and his people to clarify our role, since they were not familiar with helicopter operations aboard carriers. Some time later the Captain of the ship called me up to the bridge and told me that I had better take care of my "blokes" and keep them from getting into trouble. I told him I really didn't think they were

blokes; they were the people who maintained my aircraft, and I depend on them and I will take care of them. I told him, "If you don't want us on here, we can be off the next time we are in port; I don't have to stay aboard." I didn't get along with him very well, but I didn't have any real problems with him. That was the only occasion that I had to deal with him. I just couldn't believe his attitude toward having a helo crew, but that's the way it was.

The other thing was, the Royal Navy ships were very, very dirty, but it was the practice in both carriers' wardrooms that the officers wore dinner dress at night; stiff front shirts and bow ties, and such. It was not required for me to take my blues with me, but I had them anyway, and I wore them for the first couple of nights. But, when it rained mud would splash up from the passageways, and there were no cleaning facilities on board. I, being the only American officer there, decided I would change my uniform to khakis. I did wear a blouse with shoulder boards on it to dinner at night, but didn't wear the blues any more.

The Royal Navy carriers could not rearm at sea; we would go back to Sasebo for ten days to rearm. However, the British carriers could refuel at sea, which led to one of my most interesting rescues. They seemed to have a practice that they never repaired or replaced anything until it broke. *Glory* was refueling at sea one day when a fuel hose broke, whipped around, and knocked a sailor into the water.

I happened to have a photographer with me in the helicopter when the sailor was hit with the fueling hose. In a helo the pilot had to have both hands and both feet on the controls constantly. If he let go of either the stick or the collective pitch control, which had the throttle control on the end of it, the helo immediately became unstable. So I tried to tell the photographer how to operate the hoist. I went in and hovered over the man, but the photographer started running out too much cable. I had to explain to him to hold the 'horse collar' steady below the helo and I would control the collar by raising and lowering the craft.

The man in the water had no idea how to deal with the collar. He was supposed to pull the collar down under his arms, but he just grabbed hold of it and held on. So I tried to lift him. He got up to the step on the helo but let go and fell back in, but came back to the surface. I went around again, and he finally got in the collar, but he got in backwards so the collar went around behind him. So when he came back up, the step was behind him, and he didn't know it was there. So, the photographer took one of his arms, and I tried to hold his other arm, and at the same time try to fly the helicopter. In the mean time, the carrier had steamed off and I had to catch up with it. Later, when I got back aboard the carrier, they told me that the man we had rescued was listed as a non-swimmer. He did pretty well as a non-swimmer; he learned quick.

When we were not at sea, we were usually in Sasebo, and one time I met some of my fellow helicopter pilots at a bar. There were also a bunch of British people there who invited me to bring some of the other helo pilots over to dinner aboard one of the RN carriers the following night, to which they agreed. My friends assured us that they could get a boat, so we set a time and the Brits were quite excited about the event. I guess Americans take such invitations a bit more casually than

the British because that night we waited and waited, but the American pilots never showed up. In fact they delayed serving the evening meal for awhile waiting for our invited guests to arrive. The British just could not imagine that they would accept their invitation and then not show. I felt badly about it, but could not be responsible for them. Different cultures, I guess.

After two months aboard *Glory*, in June 1951, I got orders from HU-1 for me and my crew to return to the U.S. In all, during my WESTPAC tour, I flew something over 200 hours, and made 485 carrier landings, carrying people back and forth, as well as plane guarding for every launch and retrieval of planes. The first leg of the journey home was to go from Sasebo around Japan to the Yokosuka side, and for this trip, the same LST that we were on earlier was our way of getting back around Kyushu to the Yokosuka side. We were back on the "bathtub" again, and things were fine until we got to the east side of Kyushu where there were pretty rough seas, and that thing really rolled. But they got us to Yokosuka and we turned the helicopter over to the people at the detachment there. Then we all flew home to San Diego. We arrived back in July.

Helicopter Antisubmarine Squadron-2

I had been at Helicopter Squadron-2 in San Diego for a few months when the Navy began to form antisubmarine helicopter squadrons, and I was assigned to Helicopter Antisubmarine Squadron-2. At first they were going to give us Piasecki helos, but they were having engine problems so we got Sikorsky HO5Ss instead. They were too small, but we did practice doing routine anti submarine things like dropping a sonar and then trying to hover over it and hold your position and altitude. Then we got some bigger Sikorsky HO4Ss which had the engine on an angle with the bottom tipping toward the front and the top tipping back toward the rotor blades. The pilot sat above the engine, and the passenger cabin was below and behind the engine so that center of gravity travel was much less critical than in previous helicopters. We could also carry a lot more weight.

The HO4S had dipping sonar which had an indicator so that you could tell when you were moving sideways or back and forth; then you maintained your altitude by the altimeter. The drift indicator was actuated by the sonar cable which passed down through a fork which sensed when the cable was not straight up and down. Of course, in the beginning we didn't have auto pilots and we were doing all the controlling manually. Once we got the auto pilots it was much easier, you could just adjust dials and have it hold you over that spot.

Helicopter Squadron-1 (HU-1) started at Miramar Naval Air Station, but then moved to Ream Field which was down near the Mexican border, and had been closed, but opened back up for the squadron. We also had a practice field further inland at an elevation of about 500 feet where we could train new people. Because the field had been closed for so long, the Mexican people who were trying to get into the United States had been sneaking across our field at night. We found we had to keep lights on to avoid hitting them with fixed wing planes at night, and to keep them away

from our airplanes. For a while the U.S. immigration people asked us to report when we saw them climbing our fences, or sneaking across. But after a period of time we saw so many of them that the immigration service told us, "Please don't report them to us any more."

