

In reply address not the signer of this letter, but Bureau of Naval Personnel, Navy Department, Washington 25, D. C.

Refer to No.

Pers-10  
72354/hjm

NAVY DEPARTMENT  
BUREAU OF NAVAL PERSONNEL  
WASHINGTON 25, D. C.



14 January 1947

To: Captain Frederick L. Ashworth, USN,  
Office of the Chief of Naval Operations (OP-36D),  
Navy Department,  
Washington 25, D. C.

Subject: Permanent Citation -- Bronze Star Medal.

1. The Chief of Naval Personnel takes pleasure in forwarding herewith the permanent citation for the subject decoration which was previously awarded to you on a temporary citation.
2. The records of the Bureau indicate that you have received the decoration for this award.

By direction of Chief of Naval Personnel:

*L. C. Thompson*  
Assistant to Director,  
Medals and Awards.

Encl:

1. Permanent Citation.

FIRST ENDORSEMENT on  
Pers-10 72354/hjm of  
14 January 1947

16 January 1947

From: Rear Admiral W. S. Parsons  
To: Captain Frederick L. Ashworth

1. Forwarded with congratulations.

*W. S. Parsons* 706  
W. S. PARSONS

## United States Pacific Fleet

### Flagship of the Commander-in-Chief



In the name of the President of the United States, the Commander in Chief, United States Pacific Fleet, takes pleasure in presenting the BRONZE STAR MEDAL to

COMMANDER FREDERICK L. ASHWORTH, UNITED STATES NAVY

for service as set forth in the following

CITATION:

"For meritorious achievement in the performance of outstanding service as Aviation Officer on the Staff of an Amphibious Force Commander from September 1943 to June 1944. Due to his intelligence, industry and outstanding efficiency he aided materially in the planning and execution of several major amphibious operations. His excellent performance of duty while serving on the Staff of the Commander Joint Expeditionary Force in two operations, have been highly commendable and of great value to the Joint Expeditionary Force Commander. His outstanding service and conduct throughout were in keeping with the highest traditions of the naval service."

  
C. W. NIMITZ,  
Admiral, U. S. Navy.

Temporary Citation

THE SECRETARY OF THE NAVY  
WASHINGTON

The President of the United States takes pleasure  
in presenting the BRONZE STAR MEDAL to

CAPTAIN FREDERICK LINCOLN ASHWORTH  
UNITED STATES NAVY

for service as set forth in the following

CITATION:

"For meritorious achievement while serving as Aviation Officer of the Staff of an Amphibious Force Commander, and on the Staff of the Commander Joint Expeditionary Force from September 1943, to June 1944. Applying astute judgment and professional ability to the planning and executing of several major amphibious operations, Captain (then Commander) Ashworth rendered outstanding service to his commanding officer in solving the numerous tactical and strategic problems encountered during a bitterly fought campaign. By his tireless efforts and extensive knowledge of military operations, he was instrumental in achieving success against a tenacious enemy, thereby reflecting great credit upon the United States Naval Service."

For the President,

*James Forrestal*  
Secretary of the Navy

## CHAPTER ELEVEN

### MANHATTAN PROJECT ASSISTANT TO HEAD OF ENGINEERING, LOS ALAMOS PROJECT ALBERTA, TINIAN ISLAND November 1944 - September 1945

FLA: I flew to the Naval Air Station at Anacostia, reported to operations and was told that there was a station wagon waiting. I was driven to the National Academy of Sciences on Constitution Avenue and was conducted to the office of Dr. Richard Tolman. There I was introduced to a young civilian by the name of Norman Ramsey, probably in his late 20s or early 30s, whom, I found out later, was a Ph.D. physicist. I introduced myself and it was clear that I was expected. We chatted about generalities for a while, and finally he said that Captain Deak Parsons wanted to see me and that he would be there in about 20 minutes. I had known him casually in the past, because he too was a member of the “Gun Club”, that I had so recently joined. I also knew him by reputation as one of the outstanding ordnance experts the Navy ever had. He had been in the class of 1922 at the Naval Academy and had a magnificent reputation as a naval officer.



*William S. “Deak” Parsons*

After a few minutes the Captain arrived, and when we finished the formalities, he said, “You are down at Dahlgren, aren’t you?” I said yes, and he asked me how I liked it. I said that it was fine, but I didn’t think that I was doing anything there for the war effort. Then he said, “How would you like a job working with the Army B-29s?” I don’t know how you answer that kind of a question besides saying, “Yes, sir. That would be very good.” So he told me to stay over for the night and the next morning, Saturday by the way, go to the Bureau of Personnel to pick up my orders. He didn’t tell me where they were to send me.

I bedded down for the night in the isolation ward of the dispensary at the Naval Air Station --- there were no BOQ accommodations there at the time --- and the next morning I managed some kind of a ride over to Arlington to the Bureau of Naval Personnel. Strangely, they were waiting for me, and my orders were all ready for me. I suspect that this was my first exposure to the way things were done in the Manhattan Project. My orders read that I was to go to the Army Air Base, Wendover, Utah.

Wendover? Where had I heard of that place before? Then it struck me that during the long trek to the West Coast and back that I had taken as a child with my parents, I remembered traveling across the Great Salt Desert from Salt Lake City and arriving late in the afternoon at a small town called Wendover on the edge of the desert. We had camped there on the edge of town for the night. I wished that I could remember more about the place so that I would have an idea what we were about to get into.

So, Saturday morning I flew back to Dahlgren and told my wife that I was to leave immediately for someplace in Utah, and that it was a change of duty orders. She knew what that meant and that her suspicion that she should start packing was confirmed. The problem was that I had no information about housing availability or what other facilities might be there. With two small children, this made a difference. I told my wife to just sit tight until I knew more about what was going on and I left Monday morning for Salt Lake City.

I was met at the Salt Lake City airport just as if I was somebody important, and we drove 125 miles west. The first town we reached after crossing the desert was Wendover, which turned out to be on the Utah/Nevada line. I found out later that the State Line Hotel was built on the state line and the casino was, of course, on the Nevada side.

It doesn't take much imagination to figure out what the place looked like. "Drab" is one word. There were a few houses that appeared to be of the concrete pre-fab variety, and if there was a center of town, commercial, it wasn't immediately obvious. Needless to say, I wasn't particularly impressed and couldn't see my wife and two kids living there. But orders were orders.

PS: Did Parsons give you any inkling what this was all about?

FLA: No, absolutely nothing except that I was to be involved with the Army Air Forces in some capacity. However, this was to come shortly after I arrived. Even before I had presented my orders to the Base Commander, Dr. Norman Ramsey, the same whom I had seen in Washington, found me at the BOQ and was himself driving an Army staff car. He asked me to get in, and we drove into an enclosed security area and out into the desert a few hundred yards. After a few pleasantries he told me that there was being developed an atom bomb and that I would be working in some aspects of the development of the bomb. He told me, "We know that you have a wife and two children, and the intent is that you will live here in Wendover."

I had a chance in the next couple of days to look around more closely in the town and really couldn't see my wife and a three year old and an 18-months old baby living in the place. It was miserable. I concluded that there was a good reason why I was to be there, but I couldn't find anything good about the place.

When I had a chance, I told Ramsey that I was not very happy with the prospects of living in Wendover and asked him if there was any alternative. He told me, "There will be a flight down to our base in New Mexico in a couple of days. Maybe you should go down there and see if there could be worked out some alternative. Talk it over with Captain Parsons." That was the first I knew that Parsons was in on this thing too, in some responsible position.

So I boarded a C- something or other in the army designating system, a Curtis two-engine transport similar to the famous C-47, together with several civilians. We arrived at Kirtland Air

Base in Albuquerque. We all got into Army staff cars and headed out. After about an hour and a half driving, including a climb up into the mountains north of Santa Fe, we passed through a security gate manned by well-armed soldiers. We had arrived at Los Alamos.

I learned that Parsons was head of the engineering division for the bomb development, but was more a deputy to the Laboratory Director, J. Robert Oppenheimer. This didn't surprise me, for I could see that here he was again using his vast knowledge of ordnance engineering. He welcomed me warmly, and when I had a chance, I told him that I didn't want to have to send my family to Wendover and hoped that I might be permitted to move to Los Alamos. Even that wasn't all that much of a choice then, but it certainly offered much more for my family than Wendover. Captain Parsons said, "Maybe we can get you quarters in 'bathtub row'".

PS: That's a strange way to designate a housing area. What's that all about?

FLA: You probably remember that the Los Alamos Boys Ranch School was taken over by the government to become the atom bomb development laboratory. Instructors at the school had lived in a row of log cabin-type homes, six of them I think. They were the only homes at the school that had bathtubs installed. The top people in the laboratory were now living in these structures. One was vacant. That was an enticing prospect, but I had no illusions that I would ever end up there. Close by was a large wooden-log-type building called Fuller Lodge which I suspect had been the school "commons", and a short way distant was another similar building called "Big House" which had been the dormitory for the school students. Now, just below "Big House" were erected about 600 pre-fabricated plywood square buildings for housing some of the rest of the lab employees.

After a renowned physicist arrived at the lab, taking the vacancy on bathtub row, I ended up among the 600 plywood boxes, which, after all, was quite appropriate. Since these were designated government housing for the military, I forfeited my \$125.00 per month rental allowance for a house identical to my neighbor's, for which he was paying \$35.00. At the least, I wasn't to live in Wendover!