I stayed in HS-2 until January 1953, and then from there I went up to the six-month General Line School at the Naval Postgraduate School at Monterey, California. The course was for officers who had gone regular, and for whom they wanted to have a broader view of the Navy. They wanted aviators, for example, to know how the other half, like the surface line, lives and vice versa. We went through classes and then went out on a submarine, and then on a cruiser, to be indoctrinated on the rest of the Navy. The aviators did have some airplanes there so we could get our flight time in.

Flight Instructor at Pensacola

Next, I was ordered to Pensacola to be a helicopter flight instructor. However, when I got there, the roster of helo instructors was full, so I was sent out to Whiting field to take new students learning to fly and give them primary training. This lasted about six months, which was long enough to take a group of three young people through primary instruction. It was an interesting time because one of the students was a Frenchman. On the ground I could talk to him, but in the air I could not understand him, and he couldn't understand me; but he caught on very fast and was a good pilot.

The other two students were just the opposite of each other. One of them got in trouble all the time; he was just not getting with the whole thing, and was always doing things wrong. You could demonstrate something to him and then let him do it and talk him through it, but he didn't quite understand. The other student caught on to everything, and was doing very well, but then their performances crossed. The one who was so good hadn't really ever been in trouble so he didn't know how to recover from bad situations, whereas the other one got progressively better. It was just interesting to watch them develop, especially when we got to acrobatics in the "E" stage; particularly the young kid who was having all the trouble.

The student would sit in the front seat, which is right over the center of gravity of the airplane, whereas the instructor was in the back seat, which was subject to more acceleration forces during aerobatics. When you would try to teach the slow learner a barrel roll, in which you try to roll around a point in space, he would always spin out. When he would spin out, I would be blacked out, but he wouldn't because he was on the center of gravity. Whereas, I felt all the forces. He would ask, "What did I do wrong?" I would say, "I don't know what you did wrong because I was blacked out. But I'll show you again, and then you do it." We continued to have troubles like that, but it was fun to do. All three students did graduate, and I think the French student must have had some prior flight training because he did so exceptionally well.

We trained in North American SNJs, which were advanced trainers; and I think the Navy kind of made a mistake there. Originally, we had started training in a smaller airplane that didn't

have retractable landing gear or variable pitch propellers or a lot of other advanced features. You just had a basic airplane in which you went through about the first 12 hours of training, and in which you expected the student to solo after about eight hours. Then you would go into the SNJ, where you had propeller pitch change, multiple gas tanks, retractable landing gear, etc. But if you trained only in the SNJ, you didn't expect the student to solo until about 20 or 21 hours. That's a lot of flights. But the sooner you get a student to solo, he develops so much more rapidly.

What they had to do with these beginning students starting in such complicated airplanes, with all these other things for the student to do, was to set up landmarks for landing and takeoff. When they went over one landmark they put their landing gear down, when they went over another they opened their flaps, and used the same kind of reminders for gas tank selection. When you went through a thousand feet on your way up you changed the gas tanks, and when you came down through a thousand feet you again changed the gas tank selection. But one student got lost and ran out of fuel in his active tank; so he selected his full tank. Well, when he came down through a thousand feet he changed his tank back to the empty tank. He managed to land, but I don't think he got the engine started again.

Another student got lost and ended up over an Air Force base that had a ten thousand foot runway, and he landed wheels up. When they asked him, "Why did you land wheels up?", he said, "I think the problem was that this isn't an authorized Navy field." So they weren't teaching them to think about what to do, they were just following the routine of what was told them (which was a shame). The Navy finally went back, by the way, to the smaller airplanes for the early stage to get them to solo, and then they would go into the SNJ or a bigger airplane; or now jets of course.

After about six months of primary instructing, I went over to the helicopter training unit at Pensacola. At the time, they were not sure whether they should take a new person just learning to fly and start him directly in helicopters, or should they pick up helicopter students from some other phase of flight training, or should they take only experienced aviators. Even an experienced aviator had a lot to learn going into helicopters. An awful lot of the things in a helicopter are just the reverse of fixed-wing flying. Like taking off in a fixed-wing airplane you have the engine torque that is trying to pull you to the left, so you apply right rudder. But, in helicopters when taking off you have to use left rudder pedal which controls the tail rotor; which in this case is the anti-torque device to counteract the direction the main rotor turns. So there was some unlearning to do. Another thing was, when a fixed wing pilot sees the airspeed go down to zero, they don't like to see it and, they're pretty tense. It was hard to get them to come to zero speed to flare for a landing, which is what you have to do in a helicopter.

So the Navy took some fixed-wing students, who had never flown before, as soon as they had soloed. And they also took them from various other steps along the way to compare how they did in helicopters. Actually the Marine Corps finally decided to start students in helicopters without any fixed wing training. Then, after a tour of duty, if they were going to stay in the Marine Corps they put them into fixed-wing. After that, they were considered qualified to fly both types of aircraft. Even if you were flying helicopters, it was still necessary to stay qualified in fixed-wing in

order to get in your total required flying time (if you weren't flying helos enough) as well as to make navigation flights, and we had to keep up our instrument ratings.

While I was doing helicopter flight instruction I began to realize that I would like to fly jet aircraft; I was not particularly interested in staying with helos. I had just been on shore duty, so the only way that I could get to fly jets was to do two years of duty at sea on one of the carriers. After that, they will give you almost anything.

Aboard *Tarawa*

In the fall of 1955, I finished my helicopter flight instructor tour, and I was transferred to the aircraft carrier *Tarawa*, which operated out of Quonset Point, Rhode Island. *Tarawa* was an anti-submarine carrier, a CVS, which had anti-submarine airplanes and helicopters with dipping sonar. We had an aircraft complement mix of about 60% fixed-wing Grumman S2F ASW airplanes, and the rest were helicopters. Because the ship was an ASW carrier, part of its propulsion plant was shut down because it did not need high speed for ASW operations. I started out as aircraft maintenance officer, where my job was to provide the ASW squadrons the equipment they needed to maintain their aircraft while aboard the ship. Later the Aircraft Handling Officer was transferred, and I took his place. Then, I had the hangar deck, flight deck, arresting gear, catapults, and aviation fuel.

Even though we sometimes did some carrier qualifications for pilots, our main work was working with submarines and destroyers in antisubmarine operations. They would have tests where an area, say five miles wide and twenty miles long, would be laid out where sometime in a 24-hour period the submarine had to go through that area. The pilots would lay patterns of sonobuoys and try to detect the submarine. Often times they would not find it; the sub always seemed to have the advantage, and it could be pretty discouraging. I was glad I was not an ASW pilot in those days, because the pilots would often come back from those operations very unhappy.

We would operate around the clock a lot of the time, so the Air Office sometimes asked me to work as his assistant. He did have an Assistant Air Officer, but he was a multi-engine pilot with no aircraft carrier experience and had no idea of carrier operations. He was just lost working aboard a carrier. I would fill in for the Air Officer so he could get some sleep while we were in round-the-clock air ops.

While I was aboard *Tarawa* the Lebanon conflict started in the Middle East, and the ship was given the task of helping to keep track of Soviet submarines, and their tenders, operating in the Western Atlantic. To do this, airplanes would patrol from Argentia, Newfoundland, and from Bermuda, and we got contact reports from them, which we tried to localize; operating 24 hours a day. We found that that there were a lot of Soviet ships and submarines in the area. One interesting search started about two o'clock in the morning when we saw a green flare, the carrier recalled all airborne ASW airplanes and helos to do a detailed search. They searched and searched, but never found anything. We knew there were none of our submarines around, so the contact had to be a

Soviet sub. It was another indication that ASW is very difficult. I don't remember ever running an operation against a known Soviet sub.

On the *Tarawa*, I served under two commanding officers, and that's when I decided I wanted to qualify for officer of the deck underway. But, I worked all day and the only time I could stand a watch was either the mid-watch or the 4-to-8 in the morning. This meant I was always involved in nighttime steaming - when the CO was asleep. The first skipper we had was a little short guy, mean as hell, and he was nervous. He would just be dancing around up there when we were refueling at sea, or in some other evolution like that. In fact, one time he fired all of the OODs; to each one of them he would say, "Call your relief!" He finally got to the Lieutenant Commander who made up the watch bill and got him to be the OOD. He was just an unpleasant person; it was difficult.

At night, he would leave his night orders. He would usually direct that if we were going to pass within 10,000 yards of any other ship, he was to be called. But, you were not to call him until you had worked a maneuvering board solution to determine the least amount of turn (for the whole force, because we were the flagship) to miss the contact by 10,000 yards. Just about the time you got it all figured out, another contact would show up, and so now you had to refigure; and time was going by. Then you would call the skipper. I could never figure out how he could come out, after being asleep for hours, glance at the radar, quickly look at your plot, and then say, "OK."

My second skipper on *Tarawa*, Captain Burden, was much different; he was great, and was a friendly guy. For example, when refueling at sea was going on, he would sit in his chair on the other side of the bridge from the tanker and would let the officer of the deck handle things. It was a pleasant thing to be an OOD under him. There were certain drills we would have to do from time-to-time, one of which was the man overboard drill which involved a dummy. The OOD was supposed to arrange for the drill, and throwing the dummy overboard was supposed to be a surprise to test the reaction of the crew. I had the dummy quietly and secretly thrown overboard, and then went up to the bridge to tell the captain that the dummy was in the water.

The skipper said, "Oh no, no, no, we can't turn right now!" I said, "It's too late." The ship behind us called on the radio and said, "We see somebody's man overboard dummy in the water." Our skipper made a couple of turns in an attempt to snare the dummy but missed. He finally said, "To hell with it.", and just steamed ahead. The destroyer behind us managed to pick it up and we later sent someone over to get it. The CO was completely relaxed about it. He could have said, "Why in hell didn't you tell me you were going to have a man overboard drill?" But the drill was supposed to be a surprise to everyone, and it was a surprise. He was a nice guy.

Jet Training at Olathe and Guided Missile Group-2

After being detached from *Tarawa* in 1957, I went to jet aircraft training at Olathe, Kansas. We started out in small, simple straight wing jets and, after several hours in them, moved up to faster Grumman F9F-1 and 2 straight-wing fighters. After that we transitioned to F9F-6 swept wing

fighters. The swept wing jets were much different than straight wing aircraft. With the swept wing you can not hold the nose up to "soften" your landing; because if you get slow you are going to get spanward flow of air and lose your lift. So we had to fly it down by setting up a constant angle of attack and using throttle control to control descent and maintain speed. You had to fight your instincts, and, of course, they had someone out by the runway watching and talking to you saying, "Don't pull your nose up!"; until you got used to doing it.

We went through that phase of training with F9F-sixes and eights, then I was assigned to Guided Missile Group-2, a squadron at Chincoteaque, Virginia. Here we used North American FJs, which were swept wing airplanes having electronics installed to control a Regulus missile. We also had F9F ones and twos and fives straight-wing fighters which had the same kind of guidance gear that the Regulus had. We would practice guiding those airplanes with a pilot aboard them. We would make practice runs as if to simulate an atomic bomb aboard. There would be an initial point you were to fly it to, and when you got to that, you would leave because you would want to get away from the explosion. You would time it from that initial point to the target and then you would push a button to simulate fuzing the A Bomb. The pilot in the other plane could see when you pushed the button, and could judge whether you were at the right place.