I returned to Dahlgren where I found that my wife was already busy packing up our things. Everything was sent to P.O. Box 1663, Santa Fe, New Mexico. Not only this sort of thing, but all people assigned to the Laboratory checked through with a delightful lady, Dorothy McKibben, who arranged for their passage for the first time through the security gate at Los Alamos.

PS: Did you have to undergo any additional security clearance reviews on this?

FLA: I suppose that I must have, but I don't recall it. I didn't have any special clearance at Dahlgren, so I suspect that as soon as my name went into the pot, the FBI went to work to find out who I was. You will recall, I'm sure, the tight security demanded by General Groves for the entire project. I do remember that after we arrived "on the hill" our two kids, age 18 months and three years, were fingerprinted.

We set out from Dahlgren by automobile for Los Alamos. We arrived in Tucumcari around noon on Thanksgiving Day, 1944, where we stopped in a crummy little café for Thanksgiving dinner, and then proceeded to Los Alamos, arriving about 5:00 in the afternoon.

The security gate had been alerted to our arrival, and we were passed through after establishing our identities. It is interesting to note that, as far as I was ever able to find out, everyone, including the most notorious scientists, were all required to go through Dorothy McKibben upon their first arrival, for clearance to the laboratory. We must have been one of the very few who failed to do so, mostly because I had never heard of the procedure.

There was a cocktail party going on in Captain Parsons's quarters when we arrived, and we were expected to attend. Arrangements had been made for a sitter for the children. This turned out to be somewhat of a disaster for it started out with martinis, which at that altitude, 7,500 feet, had pernicious effects, and didn't contribute anything good for us at the square dance following the cocktail party. I was taken in tow by the wife of a European scientist, and I mean in tow, for I knew absolutely nothing about square dancing. My wife ended up with a professional with whom she seemed to get along very well, even though she too had no experience in the sport. All in all, it was quite an arrival on this new job.

PS: War is hell!

FLA: War is hell, indeed.

PS: Did the people at Bureau of Personnel give you any explanation on why you were specifically chosen for this assignment?

FLA: No. I think it is safe to say that they didn't have the slightest idea what it was all about. I am sure that they had been told to write orders on me, and ask no questions. But there are a couple of things that bear on this which I learned sometime later.

Captain Parsons and Norman Ramsey, who would later be in charge of the Los Alamos scientists who went over to Tinian for the bomb combat operations, decided that help was needed with the laboratory work that was going on at Wendover, where I had first arrived. Each week a program of bomb-component testing was carried out there, and someone was needed to run interference with the Base Commander, and "supervise and coordinate" these testing programs. I have often thought that these scientists and engineers from Los Alamos didn't need much "supervision and coordination" by a new Commander, U.S. Navy. I was, however, able to successfully, I think, keep things running fairly smoothly with the airbase people.

What is more important here is that I believe that General Groves was already looking ahead to the time when these bombs would be delivered on the enemy. It became clear later that he wanted someone in the bombing aircraft reporting to him who had been exposed to the bomb development and therefore would be able to make good technical and tactical decisions should such be needed. He had one obvious person in mind I am sure, Captain Parsons, and since he always insisted on having a spare for everything, he needed another. It turned out that I was to be it.

I learned sometime after the war that General Groves had placed a requirement on the Army and the Navy for the assignment to the project of a regular officer, a service academy graduate, an ex-football player, preferably a quarterback, (he had been a second- or third-string quarterback at West Point) who had some training in ordnance engineering and had been recently in air combat operations. The Army nominated no one. Admiral Schoeffel, who was Admiral King's Operations Officer in King's headquarters in Washington, nominated me. Of course he started by looking down the register for names of officers who fit these requirements, and who had a number after their name showing that they had completed the ordnance engineering postgraduate training. So, after all, my stint in the Postgraduate School, no matter how strenuous, was paying off for me already.

PS: So your availability was probably...

FLA: Yes, I was certainly available at Dahlgren. But to go back a little bit, recall that Captain Hedrick, the Commanding Officer, told me to go to Washington one Friday afternoon and that he had no notion of what it was all about? I am sure that the Captain was totally aware that someone was stealing his officers, and probably he chafed under the fact that he didn't have any idea where they were going or what they would be doing. So my mysterious disappearance should have come as no surprise to him as he had lost several people before. One was Commander Norris Bradbury, U.S. Naval Reserve, an explosive expert, who, after the war, became the Los Alamos laboratory technical director.

PS: You have referred to testing bomb components. What exactly does that imply?

FLA: I guess that to give you an intelligible answer to that question I have to talk just a bit about the bomb design.

First, from the start, there was not much question whether the Uranium<sup>235</sup> Little Boy bomb used on Hiroshima would work. It was a straightforward question of driving two pieces of U<sup>235</sup> together in a gun, at the proper speed, and under the proper conditions to cause the resulting mass to go critical. A fuse would be required to fire the propellant charge at the desired altitude.

Not so with the Plutonium bomb dropped on Nagasaki. It was found that the normal neutron background of Plutonium was so high that to try to assemble two pieces in a gun would require totally impractical muzzle velocities in the gun to keep the material from fissioning before the optimum time. A different system to accomplish criticality would be required. This was a major and difficult development problem that required the laboratory effort right up to the last moment, literally, before the bomb would be used operationally. There were many "bomb components" that would have to be designed and tested. Much of the testing of these components was to be done at Wendover when the services of a B-29 would be required. The altitude-seeking fuses would be identical for each bomb, but those had to be calibrated to "gate", or close the circuits, at the desired altitude.

Each weekend a program of "component testing" to be carried out the next week at Wendover would be worked up at Los Alamos. The scientists and engineers who would conduct these tests would fly from Albuquerque to Wendover on Monday morning, spend the week

running the tests, and return to Albuquerque and the laboratory on Friday afternoon to prepare for the next week's tests. I would go with them to assist by "supervising and coordinating" their work.

I am forced at this point to tell about a phone conversation that I had a year or two ago with one Bob Henderson, now living in Albuquerque, and who was the engineer in charge of the engineering aspect of the Fat Man Plutonium bomb design and development and involved in detail with the Wendover testing operations. He said, "You know Dick, when we were at Wendover, we wondered what in the world your job was on the project." So you see what I mean, don't you?

PS: Were you given a crash course in nuclear physics soon after you got there?

FLA: No. No, I wasn't given a crash course in anything. I was fortunate, however, that Captain Parsons arranged for me to have a desk in his office whenever I was at Los Alamos. I put it that way, because I was away from the laboratory more than I was there. Thus, I was able to listen in on many important technical discussions between the Captain and his associates in the laboratory. Also, I was permitted to attend the so-called colloquia that were held each week to discuss the week's technical problems and develop fixes for them. I wasn't able to absorb much of what went on, but it was fascinating to watch Oppenheimer lead these meetings. When a problem was raised and seemed to get bogged down trying to find a solution, Oppenheimer would get out of his chair, go to the blackboard --- all laboratory offices had blackboards. He would ask if this had been tried, and he would proceed to formulate a procedure with sketches and equations that he thought would do the trick. More often than not, the reaction would be, "No, I haven't thought of that". Oppenheimer was definitely the technical leader of the laboratory.

These colloquia would always be attended by the top scientific people in the lab. I recall seeing Nils Bohr, code name "Mr. Baker", Wigner, Weiskoph, Hans Bethe, Rabi, --- many either were or would be Nobel Laureates. If my memory serves me, there were six Nobel Laureates at the laboratory during the bomb research and development. It is probably of interest that I learned later that the average age of the scientists in the laboratory was 29.

So, no, I didn't get any formal education as far as the physics of things were concerned, and couldn't have understood it anyway. But I did learn a lot just by being around. Listening to a lot of this, you begin to understand what they were trying to do. And when it came to the mechanical and engineering stuff, I was better able to know what it was all about.

As a matter of interest, Captain Parsons once told me that he believed that he had gotten the equivalent of a Ph.D. in physics from his association with the scientists in the lab. He had the intellectual apparatus to absorb it.

It is probably worth commenting again on the matter of General Groves's requirement for the officer that turned out to be me. I am sure that he was looking way ahead to the day when the bombs would be put in operation against the enemy, whether Germany or Japan. Yes, Germany was certainly contemplated as a target, but she was defeated before the bomb would be ready. He was certain that he would require a member of the crew of the bomb-carrying aircraft who had at least a general background on the bomb's technical characteristics so that proper decisions

could be made should they be required. And, as I mentioned before, Groves always wanted spares for everything. I would be Parsons's spare, and the time that I would spend at the laboratory would give me the knowledge that he thought would be necessary.

PS: And he needed somebody with a pragmatic approach that these guys in the lab didn't have.

FLA: Yes, to a certain extent, but more important was the fact that the aircraft crews that would man these aircraft in the combat operations simply did not have, and were never exposed to, the technical aspects that would be required for the job as he, General Groves, saw it. Up until the night of the pre-flight briefing for the Hiroshima operation, no one in the 509th Bomb Group had any knowledge of the ultimate mission of the group, except Paul Tibbets, a 29-year-old Army Air Forces Colonel in command of the bomb group, and he had very little, if any, technical knowledge of the bomb design and how it worked.

In this regard, it is worth pointing out that, as a result of this lack of technical familiarity with the operation, much of the talk and propaganda, if I may use the word, being published these days that is based upon interviews with the Air Force people who were involved solely in the flying aspects of the operations, frequently is technically incorrect. This is not a criticism; it is just a fact, and I have seen many instances of this.