At that time, there were three ways they were planning to use the Regulus missile. It could be launched from a submarine, a cruiser, or an aircraft carrier. For aircraft carrier launch, they planned to have a missile on one catapult and an FJ controller airplane on the other. They would fire the missile and then immediately fire the FJ; and then he could control it on in to the target. The missile had two booster rockets, which threw it into the air at 250 knots to keep up with the missile. We made such launches from fields, but the program never did get around to carrier launches. We did pick up missiles fired from cruisers and submarines and control them back to a landing.

The Regulus had a short, stubby wing, which was called a "no-lift" wing. It was forced through the air, so the booster would also throw it into the air at about 250 knots. We couldn't keep up with it in the FJ until we got to about 27 to 28,000 feet, so what we would do was put a turn into the missile and try to cross it and catch up. I took a group up to Naval Air Station, Brunswick, Maine, to test aircraft detection radars against the Regulus. They wanted to know whether they could pick up the missile when it came over the horizon. They knew they could see airplanes, but the missile was very clean.

We would take the missile out to sea, where they wanted us to get out to five miles abeam of the missile and down 5, 000 feet. At that distance you could lose sight of the missile if you just glanced down into the cockpit, because your eyes would shift to shorter focus. We did have a feature on the missile where we could command smoke by putting some oil into the exhaust, causing puffs of smoke so we could find it and regain control. With that we could get out to three miles and down to three-to-four thousand feet so that the missile would come over the horizon first. We did those tests for two or three missions.

Next we were to operate with a submarine positioned up off of Nova Scotia. That was a long haul for an FJ, so we took the planes out to the end of the runway and topped off our fuel tanks. You do not have to warm up a jet engine, so I then started up and took off immediately, and two other FJs took off behind me. When we got within about 75 to 80 miles of the submarine, we would throttle back to idle and check out against the missile on the way down. We would make one turn around and tell them to fire. Then we would bring the missile in toward the radars in the Brunswick area. When the missile was detected, the Navy would send out interceptors. We did a couple of those types of flights, and it was fun. On one occasion I went out and made my turn around the submarine, and they said, "We've got a hold." I said we have no fuel for a hold and had to go back. Another group then went out and brought the missile in.

Our squadron was equipped with quite a mix of aircraft with differing missions. We even had a P2V patrol airplane which was equipped to control drones so that fighters could shoot at them. If they didn't hit them, the drone would come down in a parachute when it ran out of fuel. They gave the squadron a helicopter for drone retrieval; and I was the only helicopter pilot in the squadron, so I also had to go out and retrieve drones. I would bring them back so they could be cleaned off with fresh water and readied to fire again. Sometimes the drones would sink. When they landed in the water, the parachute would release and a loop would come up. My crewman in the HRS had a kind of fishing rod so he could hook the loop and attach a cable which hung the drone under the helo right below the center of gravity.

Once the drone was attached, I would go to full power so the drone would come up a little ways and sort of corkscrew around while the water was draining out. We just didn't have enough power to directly lift the flooded drone. (This was before we had turbine engines in helicopters.) Once we got the drone out of the water we would go on our way, and the drone got lighter all the way as more water drained out.

We usually operated out of Puerto Rico, but one time we provided target drones for fighters over at Guantanamo Bay, Cuba. This required me to fly the helicopter from Roosevelt Roads across to the other end of Puerto Rico, and then down to the Dominican Republic where I spent the night. This was when Trujiillo was in power, so they wanted to inspect my luggage and everything else I had on the helo. Then I flew through a valley to go over to Haiti, where I landed to get gas. A marine sergeant, who was stationed there, came out while we were refueling, and offered to show me around the area.

We went for a drive, and he showed me his house; where his wife showed me her ring of keys whereby every closet and cupboard in the house was kept locked. They had four or five servants, and if they ever needed anything, she would have to unlock where it was stored, take it out, give it to them, and then lock it up again They also had bars on all the windows. They had a big house and a nice staff of servants, but it must have been a terrible place to live. From there I went on over to Guantanamo where we launched some of the drones for the fighters to shoot at.

Our squadron had been operating with the subsonic Regulus-1 missile, however the next version, the Regulus-2 was much faster than the jets in our squadron, so the Regulus-2 testing program was phased over to the guided missile squadron on the west coast which had faster jets. Soon after, the Navy decided not to continue the Regulus project. Apparently more advanced missiles that did not need external human guidance were coming along. For example, later, when I was assigned to Goodyear Aircraft at Akron, Ohio, they devised a missile guidance scheme for the Air Force that used slides of photographs of all the area that the missile was to fly over. The missile would look at a slide, and if it didn't recognize the terrain, it would look at the slides before and after until it found out where it is by matching slides with what it could see below. Over water, it would obviously not be very effective.

The Radar Blimps

I had started out in Guided Missile Group-2 as safety officer, and was then maintenance officer, operations officer, and finally executive officer. Duty in the squadron was considered sea duty, so when my time came up for shore duty I was transferred to the Naval Air Systems Command Office at the Goodyear Aircraft plant at Akron, Ohio, as executive officer. We were in charge of administering the navy contracts there, as well as inspecting and accepting delivered products for the Navy. This was my first experience working with civil service people, furthermore all of the other naval officers assigned there were blimp pilots. When I got there, Goodyear was building four great big blimps that had a radar installed up in the bag for use as replacements for some of the "Texas tower" radar platforms that were moored out at sea. The blimps could go out to sea and hover at 6,000 feet on station for 72 hours.

Not being a blimp pilot, I couldn't believe that this scheme was going to work. A blimp that size was a lot to be pushing through the air, so they would go out to their station and spend their 72 hours, and it would be time to come back to Lakehurst. But, if they had an offshore breeze, they might be making only one or two knots coming back. Sometimes they could only make it back to Long Island where they would have to get a fuel truck to come up so they could drop a hose and refuel before proceeding to Lakehurst. Sometimes they could fight their way all the way to Lakehurst, but, on occasion, it would look like they were not even going to make it back to Long Island, because they were actually going backwards. They would have to go out to Bermuda, where they would spend a day or two waiting for an onshore breeze so they could get back.