PS: You have touched on some general thoughts about the design of the two bombs, but it is confusing to me why there were two bombs and why, what I understand to be the less efficient Little Boy Uranium bomb was used first.

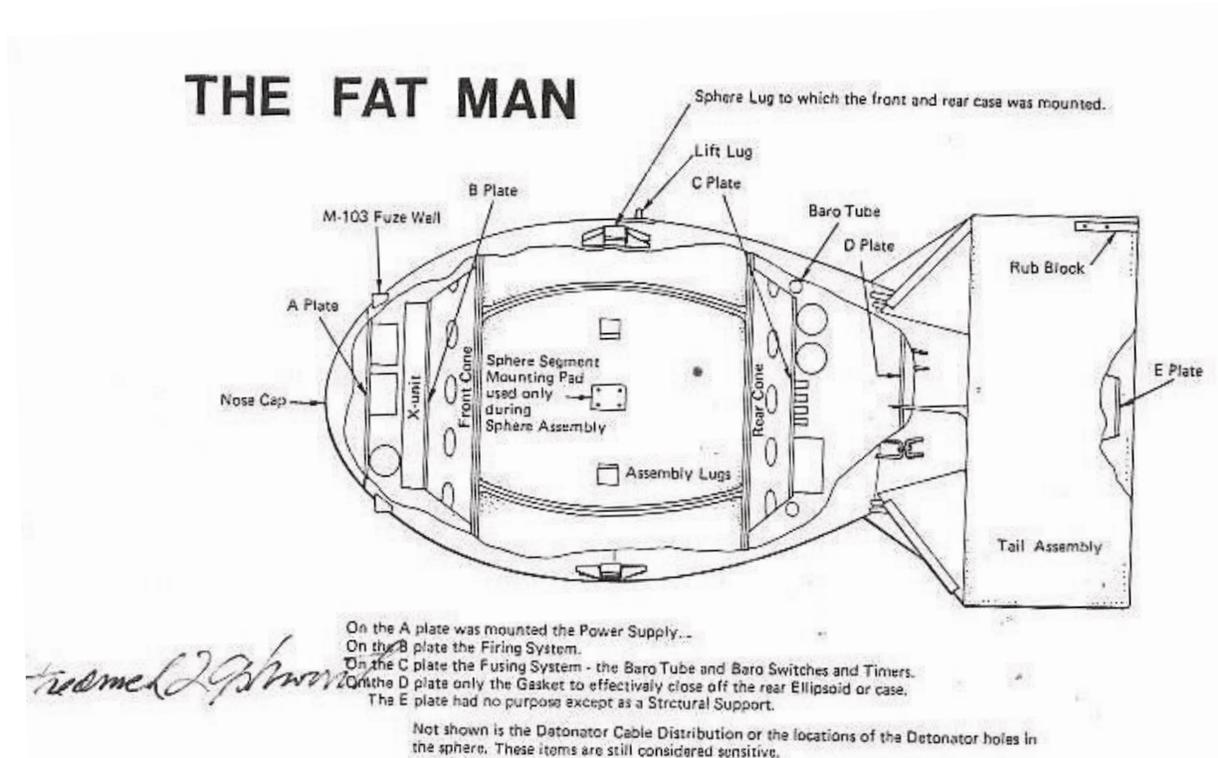
FLA: I recognize that all this is confusing and since, by nature, an interview like this tends to wander a bit from subject to subject, and I insert bits and pieces that seem to be totally irrelevant, but do illustrate the idea of the moment, there is room for a general review of the different courses the developments took. I will try to clarify the matter if I can.

First, the experiments in Germany in 1939 by Lisa Meitner and Strassman proved the fact that the lighter Uranium<sup>235</sup>, which occurs in nature in only one part in 140 of natural Uranium<sup>238</sup>, could be mechanically separated out and made to split or fission with the release of two to four neutrons and a huge amount of energy. The plurality of neutrons suggested that if some of these neutrons were to cause the fission of one more atom of U<sup>235</sup>, and it in turn releases two to four more neutrons available to fission other U<sup>235</sup> atoms, it should be possible to establish a chain reaction. Once discovered, this experiment was duplicated around the world, and the race for a controlled reaction in a reactor to produce power and an uncontrolled reaction to produce a bomb was on.

In the meantime Dr. Glenn Seaborg, working in the Radiation Lab at the University of California, Berkeley, discovered Plutonium<sup>239</sup>, the second element in the periodic table above Uranium, and that it too could fission. Plutonium was known not to occur naturally. It was obvious then that to produce Plutonium in useful amounts would be a difficult process, for it would have to be separated chemically from the products of the radiation experienced in a Uranium-fueled reactor.

So,  $U^{235}$  was relatively easy to produce. It had only to be mechanically separated from its parent  $U^{238}$ . The diffusion cascades at Oak Ridge were built to do this job concentrating the  $U^{235}$  to a very high percentage, 98%, for weapon grade Uranium.

Plutonium had to be formed in a reactor as a result of radiation of  $U^{238}$  and then chemically separated from the reactor fuel rods. The operation at Hanford, Washington was built to accomplish this. Production of usable amounts of Plutonium was a more complicated job than was the case for  $U^{235}$ .



*Outline sketch of the Fat Man bomb dropped against Nagasaki, Japan.*

Thus the manufacture of  $U^{235}$  was fairly straightforward, usable amounts would soon be available and it was time to set up a laboratory to get on with the job of making a weapon that could use this material. Los Alamos was this laboratory and would also be where the work would be done to turn the Plutonium into a useful bomb.

Engineering development started first on the Little Boy  $U^{235}$  bomb. It was considered to be, and would turn out to be so, a straightforward engineering problem of creating a critical mass and an explosion at the right time. There appeared to be little unknown in the development, and there was a high degree of confidence that a useful weapon could be made. Obviously, therefore this would be the first bomb brought to successful development and would be available for operational use first, as it was. The Fat Man Plutonium bomb would have a much longer and far more difficult gestation period.

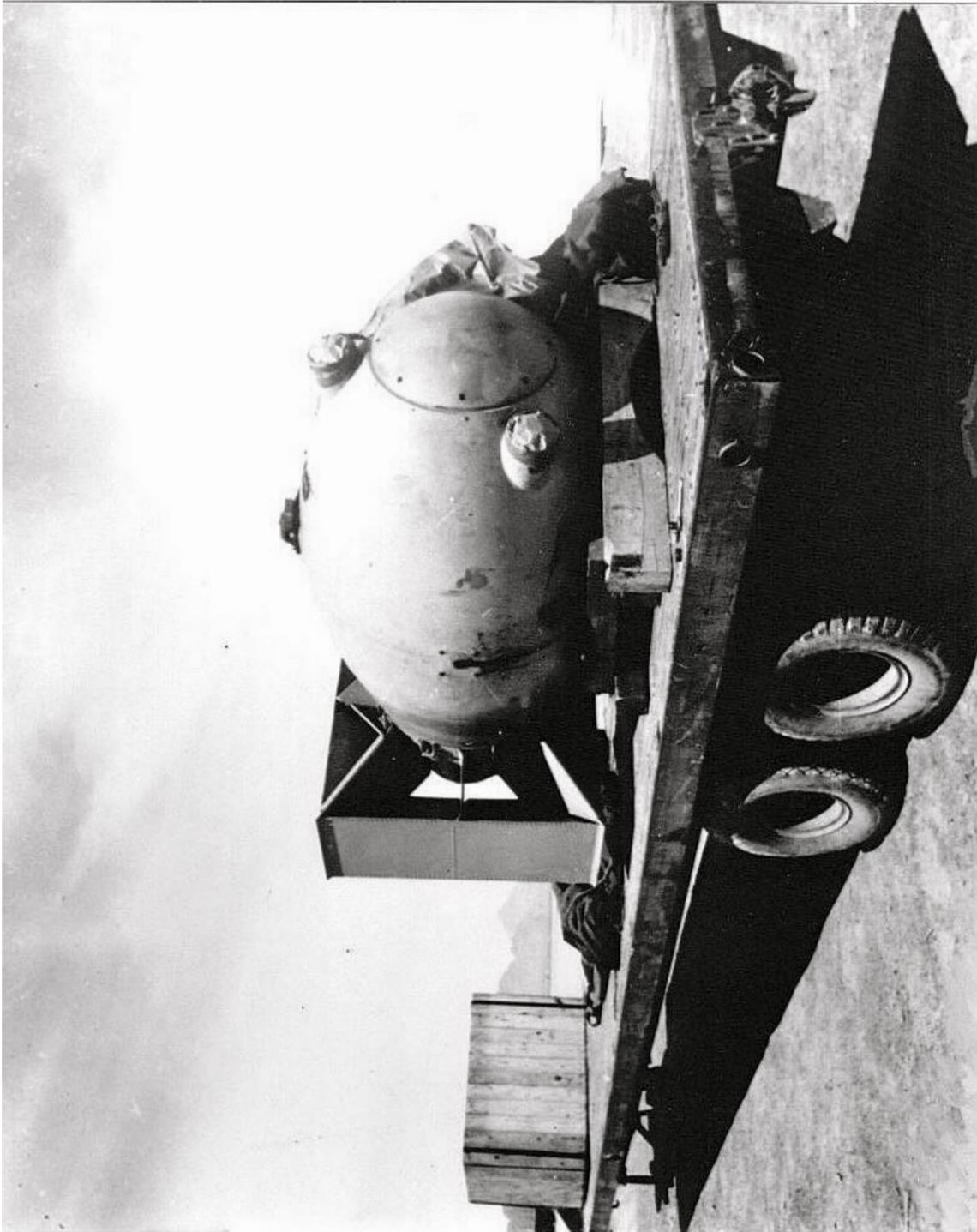
The development of the physics aspect for the use of Plutonium was carried out with only a minute amount of the metal, probably not much more than milligrams. The information

learned would then have to be extrapolated to some larger amount that would be required in the bomb. But how much would be required? It turned out that what would be required was all that we had by the time the bomb was nearly ready. But if they didn't know how much Plutonium, how large would the explosive system be to get the necessary squeeze to criticality? There was indeed one "given" in this whole problem and that was the size of the bomb bay in the B-29 aircraft. It would dictate the final exterior dimensions of the bomb, five feet in diameter, about ten feet long and weighing 10,000 pounds.