They only built four of the radar blimps. One of them was deployed up to the Boston area, where there was a blimp hangar, and when they were trying to put it in the hangar a gust of wind blew it over against the door which let out the helium. The weight of the big antenna inside the envelope coming down on top of it then ruined the craft; that one was shot.

Another one operating off the New Jersey coast next met with a sad end. The blimps were built with helium cells on each end, with a center section, called a ballinade, which was filled with air. To keep it rigid you had to keep the air pressure up in the ballinade, and there was a warning horn which let the crew know if there was insufficient ballinade pressure. Someone turned the

warning horn off because he was getting sick and tired of hearing it honk. Unfortunately, once the center section starts loosing pressure the blimp starts to bend in the middle. The way the craft bent made it look to the pilot that the ship was starting to dive, so he pulled back; and it got even worse. Trying to pull up only made it bend more. The way it ended up, it went into the water, and only two people out of ten survived. Furthermore, they had to cut their way through all those layers of material to get out. That was the end of the radar blimp program. The other two they folded up and put away.

I never rode in the blimps because they would go up for twelve hours, and I was used to flying for maybe an hour or hour and a half in a jet. I wanted to ride in one, but when they tested one after they built it, they would go up over Lake Erie in the afternoon and the next afternoon they would come back. That was too much. I tried to get a ride when the last one was delivered, but they had too many people so I didn't get to go. The demise of the blimps did not shorten my shore tour because they were just a part of Goodyear's government contracts. Furthermore, we also inspected Air Force and Navy contracts not only at Goodyear, but also at Goodrich and other contractors. We had about half a dozen contract administrators who were also buying things like wheels, brakes, and tires for airplanes.

I found that working in a civilian contract administration environment with civil servants was very much different from working in a military environment. For instance our civilian contract administrators were required to go either to Washington, DC, or down to Wright Patterson Air Force Base, which was our headquarters, to get update courses on what was going on in the purchasing field. This one guy had not been to any of those courses, he always had an excuse. Of course the others had been to two or three sessions. Suddenly the others said they were not going to any more courses if this person had not been to his first one yet. So I got the civil service regulations, and started looking through them and figuring out what to do. I wrote him a letter saying your duty station next Monday is at Wright Patterson and you are expected to be there at a certain time. So he wrote me back a reply (a reply in writing was what I was hoping for) saying he is a minister and he needs to be in his home area at that time, and he just can't get away to do this. So I wrote him back saying this is your duty station, and your reason for not being there is not sufficient, so please report there next Monday.

So then what you do, according to regulations, is you lock him out; you don't let him come in. He showed up at work, but I had told the guards, "Don't let him in." They held him out there for two or three hours and then I finally let him come in; documenting the whole thing. I tried to fire him, but when I left about six months later had not been successful. I was talking to somebody about a year and a half later and found that they never did get rid of him. It just ruins everything if one person will not do the things that everybody else is doing; why should he have been an exception because he was a minister? It's just too bad.

Then there were other things. We had a RIF, a reduction in force, where you would make cuts from the last person in. But this one guy decided that he could probably take over typing the bills of lading, rather than being riffed; but we had a gal who had been doing this for years and

knew all the ropes; had all the files and everything. It's too bad, but we didn't accept his proposal. The other thing that happened there involved the Captain, who was a blimp pilot, who wanted some work done around his house. So the guy who was in charge of all of the inspectors went out and poured cement at the Captains house. When I got his time card I saw he had put in that time as government work. I showed the card to the Captain and asked if he knew what this would look like if word got out that you took a civil service person and had had him do personal work for him. I told him I wouldn't sign the card, and he wouldn't sign it either - he changed it. But those are the kind of things that happened. You really had to be careful.

Another thing: we had an inspection by the naval district to verify Goodyear's holdings of government owned equipment - of which they had signed for an awful lot. The inspectors went over to Goodyear and made their inspection, but when they came back they reported $11,000 worth of missing equipment. Their recommendation was for us to hire another inspector. I said, "Now wait a minute, four years have gone by since you inspected here before, and only $11,000 worth of things are missing. Can you tell me where I am going to hire somebody for less than that to find four years worth of missing equipment?" They said, "Oh no, that's not our job. All we have to do is inspect and see if something is missing and make a recommendation." You couldn't reason with them, they came to inspect, and they had to report something bad.

On Kwajalein

After Akron, in 1962 I received orders to the Pacific Missile Range's facility on Kwajalein Island in the middle of the Pacific. The headquarters of the missile range was at Point Mugu in California, and Admiral Clark was the commander, reporting to the Naval Air Systems Command. What I didn't know until I got orders there was that the Army had picked the range as their place to do anti-missile missile testing; intercepting missiles launched from the West Coast. The Army had procured some Atlas missiles from the Air Force which were to be fired from Vandenburg Air Force Base, and they were developing two interceptor missiles. One of them was a long range missile, the Nike Zeus, that would intercept [a ballistic missile] out a ways, and the other one was short range, the Sprint.

The first stage of the ballistic missile just gets it up and moving, the second stage accelerates it almost out of the atmosphere, and the third stage makes the final adjustments so that it will impact where you want it to impact. The safety guy has a rectangle drawn around that impact point in his computer so that if the missile touches the sides or top or bottom of that rectangle, it will then blow. That assures it is going to impact where they want it to. Of course different ballistic missiles have different ways of spitting out reentry vehicles and such. Spitting things out from this third stage sends debris around; springs and that kind of stuff.