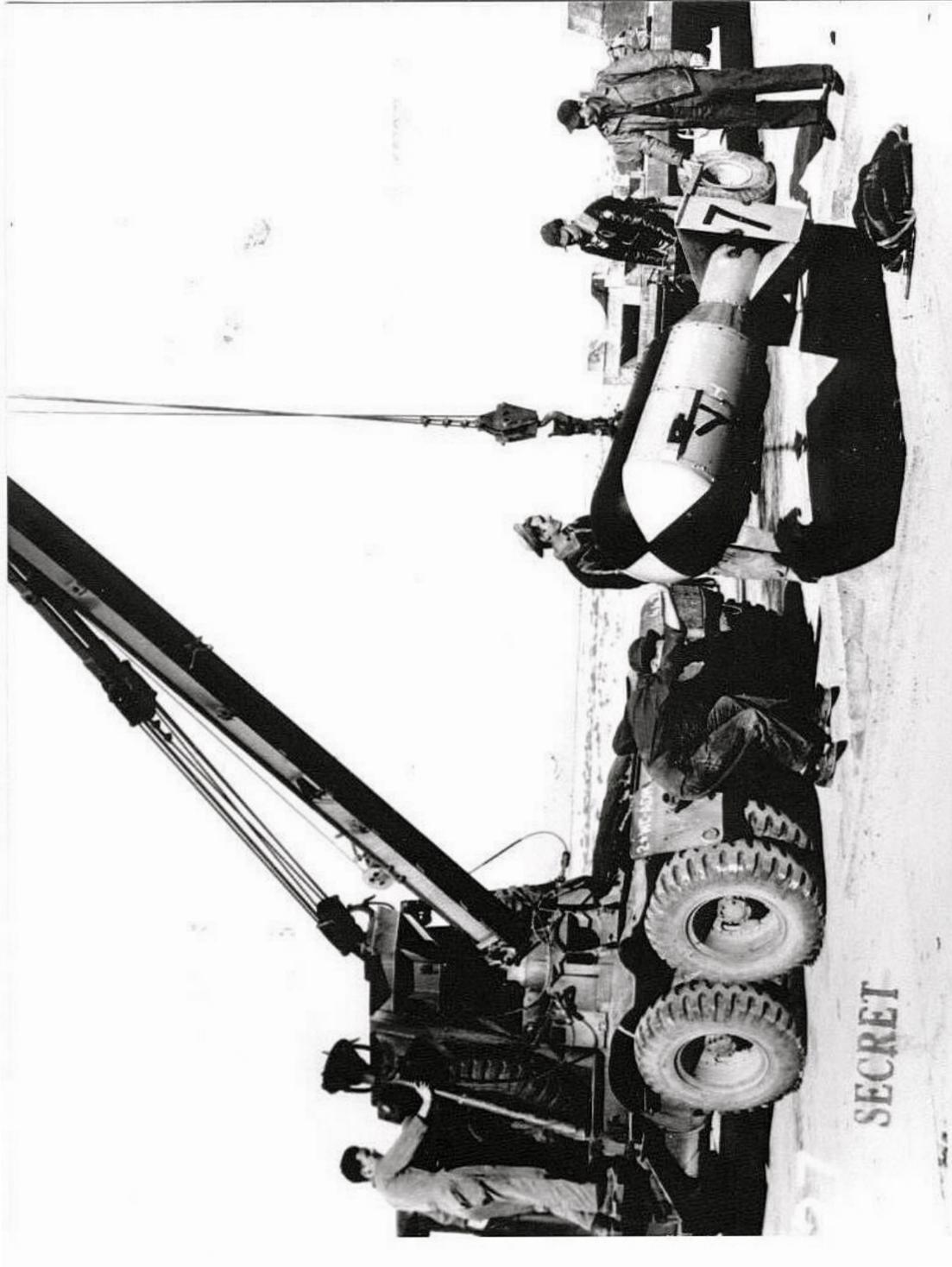
But then, what sort of an explosive system would need to be put together to accomplish the "squeeze". Now I am getting ahead of myself a little, for when Plutonium was first discovered to be a fissionable material there was no idea how to bring it to criticality except by the gun-assembly process, and as I mentioned earlier, this turned out to be impractical. A Dr. Seth Nedmeyer is credited with the idea of squeezing the material until it went critical, and was experimenting with ways to do it. As I recall, his approach was to try to develop a system that would squeeze the material laterally. Many experiments proved that this, too, was not practical.

Although I have had doubt thrown on the following, I remember very vividly Captain Parsons telling me how the idea of implosion, or squeezing the material by a symmetrical collapsing explosive wavefront, which was the system finally adopted, came to life. He told me that with the continuing failure of the lateral explosion route, he and Dr. Johnny Von Neumann, a theoretical mathematician at the laboratory, decided to closet themselves in an office and not come out until they had figured out the problem. They came up with the idea of the spherical system of explosive lenses to focus the propagating shock wave into a collapsing wavefront. But no one had any idea, beyond theory, how to construct an "explosive lens". It followed that Dr. George Kistiakowky, an explosive chemist at the laboratory and later President Eisenhower's Science Advisor, developed a charge consisting of two types of explosive cast into one block and machined to the proper shape and dimension. The outer explosive would have a higher rate of propagation of the shock wave than the inner, so that it would overtake that of the inner explosive and form the concave wavefront desired. Simple. The doing turned out to be a difficult scientific and development job. Also the system to detonate the assembly of lenses, 32 in number to form the sphere, simultaneously, within microseconds, turned out to be the time-controlling element in the development of the Fat Man Plutonium bomb.

Now we had a spherical arrangement which was notoriously a poor ballistic shape, and the question then was how do you wrap up this package into an efficient ballistic form. Some of the ancillary equipment that went into making this a bomb, i.e., fuses, batteries, capacitors to provide the voltage to the detonators, and the like, were to be mounted on opposite sides of the sphere. The elongated shape suggested that an ellipsoid shape was the best that could be done. Clearly, some sort of a stabilizing tail structure would be required. Fins seemed to be a logical place to start. Wind-tunnel tests showed that the arrangement might work, but experimental drops from a B-29 were all unstable. Next a large box tail was attached to the after end of the ellipsoid and test drops were made to determine if this would improve the ballistics. Some improvement resulted, but still not acceptable to produce reproducible, uniform flight. Finally, I



*"Fat man" bomb, development model, on a flatbed trailer. Ten feet long and five feet in diameter.*



*A photograph of a Hiroshima-type bomb. Ten feet long, about 22 inches in diameter and weighing 10,000 pounds.*

believe it was Parsons who suggested it, baffles were placed in the box tail to create the effect of a parachute. This provided reproducible flight and was adopted as the final form of the tail.

I mentioned that Parsons originated this scheme, but some have claimed, including Norman Ramsey, that Ramsey was the originator of the idea. I still hold to my opinion that it was Parsons.

So the development testing of all these components was carried out largely at Wendover. It is appropriate here, I think, to relate that it was not until the day before the bomb was used on Nagasaki, in a dress rehearsal off the island of Tinian, that a complete Fat Man bomb, less the active material, of course, was dropped as a unit from an aircraft. Twenty-four hours later a similar bomb with active material installed was dropped in anger on the city of Nagasaki. I am confident that this was the shortest time from development to combat use in the history of munitions of warfare.

PS: It would appear that the Navy, under Parsons's guidance, made a major contribution to the development of the Fat Man bomb.

FLA: Yes, the Navy made important contributions to this project that may not be generally known. The Salt Wells Pilot Plant at the Naval Ordnance Test Station, as it was called then, had been casting and machining propellants for aircraft rockets for about a year, and probably had more knowledge and experience in the field than any other organization. It was, therefore, a logical plant at which this complicated casting and machining of the explosive lenses should be placed. Parsons had full knowledge of this capability and saw to it that the Salt Wells Pilot Plant was expanded to do this important work.

Most of the B-29 drop tests to determine the ballistic characteristics of the bomb were done at the Navy's bombing range at the Salton Sea in Southern California. A mock-up of the large, air-conditioned bomb assembly building that would be used in the forward area was done and evaluated at the Naval Ordnance Test Station, China Lake, California.

To go back a bit, since the war, in talking to people who were at Los Alamos at the time, I have detected a lot of skepticism about the matter of crediting Captain Parsons and Von Neumann with the idea of "implosion" as the system for the Fat Man. As a matter of fact, it has been fascinating to me that many of these people continuously discredit the contribution made by Parsons in getting the bomb into a deliverable form, or much of anything else in the scientific or engineering work of the lab. I have always believed firmly that without Parsons's drive and capability the bombs would never have been out of the laboratory in the timely fashion that they were.

PS: The attitude that you describe about some people not giving credit where it was due seems to me to reflect a certain amount of jealousy, perhaps, on their part. What is your analysis of all this?

FLA: I am not at all sure that it is jealousy. Rather I believe, based upon my experience at a government laboratory, China Lake, highly qualified civilian scientists and engineers resent being under any sort of technical control and direction by someone in uniform. It seems to me

that to them the uniform automatically disqualifies them from having any scientific or engineering “smarts”. On the contrary, I am confident that Oppenheimer, the Boss, placed a great deal of reliance on Parsons’s intelligence and ordnance experience, and listened to him accordingly. Parsons was never overbearing or dictatorial. I believe also, that those who might have had this attitude about Parsons’s contribution to the project were not aware, and probably could not be aware, of all that Parsons did in dealing with the Army Air Forces, General Groves, and the Navy Department. Further, he had a close personal acquaintance with important scientific people like Vannevar Bush, Larry Hafstad, Merle Tuve and others from whom he undoubtedly drew support and technical advice. All that was needed was an open mind to recognize the huge contribution that he was making.

PS: Chick Hayward <sup>1</sup> attributes an interesting statement to Deak Parsons. He said that Parsons said it’s remarkable how much you can accomplish if you don’t worry about who gets the credit.

FLA: You bet. I’ve heard him state that many times, and I suspect that that’s the attitude of almost everyone who has been successful and has made important contributions in their field. It has been my experience that usually the bigger, more important a person is, the more humility he projects. Oppenheimer certainly, in my opinion, was one.

PS: There have been many versions as to why the names of the bombs were selected. I’ve heard Churchill, Roosevelt and even Rita Hayworth mentioned as being the inspiration for the names. Could you give us, your version of this?

FLA: You are certainly correct about that. My understanding of it is quite logical and straightforward, and I think is close to the real way the names came about, and this is based upon my experience at Los Alamos as the bombs were developed. First it is important to recall that the security of the whole program was very strict and almost everything had code names. Mine was “Scathe”. Captain Parsons was “Judge”. The bombs were no exception, so that all the names must be considered as code words. As for the bomb, the most common one I recall was, “The Gadget”.

I suspect that as for the Uranium-gun-type bomb it was probably at first only known as the “gadget”. The first attempts to make a gun-assembly system for Plutonium were known as the “Long Man” reflecting the length of the gun that would be required. I’ve also heard it referred to as the “Long Boy”. When it became clear that the Plutonium bomb would have some sort of a spherical shape and quite large, it was called the “Fat Man”. Then, relatively, the Uranium bomb was small, it was called the “Little Boy”. As for “Rita Hayworth”, it is my firm recollection that the name “Gilda” was painted on the Nagasaki bomb, referring to the pinup of

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<sup>1</sup> Captain John T. “Chick” Hayward is an important player in the story of my Navy life. After the war he was assigned as President of the Naval War College in Newport, Rhode Island, and promoted to the rank of Vice Admiral while serving as the Deputy Chief of Naval Operations for Research and Development. At the time of this chapter he was Experimental Officer at the Naval Ordnance Test Station (NOTS) at China Lake, California. In that duty he was responsible for the direct liaison between the Manhattan Project and the Navy at NOTS. I was later to work with him in the organization of the Navy’s first atom bomb-capable carrier aircraft squadrons.

Rita Hayworth at the time of her popular movie called *Gilda*. There have been arguments that “Gilda” first showed up on the Crossroads Test Fat Man bomb. In any event, it was recognized that two Fat Man bombs side by side would resemble nicely Rita Hayworth’s feminine endowment. [Editor’s note: The movie came out after Nagasaki, before Bikini.]

PS: Admiral, you mentioned very briefly earlier that you were not “on the hill” very much during the time that you were assigned at the Los Alamos Laboratory.

FLA: Yes, that is true. I was away from the lab much more than I was there. Basically, there were the week-long trips from the lab to Wendover. We returned to the lab on Friday. It seemed almost inevitable that come Saturday morning there would be an errand for me of the officer-messenger type. There would be important letters that had to be hand-carried from Los Alamos to Washington, usually to General Groves’s office. More important, Captain Parsons depended upon me as a troubleshooter.

I recall one incident of this kind. There was to be organized within the 509th Group the First Ordnance Squadron - Special which was to provide the manpower to Los Alamos for the mechanical assembly of the bombs. The men required were some of the most experienced and senior enlisted ratings in the Army. Needless to say, the task of pulling them out of the Army for this assignment became subject to a high degree of inertia. And so, it turned out that I would go to Washington to extract these people from the Army. The magic code word “Silverplate” would help, but that was an Air Forces directive, absolutely “Top Priority”, so there was a lot of foot dragging by the Army Ordnance Corps, mostly, when it came to the reassignment of the highly qualified men we needed. It was fun for me, a Navy Commander, to roam the halls of the Pentagon and try to force compliance of the orders that they knew they would have to obey, no matter what.

Another was the time in February 1945 that I was designated to carry a top secret letter to Guam and hand it personally to Admiral Nimitz. This letter would inform him for the first time that there was under development an atomic bomb which would be available to him in the Pacific about the first of August 1945. This letter, although I am sure was written by General Groves, was addressed “Dear Nimitz” and signed “King”. It informed Nimitz that the explosive yield of the bomb would be about 8,000 tons of TNT equivalent, that support of his command would be required, and that he was authorized to inform only one officer on his staff. It, gratuitously I thought, said that if he had any questions, the bearer of the letter would be able to answer them. It directed Admiral Nimitz to give me what support that I might need in selecting a site for the operation. This was in February 1945.

I had traveled from Washington directly through to Guam wearing the ordinary cotton khaki uniform of that period. I carried the letter in a money belt around my waist next to my skin. When I arrived on Guam I went directly to the headquarters of Admiral Nimitz, zeroing in on the Admiral’s office. I was met by his Aide, name escapes me, Lamar maybe, and I told him that I had an important letter to deliver to the Admiral. He said that was OK, he would carry it in. I said that wasn’t OK; I was required to hand the letter directly to the Admiral. With some reluctance he went into the office to see if the Admiral would see me, coming out in a moment with the word that, yes I could go in. I did, and the Aide followed me. I told Admiral Nimitz

that I had been directed to hand the letter directly to him and that no one else could be present. Admiral Nimitz told the Aide to leave, and I proceeded to break out the letter.

I opened my uniform jacket, unbuttoned my shirt enough to extract the money belt, all to the amusement of the Admiral. After the long trip, needless to say, the money belt was a bit the worse for wear, and its contents a little stained and damp from sweat. However, it was in good enough shape for the Admiral to open and read. When he had finished, he rang for the Chief of Staff, Admiral Soc McMorris and handed him the letter to read. Then he told me to tell Admiral King that he could not provide the services that he knew would be required by this project without his Operations Officer, Captain Tom Hill, to be aware of the program as well. Then he pointed out to me that it was now only February, and didn't they know back there that he had a lot of war to fight before August? Why couldn't he have the bomb now? I described briefly the status of development of the weapons and told him that August first was selected by General Groves as the first realistic date that the bomb would be ready for delivery in his theater of operations. Then he turned in his chair and looked out the window for several seconds, turned back and said, "Thank you, Commander. I guess that I was born just about 20 years too soon". I felt that he had then sensed the magnitude of the thing. Perhaps he also saw that the bomb might have a possibility to end the war; I don't know.

PS: Another thing that you mentioned in your memoir was the "Silverplate" priority.

FLA: Yes, and here we go again on code words. There is an excellent example of how this code word worked throughout the Air Forces, and to some extent in the rest of the Army, in the story of the King to Nimitz letter that I have just described. First, the meaning of "Silverplate".

General Groves had been given the highest priority throughout the Army and Navy in the procurement of people and supplies for his project. In order to implement this priority in the Air Forces, General Arnold, Chief of Staff of the Army Air Forces, established the code name "Silverplate" and directed that at any time a responsible official used the code word, that official's needs would have the highest priority of any programs in the Army Air Forces. The rest of the Army recognized it and knew that it connoted the highest priority, but it was my experience that in some cases Army officers were reluctant to treat it with the same respect as the air people did.

Included in the King-to-Nimitz letter was the statement that I would be exploring the area for space that would be occupied ultimately by the 509th Bomb Group and the Los Alamos scientists and engineers who would soon take the project into the forward area. Admiral Nimitz was to provide to me the support to do this part of my job.

The selection of the island was easy. Guam was too far south, Saipan was farthest north, but did not have the air operations facilities that were available on Tinian. So I asked for transportation to Tinian. When I arrived on the island, I reported to the Island Commander, Brigadier General Kimble, Army Air Forces, and told him that in connection with a "Silverplate" project I wanted to stake out some real estate on his island for a special operation. He recognized the significance of "Silverplate" and said that he was at my service. He suggested that if it was an air project, the north end of the island would be most appropriate, for there were extensive B-29 operations going on there. We rode in his jeep to the north end of the island and I

indicated the areas that I thought would be satisfactory and asked him to hold that area for future use.

Yes, “Silverplate” was the magic word.

As for the sequel to my visit to the island of Tinian, General Groves designated Colonel Elmer E. Kirkpatrick, Corps of Engineers, West Point Class of 1929, to supervise the construction of all the facilities on the island intended for the 509th and the Los Alamos party. Incidentally, Colonel Kirkpatrick had two brothers, I think that it was two, who were graduates of the Naval Academy. One was Charles, who became the Superintendent of the Academy, and I think that the other was called John. Admiral Nimitz’s headquarters assigned a Navy SeaBee battalion to Kirkpatrick to carry out the construction work.