Down at the other end, looking at it with the radar, and depending on the frequency of the radar, it might look like a thousand pieces coming at you. But they want you to narrow it down to a few that they can target; and that's what we were trying to do. The Army had discrimination radar, tracking radar, and all kinds of other things that they had built there on the island. So about half the

island was technical, and none of the dependents were allowed in that end. The island was about half a mile wide and three and one half miles long.

Captain Paul Holmberg was the navy commanding officer at Kwajalein, and he was really impressive. He had relieved a captain who, both himself and his wife, were alcoholics, and who had let the command get in bad shape. For instance, the command had a contract for logistics with Transport Company of Texas for gasoline and fuel oil, where TCT's manager was a retired admiral. So, with the approval of the previous CO, this retired admiral had moved into the island's vacant quarters. One of Captain Holmberg's first jobs was to throw the retired admiral out of his quarters. He really put things together again after too many people had been getting away with too darned much with this guy who allowed them do anything. He was really a great leader. He died some ten or twelve years ago, and I lost contact with his family. They were very nice people.

I was the range operations officer when I got there, so I was responsible for ground safety, and such, and also dealing between the Navy there and Point Mugu. Of course the Army had their people who were making all the missiles, but we had a Navy commander who was the range safety officer. He was to see that what they were planning to do was acceptable to us. There were 5,000 people on the island, including 2000 bachelors who lived in bachelor quarters, and there were a lot of trailers in the married living areas. My problem, as the ground safety officer, concerned the requirement that on any of these interceptor missions, because the ballistic missile was going to be coming in close, the people had to be under four inches of concrete.

I guess the four inches was selected because that's how the houses had been built during the period of atomic tests. So the people in the trailers had to go to the Officers Club or to somebody's house or something like that. We had police going up and down the island with sirens to get people out. Some people would just turn their lights off, I think; but our responsibility was to get them out of there. Sometimes range safety could be difficult.

When the atlas missiles hit the atmosphere all the debris eventually burnt up before impact, so the only thing that came out of that was the reentry vehicle, but it was coming in at 15 or 16,000 miles an hour. So it was going very fast. As I mentioned, the Army was developing two different interceptors, the long distance one was on our island, and they put the other short range one on another island, fortunately, because it had to take off out of there at a very high speed. You would wait until all of the incoming missile debris had been filtered out, and now you should just have the reentry vehicle; but the interceptor had to travel very fast. Therefore it, the Sprint, missile, was up on another island so our range instrumentation could get a better look at it. When running at a Sprint test, you couldn't tell whether you had an explosion on the pad or a successful intercept until you took the data, slowed the action down, and looked at it. I recall that the first mission was successful, and after that there were four missions that were unsuccessful, so missile defense is a very difficult problem.

I remember one firing where the Atlas, after it went out of the atmosphere, exploded, so when it came in down here, from horizon to horizon there was nothing but burning debris. Nobody

knows where that went. The Army wanted to demonstrate various kinds of ballistic missile trajectories, the early ones were going past the end of the island. Later they started firing them into the lagoon half way up the atoll. Then they could really see where they impacted - with greater accuracy.

The Air Force also did a lot of testing. They had missiles in the ground in North Dakota, Montana, Idaho, and all throughout the west, but those missiles had been in the ground, in some cases, for thirty years. So what they tried to do every year was to fire about eight of them; where they randomly took a missile, had the crew prepare it, ship it out to Vandenburg, and launch it. So that was their training. There were also all kinds of other missiles coming in there that were used for other purposes. For example, MIT was studying reentry physics, trying to see how they could narrow down the bunch of debris coming from a missile to the few important objects by the way they act when they hit the atmosphere.

There were very few military personnel on Kwajalein, most were civilians. The only military operations we had were communications and search and rescue. This took about eight Navy people, including the captain and executive officer, and one navy civil servant. We had search and rescue responsibility for a large part of the Pacific, including Wake Island where we kept a separate search and rescue crew with a seaplane. We had a contract for logistics including power and water, and another contract with Kentron for technical support including range cameras, telemetry, and other range instrumentation.

We didn't have the best relations in the world with the Army, because one of their missions was to fire their interceptor missile and have it double back across the island. The interceptor was a two-stage missile, and the first stage dropped back on the island between the taxiway and the runway. I wanted to take that piece of "junk" and put it up on the porch of the store with a sign saying, "This is what could get you. You really need to get out of those trailers!" The Army said, "Oh that's top secret." They would not let me demonstrate why we needed safety; it was a difficult problem.

I had been ordered to Kwajalein as executive officer, but the executive officer already there was senior to me. There was a rule that the tour of duty was a year if you were not accompanied, and it was a year and a half if you were. What he had done was sometime after he was there for a while, he decided he liked it and brought his family out. Therefore he extended for six more months, and that's why I was range operations officer for six months and than moved up to executive officer.

We had some big Grumman SA-16 amphibian airplanes in which I got my flight time. I wasn't happy about it because they were so big and cumbersome. But of course I got to fly out to some of the other islands where we landed in the water because we had responsibility for sending doctors out to serve the natives on various atolls where they were having problems. Once in a while they would have some disease, which they probably got from us. For example, they had a

whooping cough epidemic down on one of the islands, and I took some doctors down to treat them. It was little kids who were just not immune to it, and some of them died.

We also had a polio epidemic while I was there that started with the people who lived across the street from me. They were a Navy family who had moved from someplace in Texas where there was apparently a lot of polio. They had a child who was about a year and a half or two years old and who was carrying the disease. The maids came over to our island from other islands, and they would bring their kids and let them play outside while they were working. This particular child played outside with one of the maids' children, and suddenly over on the maids' island there was some sickness that nobody could identify, and it was spreading. I asked the doctor there on Kwajalein what he thought it was, and he thought it was some kind of disease that imitates other diseases. But they did sent a sample to Georgia, to the communicable disease center there.