Here is another example of the magic of “Silverplate” and the priority it had. Colonel Kirkpatrick was running short of concrete and was having difficulty getting anybody to turn loose of it. He informed Captain Tom Hill in Nimitz’s headquarters of the problem, and a message was sent out by him to some organization that had concrete which said, “You will deliver to Colonel Kirkpatrick (X) bags of cement. This is a project of which you have not been informed and will not be informed”.

PS: I noted that you said that the letter quoted the estimated yield of the bomb to be about 8,000 tons of TNT equivalent. How does that figure relate to the published figure of 20,000 tons for the Nagasaki Fat Man?

FLA: That does seem to be a contradiction, but if you consider the state of the bomb development by February of 1945, it is not surprising that any estimate of the yield would be an educated guess. Twenty thousand tons, as I understand it, was picked out of the air by Truman when he was at sea returning from Potsdam and announced to the world that the bombs had been used against Japan. I suppose that someone advised him on this, but I don’t think that there was anyone on board who had any real idea what the yield had been or the experience with the program to guess at it. Also, and more realistic, the figure probably came from the contents of the message that must have been sent by General Groves, probably, to the President, and that based upon the observed effects of the experiment at Alamogordo.

It is interesting to note that in Professor Potter’s biography of Admiral Nimitz he recounts the tale of the delivery of the letter to the Admiral that I have just related. He got that from me when he put out a call for any anecdotes that had to do with Nimitz. He apparently thought that either I didn’t know what I was talking about, or I had made a simple mistake in translation. He took it upon himself to change the figure that I gave him from 8,000 to 20,000. Any dummy should know that it was 20,000 tons!

PS: I have another question about the term, or title of the B-29 crewman, known as the “Weaponer”. Where did that come from?

FLA: That term was dreamed up by Captain Parsons to try to define in a title the duties of the Los Alamos representative of General Groves who would be on board the bomb-carrying aircraft. I think that I have already mentioned that only Colonel Tibbets had been briefed at all

about the mission of the 509th Bomb Group, and he in only a comparatively superficial way. General Groves was well aware that left by themselves the Army airmen, except for Tibbets, might treat this as just another bomb. Sweeney had learned something about it, because it was his organization that provided the B-29 services for the tests at Wendover. He had no firsthand knowledge whatsoever of the technical details. Of course, after the Hiroshima bomb was dropped, the secret was out, and the airmen were well aware that they were doing something important.

General Groves was concerned over the possibility of crises coming up during the actual bombing operations that would require some decisions to be made, and made by someone who could evaluate the situation from a technical and tactical point of view, tactical because it was possible that the situation might dictate deviations from the tactical plan.

As far as I know now, Parsons and I were the only regular officers at Los Alamos that fit his requirements. Groves placed great importance on the matter of being a regular officer, and he preferred service academy graduates. Parsons was the obvious choice for this important job, because no one in uniform was as well acquainted with the technical aspects of the bombs.

It was always Groves's policy to have spares of everything throughout the Project. Since I met his criteria, I became the spare for Parsons. He felt that I had sufficient knowledge to make the decisions that he expected might be required. Just before the Hiroshima operation, he told us that we would alternate on each tactical operation.

It is interesting to observe that the rationale, I think, behind his desire that we alternate, was that he anticipated the need for more than two bombing operations. Or, rather I should say, he, as all of us involved, had no idea that only one or two would do the job.

And that brings up the question that has intrigued historians as to how many bombs we had. Groves answer to that was always, "Enough". It is my recollection that more Plutonium was being created in amounts that would make another bomb available about the first of September. By that time, the war would be over.

Finally, it should be mentioned that General Groves's book, *Now It Can Be Told*, quotes that on May 29 a message was sent by General Norstad, who was in charge from Washington of all B-29 operations throughout the world, to General LeMay, who was in command of the 21st Bomber Command with headquarters on Guam and under whom the 509th operated. This message said in effect, and almost word for word, that the bomb-carrying aircraft would have aboard two officer specialists, the senior of whom would have final judgment should decisions be required as a result of deviations from the tactical operational plan. The second specialist would be an Army First Lieutenant who would assist by operating the "Black Box" that monitored the status of all electronic parts of the bomb en route to the targets. Parsons thought that "Weaponeer" fit the job of the senior officer specialist very well.

I will have a lot more to say later on the command relationships involved in this important subject.

PS: Wasn't there also a concern that the bomb had to be assembled in flight because of a concern of premature detonation?

FLA: Not exactly. The fear was that in case of an aborted takeoff, as a result of trouble in the aircraft, any substantial accident might result in a fire on the runway. Should this occur, it was recognized that the powder charge in the Little Boy bomb could “cook off” from the heat before the firefighters could put out the fire, probably resulting in a low-order detonation of the bomb and partial fissioning of the Uranium. This kind of an accident could contaminate and place out of action the entire north end of the island. Therefore, there was devised at the Naval Gun Factory in Washington, where the gun was made, a combination breechblock which permitted part of it, just large enough to pass the powder charge into the gun, to be removed after takeoff and the powder charge be inserted at that time. The original design of the breechblock was too large and heavy to be handled by one man in the bomb bay after take off.

The new design arrived on the island not more than a day or two prior to the upcoming operation and Captain Parsons spent many hours in the bomb bay, both in flight and on the ground, familiarizing himself with the task to be done and preparing a final check-off list to be used when the time came. It is this operation that is commonly referred to as “arming the bomb”.

Of course, there had to be the same worry in the case of the B-29 carrying the Fat Man bomb to Nagasaki. However, because of the design of the bomb, there was no way to remove any part of the explosive sphere. Therefore, fire in the aircraft could be disastrous, resulting in low-order detonation, and then partial fissioning would undoubtedly occur. That danger was accepted and all the rescue and firefighting equipment on the island was arrayed along the runway to try to forestall an explosion in case of fire. In spite of the continuing reference to “arming” the Fat Man, there was no way to do it as was done with the Little Boy.

PS: In your memoir you said that the Boeing people in Wichita Falls were stupefied by the requirement to carry something so heavy in such a compact package.

FLA: That’s right. One of the Los Alamos civilians, Sheldon Dike, a young aeronautical engineer, had the responsibility for the modification of the B-29 bomb bays to accommodate the Little Boy. I guess he had the same responsibility for the Fat Man, but I can’t recall exactly. In any event, he was describing the external dimensions of the Little Boy and stated that it would weigh at least 10,000 pounds. Apparently the Boeing engineers looked at him as if he were crazy and said that it was impossible to pack that much weight in such a small package. The weight came from the uranium tamper that surrounded the active material in the target to hold the system together as long as possible to maximize the amount of material that would fission. Uranium is heavier than lead, the gun was heavy, the projectile and target were heavy. Then you wrapped the center section of the case where the electronic components were mounted with special treatment armor steel and you have a very heavy package. If I remember correctly, the bomb was about eight feet long, 22 inches in diameter and weighed about 10,000 pounds

PS: It certainly had to be deceptively heavy. In standard ordnance, wasn’t 2,000 pounds then the maximum?

FLA: I am not certain what the Army had for large bombs, but toward the end of the war there was a requirement from the forward area placed on the Navy Bureau of Aeronautics in Washington for an aircraft that could carry a bomb of 8,000 pounds and operate from a carrier. When I heard that, it was apparent to me that any aircraft that was fitted for an 8,000-pound bomb might be modified to carry a Fat Man of 10,000 pounds and operate from an aircraft carrier. We were interested then in bringing the Navy into an atom bomb capability from the carriers. The result was the North American Aviation AJ-1 aircraft. But that is another part of the story and I'll cover that little escapade later. I suspect that the Air Force had larger bombs than 2,000 pounds. They love big bombs. It makes horizontal bombing easier.

PS: Do you have any other personal observations of General Groves from your dealings with him?

FLA: Yes, I sure have. He was obviously an excellent manager. Prior to his selection to run the Manhattan Project he was in charge of the construction of the Pentagon for the Corps of Engineers. He was a Brigadier General at the time. I think that it is true that the building was done on time and on budget.

One of the things that impressed me was the very small staff that he had in Washington. I don't think there were more than 20 people, and then there was his strong right arm, Jean O'Leary, not just his secretary, but more his executive assistant. I would say that she was absolutely indispensable in the operation of his small headquarters, not to mention what she did to handle his personal affairs. In this regard one must understand that even Mrs. Groves did not know what the object of his project was until after the bombs were dropped and made public.

Most of my contact with the staff was through Major Jack Derry, Engineer Corps, who functioned as his Operations Officer. Note the rank. Those who might have a lesser opinion of the General and how he operated would probably say something like, "Sure he had a small staff in Washington for most of the work was done by Colonel K.D. Nichols who ran Oak Ridge, the uranium separation plant". I would agree with that, but that is to overlook the complicated relationship he had with all the top officials in Washington from the President on down. Consider the fact that he was able to extract more than two billion dollars for the project from Congress without their having any idea what he was doing with it. He delegated responsibility, but you can bet that he kept his own hot hand on the details. In lots of ways he was much like Admiral Rickover.

The other half of General Groves's responsibility involved close association with many of the top military people in Washington. He reported regularly to Henry Stimson, the Secretary of War, General George Marshall, Army Chief of Staff, and General Hap Arnold, Chief of the Army Air Forces. I am sure that he was always at the call of the President particularly after Truman, who had never been briefed on the project prior to assuming the presidency, took over. Rickover did his political business with the Congress and had them in his hip pocket. They thought that he could do no wrong, largely, I believe, because he spoke frankly, to put it mildly, and usually saying what they wanted to hear.