There were also Trust Territory boats that would go out to all the other islands, and there were two serving our nearby native islands. All of a sudden they started hearing about sicknesses at other islands, and then we got the word back from Georgia that it was polio. So we got a bunch of doctors down there from Hawaii, and took them out, starting with the boats and checking everybody on them, and then tracing it back. The disease did not seem to handicap the children to a great extent, and it was strange that there was no kid over nine years old who contracted the disease. Then somebody remembered that about nine years ago there was a sickness on the islands that was never identified, even though they studied it; and it was apparently polio. Things like that happened, and we had to deal with it somehow.

I found the duty reasonably pleasant, and it was so interesting to be with this whole new world of missiles and such; I had no idea that this kind of development was going on. So, I learned a lot, and it was an interesting tour. But it was a small island and you would like to get off maybe every six months and go up to Hawaii or someplace like that, and that's what a lot of people did. For example, for the one Christmas we lived there, I called up to Hawaii to the Navy Transport Command who made flights to the Western Pacific, either coming through Wake Island or Kwajalein on their way out to the Far East.

I asked if they could come through Kwajalein around a particular date and take us on out to the Far East. So we went out to the Philippines, and then flew commercial over to Hong Kong, and my three kids and I spent Christmas there. To get back we flew to Clark Air Force Base in the Philippines, and then we had to fly back to Hawaii, and then fly on Military Airlift Command back down to Kwajalein. The trip was great, and a needed break because Kwajalein was just like living in a small town; a lot of people and a lot of rumors.

After that I became commanding officer; and having three kids in school, I learned more from my older kids than I learned from security as to what went on the night before. I got a report every morning, and it was usually a different story than what security received. It was a partying place; there were parties all the time. There was Bell Labs, Western Electric, of course the Army,

and Kentron; and all of these organizations had to have a party for everybody whenever their boss or some other important visitor came by.

The Navigation Satellites

I replaced Holmberg as commanding officer. He was an Aeronautical Engineering Duty Officer, and when he left, he went to the Naval Air Systems Command where he made admiral. Then, when my tour on Kwajalein was up, my orders were also to NAVAIR where I was assigned to the Space and Astronautics Division. I had enjoyed working with the missiles, but it was even more fun when I took over the division's Measurement Group. Our main work was research and development of a navigational satellite system. The Applied Physics Laboratory built our navigational satellites, and we had a Naval Astronautics Group on a mountain top out in California. Each day as the satellites came across, the Astronautics Group updated their memories.

The satellite worked by telling its users where it had been two, four, and six minutes ago, and where it predicted it would be two and four minutes in the future. Shore and shipboard receivers, using special computers, could then determine their positions from knowing the satellite's positions. The main users were ballistic missile submarines. They had a SINS [Ship's Inertial Navigation System] but it would gradually drift so every eight hours they would send an antenna up and get a fix from the navigation satellite to update their SINS. A separate operational command actually operated the satellite navigation system, but we supported them with research and development and by building more satellites if we lost one or if one was running out of power.

We kept eight satellites in orbit. Initially we launched them out of Florida, but they had to make a "dog leg" to get to orbit entry point 600 miles above the south pole for their polar orbits. We used polar orbits to get full coverage of the earth, from pole to pole, and eight satellites gave us a satellite every 45 degrees of longitude. To get the desired satellite separation in longitude you timed the firing of your insertion rocket so that the earth would have rotated to the right position to give you the orbit you wanted. I never completely understood exactly how it works, but I was not alone. In fact this guy from MacDonald Douglas called us one time and asked to come in because he had a new idea for a navigation satellite. He came in and showed us how he would place them, and how the system would work, but I had a GS-15 who said, "You can't do that." The contractor asked, "Why can't I?", and my engineer replied, "You didn't take into consideration that the earth is rotating." The contractor said, "Oh", and left.

Later we started launching out of Vandenburg Air Force Base where they could be fired straight south, so it didn't take as much power to get into orbit. When the satellite got back up over this area, where APL could control it, they would reel out what we called gravity gradient stabilization - which was a weight out on the end of a cord. Gravity kept the weight pulled toward the earth, so that the antenna on the satellite pointed toward the earth all the time as it goes around. We had some times when the satellite was moving around a little bit and the stabilization would capture it upside down, but we could reel it back in and then do it the right way.

We also had a contract with the Naval Research Laboratory to work on satellite navigation for aircraft. We tried a system with an atomic clock in the satellite and an atomic clock in the aircraft. By measuring the amount of time it took for a signal to get from the satellite to a user, it would give you a circle on the earth, and if you have another satellite, you narrow it down to two points, and so forth. But suddenly they told us about the Global Positioning System, and we were told not to do any more of that research because the Air Force had GPS coming along. We did get one of our test satellites in orbit by putting it on a secret satellite that NRL was building for the Air Force, and that had enough room for our device. We had the Applied Physics Lab build it and the Research Lab installed it.

One thing I found from working in Washington was that, as a commander, you are not at the top of the heap. Other than that there was the bureaucracy! You had a captain that was the division head, so you presented an idea to him. And then you would present it to the admiral over that division; then you would present it to the Commander, Naval Air Systems Command. After that you would go over to the Chief of Naval Material and present it there, and then finally you would get over to the Pentagon. Anywhere along the line people could say "no", and nobody says "yes."

Then anytime somebody said, "No, you shouldn't do it because of this;" then you had to go back and start over. Then, you are doing five year plans, when you don't even know what is going to happen in two years, let alone five years. We did have exploratory development money, and that really helped because we could do these things like the experimental device with the Naval Research Lab. We got enough money to build a small satellite and could fund putting it into the Air Force missile with their satellite.

Of course then the inspectors from the Congressional General Accounting Office came over and asked, "Who gave you permission to put something in space?" I said, "I didn't get permission from anybody. The Air Force got permission for launching their satellite down there." They asked where I got permission to use the money for that. I said, "From my division head. Certainly, he knows." They replied, "Well you had to have permission from somebody." I asked, "From Who!" They left and came back another time, but they finally gave up. But we did get some good things done. The Washington tour was my final Navy tour, and I took part in a group retirement ceremony.

Back to Kwajalein

When I retired from the Navy in 1968, the Naval Research Laboratory offered me a job, but I found that, as a retired regular naval officer, the law didn't even allow me to work for them for six months after I retired. I did tell my NRL contact to give me a call in six months, which he did. But, I was already far along with other employment by that time. I also talked to Kentron, who had been our technical support contractor down on Kwajalein, and found they were doing some work on Kauai for which they needed a manager; and I sent a job application to them, but I ended up going to work for Lincoln Laboratory.

When I was on Kwajalein, MIT's Lincoln Laboratory operated a radar for the Advanced Research Projects Agency on Roi-Namur Island which is 40 miles north of Kwajalein Island. What they wanted to do was just ride along on our testing and take data on whatever missions were coming in there. They were trying to learn how to identify a reentry vehicle while it was surrounded by incoming missile debris. I had a very good friend, who lived across the street from me on Kwajalein, who worked for them, and he invited me up a number of times. I also took visitors up there, so I knew what they were doing, and I knew the people who worked there; and I liked them. They were really nice people. So when I retired I also sent an employment application to Lincoln Lab.

I went to work for Lincoln Lab at MIT because I knew that they were going to need a manager out in Hawaii a year later. The facility in Hawaii operated a KC-135 jet transport equipped with an array of optical instruments and telescopes pointed out through windows on one side of the aircraft, and its mission was to record the reentry of ballistic missiles. I spent my year at MIT, and anytime there was a mission using their specially equipped airplane in the Pacific, I flew out to Hawaii and went with them. This was to get familiar with the operation because I was going to be their mission director when I moved out there. Whenever I went, I had to figure out where to put the airplane to gather the data we wanted, in order that I could tell the navigators. We not only went down to Kwajalein, but would also go other places. For example when the Soviets closed an area of the Pacific, we knew they were going to fire a missile into the area, so we would fly the MIT plane near the area to gather data on the missile.

The intelligence people could tell us within plus or minus two minutes when the missile was going to be launched, but we had no automatic way of knowing where to point our optical instrumentation to catch the missile. For example, down on Kwajalein we had a data link from the radars that pointed our optical instruments at the target missile. In the airplane we just had to make the best guesses. One time when a missile was coming in we did have one optical device that we had just turned on, looking out through a window, and pointing right so we got a good shot of the trajectory. There were 18 of us on the airplane and nobody saw the missile, but luckily we had made a record of it.

We found that when we were looking for a missile in an empty sky that our eyes tended to focus too close in, and we wouldn't see the missiles. We found a study done with fighter pilots in the Korean War, where they noted one pilot who was shooting down most of the MiGs. They found what he was doing was looking at a distant cloud and then scanning beyond it. He had figured out some way of pulling his eye focus further out.

I worked in Hawaii for Lincoln Labs for four years, and then went back to their main laboratory in Lexington, Massachusetts, for the next 15 years until 1987 when I retired at the age of 65. Then I stayed on as a consultant; working two days a week for a year and a half, and then one day a week for another year and a half. I fully retired in 1990, and lived at our home in Acton, Massachusetts, until 1993 when my wife died. Then I moved to Timberlake Plantation near Lake Murray in South Carolina, but later moved to Annapolis, Maryland, to be near a son who lives

Stevensville, Maryland, and a Daughter who lives in Annapolis, Maryland. I also have a daughter and her family in Hawaii and a daughter and her family in Massachusetts.

Reflections

When I reflect on my time in the Navy, I am most impressed by the commanding officers I served under. It seems each had his own way of doing things, which you had to learn, but it also seems that every one of them left something new and better. This seems to be the case not only in the Navy, but also in my later civilian work. When I was assistant manager out on Kwajalein, there were three different managers while I was there, and each one of them brought something that caused us to do things better. I would often think, "Gee why didn't we do this before?"

I am happy that I have had as many experiences as I have had. I think I have done a lot of fun things, really. So many times, things you think you are not going to like, turns out to be your best experience. Like when I got orders to Kwajalein (And, I had already seen Kwajalein when there was only one tree on the whole island), I went down to Washington to try to get my orders changed. The guy there said, oh no, it's altogether different now, they have brought in trees, and fixed it all up. It's a real nice island, and the Army is going to do this interesting testing. It was the best thing that could have happened to me at that point in my career. So you never know what is going to be good for you. And, I have had fun doing it.

I tell my kids that you have to find a job that you really like. Every morning you should say I have got to get to work, I have things that I have to do today. Not, gee I don't want to go today. I can't imagine being on a production line doing the same thing every day; that's not for me. I also think being in a Navy family had a positive effect on my family. I think every time we moved the family would come back together because they didn't have any other friends; and you don't either at the new place. All of a sudden you are a close knit family again; then the family spreads out again with their new friends. I think it is good, really. It depends on the people too I think.

After 47 wonderful years, my wife died in 1993. My family has stayed close ever since. Last year nine of my ten grandchildren and all four of my kids and I went out to Hawaii together for Christmas. I rented a five-bedroom house, and I have a daughter who lives there. We had a great time. In fact my daughter who lives up in Massachusetts is talking about going out again; so we may have started something. I think we are a pretty close family. We always have been. I am close to my one daughter and my son here [in Annapolis]. I don't want to interfere with their lives, but I want to see them. My daughter works at the Department of Natural Resources so I have lunch with her every Wednesday, and that's nice. I volunteer at the Department of Natural Resources that day. Also, my son comes by often.