PS: Did Groves have the same kind of personality as Admiral Rickover?

FLA: In a way. Later, I was directly associated with the Admiral and I believe that I can evaluate it fairly well. The one thing that was similar between Rickover and Groves was that when they were smiling at you, watch out. Groves was tough. Rickover was bitchy, and I use that word advisedly.

I had a lot of contact with Admiral Rickover, and I worked with him on a lot of things and he was just ridiculously hardheaded. There was no excuse for half his behavior. He was the most blasphemous man that I have ever known. I think that he was very vindictive. He demanded perfection, and we ended up with the safest nuclear systems in the world. But in my view, he extracted that the hard way.

Groves was just as good a manager without all the disagreeable traits Rickover had. He knew his lesson. He knew what was going on, made his decisions, moved on and stuck with them. He made few, if any, mistakes. Of course, he insisted on traveling in more than one way to an objective, and demanded at least two of everything. He had no qualms about committing hundreds of millions of dollars to any program. It takes a big man to pull that off. And he was a big man, overweight by a considerable amount, which probably came from his habit of consuming candy bars most of the day.

PS: How much technical understanding did he have of what the physicists were doing?

FLA: Well, when you listened to him, he gave you the impression that he had the equivalent of a Ph.D in physics. I think that he believed firmly that he could keep up with the scientific people in any discussion. There was, however, a small degree of derision on the part of some of the Los Alamos technical people which showed up frequently in conversations between themselves. I don't think that Oppenheimer felt that, or at least he didn't make it obvious. And when you consider the complicated decisions he made based on his discussions with the technical people throughout the project, I think that it is obvious that he didn't miss much. I think that he could sort out the details to the extent that he was able and would make good decisions. After all, he stood very high in his class at West Point as evidenced by his assignment to the Corps of Engineers.

In the case of the derisive attitude of some people at Los Alamos, I believe that this goes back to my thesis that civilian scientists simply do not have technical confidence in anyone in uniform.

PS: Do you have any comparable portrait of Oppenheimer from your dealings with him?

FLA: Well, of course I knew Oppenheimer generally --- casually. I didn't have too much to do with him for obvious reasons unless I was performing some of my "go-fer" missions for him, which I did frequently. But my general impression was that here was a very unusual world-class scientist who was an excellent manager and administrator. It has been my experience, by and large, that scientists are poor administrators. However, there was no question that Oppenheimer was the leader of the laboratory, both technically and administratively, a very rare combination

among highly qualified technical people. He was the best of all those with whom I had some association, and Bill McLean, when he was Technical Director at China Lake, was close behind.

PS: You have referred frequently to your opinion that civilian scientists tended to look down on and wanted to avoid the man in uniform. Did you have that sense during the war itself?

FLA: Except for what I have stated, I have had no other direct association with these kinds of people in wartime. I have seen the results at China Lake, which was established during the war. It doesn't have to be a competition between the military and the civilian scientists. Dr. L.T.E. Thompson was the driving force in the establishment of that research and development laboratory, and he insisted that, as I used to tell my people when I was the commanding officer there, "This is a civilian operation supported by the military." These were the golden years in the history of China Lake, and during those few years in the 50s, it is my opinion that the most novel and effective development of weapons was made. I am sad to say that this environment has disappeared there, and I suspect that it is back to business as usual where my philosophy of operation has been diametrically reversed. But more of that later when I relate my experience at China Lake.

PS: Was there a bond between you and Parsons because you both wore the uniform?

FLA: Of course there was the bond that you have mentioned, but I have to say that bonding had nothing to do with the fact that we were both in uniform. It was because Parsons was the person that he was. There was never any sense of a Captain/Commander pecking order between us. I am sure that he had complete confidence in me and respected what I was able to bring to his part of the laboratory. I did a lot of trouble-shooting for him and believe that I made a major contribution toward keeping the development of the bombs on track. I have mentioned my dealing with the Army to get the personnel for the 509th First Ordnance Squadron when they were dragging their feet and jeopardizing the orderly organization of the group that would go over seas to Tinian to produce the bombs. My mission to Nimitz's headquarters and claiming the real estate on Tinian for the project was an important one which Parsons never questioned. That association, and the several years that I was under Admiral Parsons after the war, was for me an inspiring period.

It is probably digressing a little, but I believe that everyone who worked with and for Parsons held the same admiration and, yes, love for the man. Unfortunately, his philosophy of not caring who got credit for the work being done and his always-open door at the office to any one who needed attention, probably had some effect on his untimely death. When he was

Technical Deputy to Admiral Blandy at the Crossroads atom tests, Captain Rivets Rivero<sup>2</sup> was assigned to him as his immediate assistant. Rivero had the mental equipment to keep up with Parsons's nimble brain and when there was a problem to be addressed, Rivero would say, "I'll take care of that, Admiral" which relieved him of much of his command load. It has always been my opinion that had the Navy seen the need for this and someone like Rivero always assigned to him, he might not have died when he did. That was a tremendous loss to the Navy.

PS: Have we finished the Los Alamos phase? Are you ready to drop the bomb?

FLA: Well, let's see. Yes, I think so.

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<sup>2</sup> Captain Horacio Rivero was a key officer in the Navy Department after the war. He was ultimately promoted to the rank of Admiral when in his top assignment as Deputy Chief of Naval Operations. After his retirement, he was appointed Ambassador to Spain. He is a man of small stature physically and was coxswain of the eight-oared crew while a midshipman at the Naval Academy. He was appointed from Puerto Rico, and though the story is that he spoke no English when he arrived, he was graduated number "one half" in standing in his Naval Academy class, 1931. He was ill when the last final examinations were held and had to make them up. His multiples were then superior to the midshipman who had been designated number one. He was well loved by all who knew him. Admiral Rivero died this month, September 2000.

## CHAPTER TWELVE

### MANHATTAN PROJECT - NAGASAKI ATTACK WEAPONER, B-29 *BOCKSCAR* August 9, 1945

FLA: The next major milestone in the bomb development program was the Trinity test at Alamogordo. This was a test of the Fat Man implosion system, the spherical configuration of the bomb explosive system. It was in no way a complete bomb, but was a test of the critical stage in the development of the bomb. The explosive sphere was hoisted to the top of a 100-foot tower and connected with all the necessary cables to the control bunker several hundred yards away. From there the signal to explode the bomb was generated at the crucial time so that all the recording equipment in place could be synchronized with the bomb detonation. The results are well known and exceeded all expectations of those who were there to see it fired.

In the meantime, starting in mid-June, the first people from Los Alamos who were to constitute the overseas party (code name Project Alberta <sup>1</sup>) arrived on the island of Tinian. Tons of material had been shipped to the island by seaborne transport and by aircraft assigned to the 509th, called “The Green Hornet Air Line”. In addition to the stuff required by the Los Alamos group, there was, as well, all the equipment to maintain a squadron of 15 B-29s, to turn around the Green Hornet C-54s and the buildings and equipment required by the First Ordnance Squadron - Special, another unit of the 509th manned by highly qualified Army personnel.



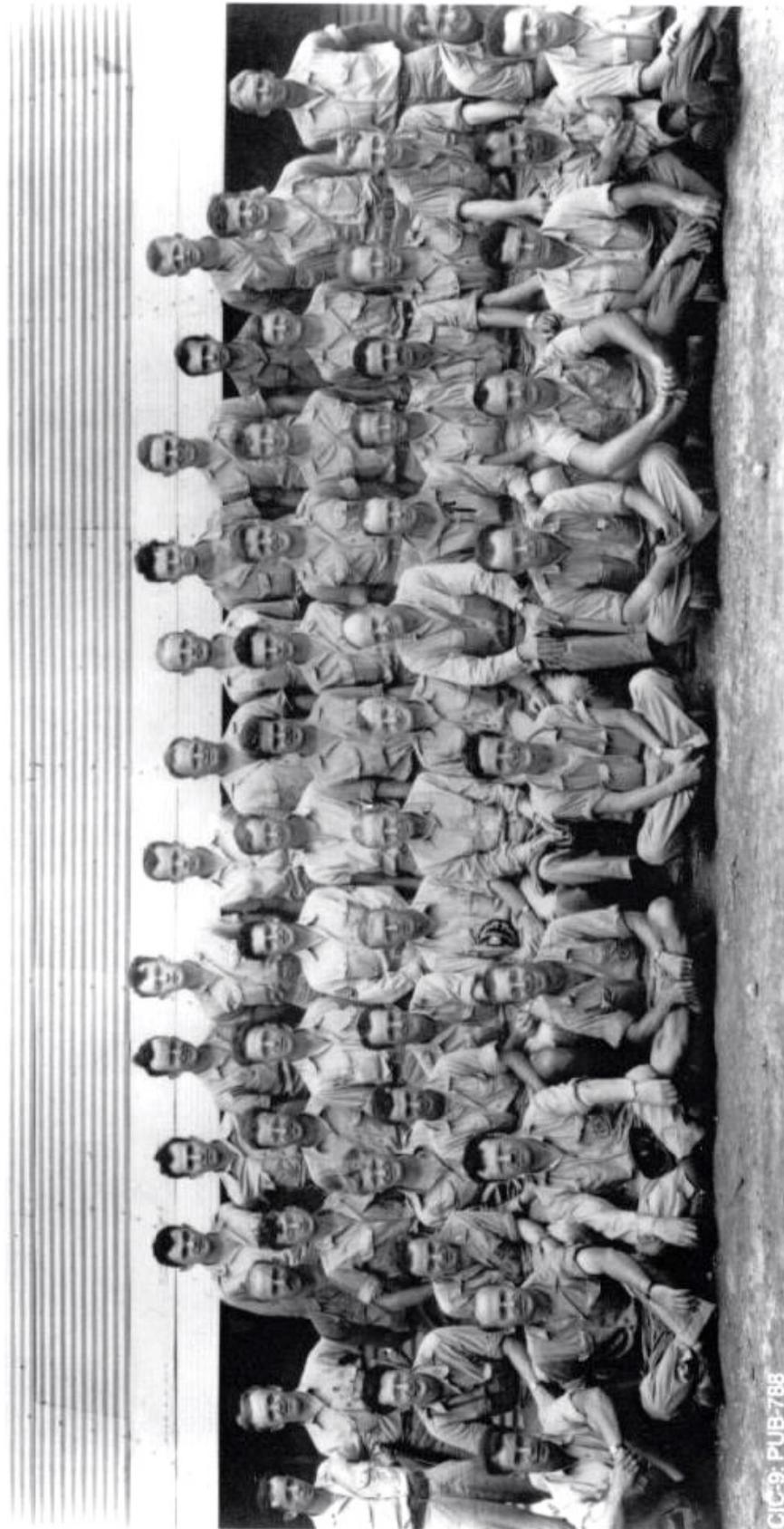
*Emblem of 509th Bomb Group*

The Army Air Forces had organized and equipped the 509th Bomb Group under the command of Colonel Paul Tibbets with 15 of the latest version of the B-29 aircraft. The group had been training for these special operations both from Wendover and later from Batista Field in Cuba.

The First Ordnance Squadron was under the command of Major Charles Begg, Ordnance Corps. This squadron was manned almost entirely by senior and highly qualified Ordnance Corps enlisted men. Their mission was to provide the manpower to assist the Los Alamos scientists in assembling the bombs. One of my jobs in my “go-fer” and troubleshooting capacity for Captain Parsons was to go to the Pentagon to push Army Ordnance a bit harder to have the quality of people that was needed assigned to this group. I was a Commander at the time, and it

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<sup>1</sup> See Appendix D, “History of Project Alberta” by Dr. Norman Ramsey. Dr. Norman Ramsey was one of the leading physicists at Los Alamos during the development of the bombs. He was 29 at the time. He was the leader of the Los Alamos technical group that went to Tinian. Some years after the war he was awarded a Nobel Prize in Physics. He was at the time a professor at Columbia University.



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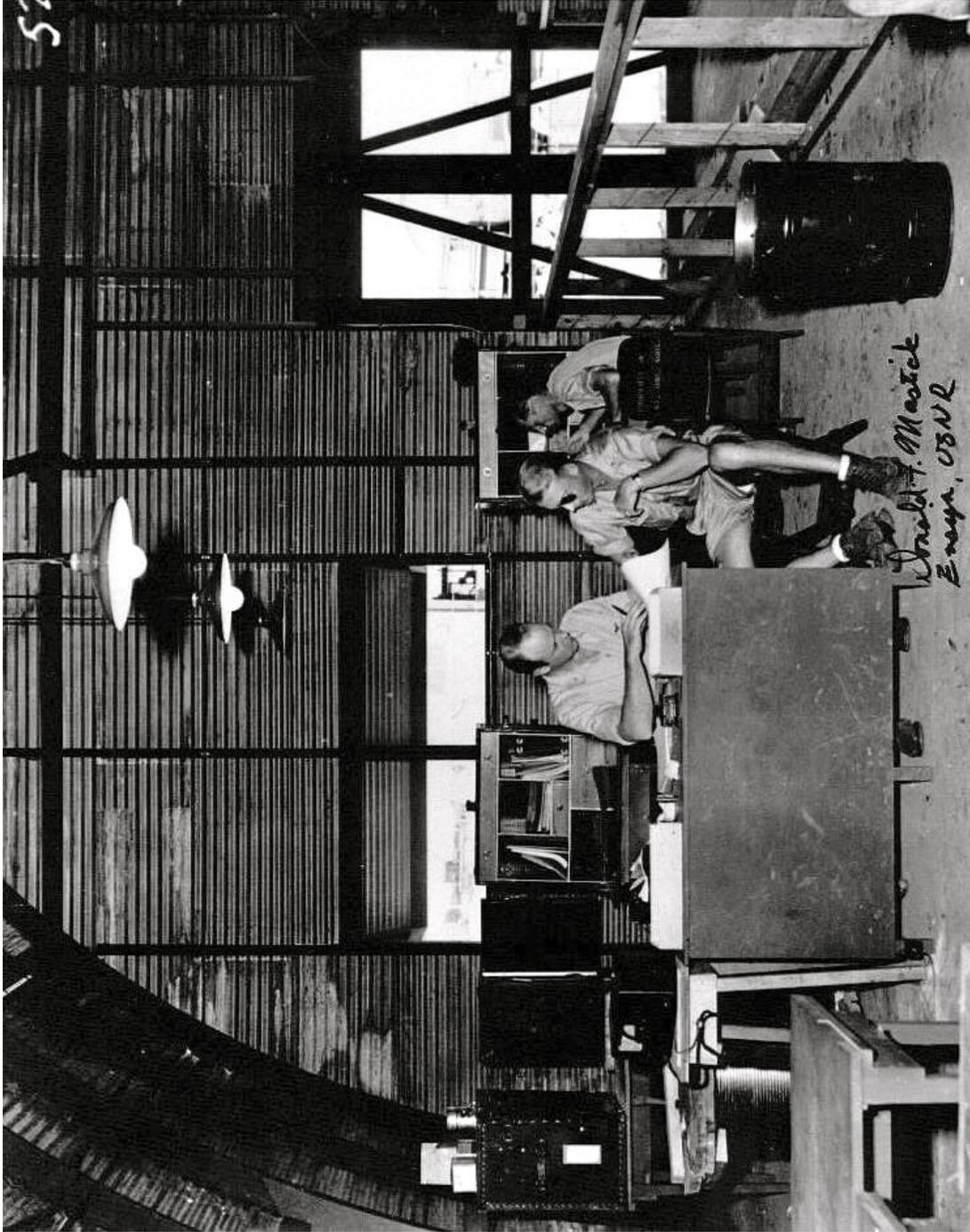
*Project Alberta*

*First Technical Service Detachment - Bomb Assembly Group,  
509th Composite Group, 20th Air Force, Los Alamos,  
Manhattan Engineer District, Group Photo.*

*Tinian, Mariana Islands, August 7, 1945, Marianas Time*

*The Los Alamos scientists and engineers who were sent to Tinian to perform the bomb assembly and test operations were called "Project Alberta" - code words again!. This is a photograph of this group while there. I am number 12 seated next to Captain Parsons on my right. To the right of Parsons is Brigadier General Tom Farrell, General Groves's on-site Deputy. Dr. Ramsey is seated in front of General Farrell.*

*Note: Harold Agnew (top row, fourth from the right) later became the Technical Director of the Los Alamos National Laboratory.*



Hard at work as Operations Officer and Deputy Commander of the Los Alamos technical team. With me is Ensign Don Mastick, U.S. Naval Reserve, a Los Alamos Ph.D. microbiologist assigned to me as my assistant. Appointed to the Naval Reserve while at work at Los Alamos to fill the position on the Tinian Los Alamos team. Most of the people were taken into the military before going to Tinian. They had military ID cards and wore uniforms.

was fun roaming the corridors and offices of the Pentagon using the magic of “Silverplate”, demanding for example, “I want five Master Sergeants with the following qualifications.” I am sure that being a naval officer must have generated an impression that there was something special about this --- he’s not an Army Major or something.

PS: The other point to make is that you weren’t just planning for two bombs; this was to be an ongoing thing.

FLA: That is certainly correct. We weren’t planning on just two bombs. I am not sure that there was ever any thought about any limitations as to how many might be required. Here again, we see General Groves’s philosophy at work. You did things in a big way, cut no corners, left no loose ends to be tied up. The assembly buildings that I have mentioned earlier were big buildings and designed to accommodate the heavy weights of the bombs during assembly. Steel rails were built into the ceilings to take chain hoists with enough capacity to handle the five or more tons the bombs were to weigh. They were air conditioned, and there were three of them that had been pre-fabricated at NOTS, China Lake. It is interesting now to note that three of these buildings were shipped to and erected on the island. It was contemplated that the First Ordnance Squadron that was to assist the scientists in the heavy assembly work would be organized into three shifts to work 24 hours a day. As I look back on this, I can’t see the vaguest reason why anybody would have considered that we would be assembling these things three shifts, 24 hours per day. But, nevertheless, the facilities were provided at Tinian to do exactly that. The bomb components were shipped out by the shipload, and the stuff was stored in the compound area in warehouses.

The net result, as everyone knows, was that we ended up using only two bombs, and as far as the Fat Man type bomb was concerned, only one. I should point out that we knew that there would be only one gun-type Little Boy bomb after the successful shot at Alamogordo. From then on the bombs would be of the Fat Man implosion-type bombs. So, in reality, all this massive assembly operation was done almost exclusively for the Fat Man bomb after the Little Boy was put together and used.

So we had all the components consisting of the castings for the explosive sphere, the aluminum case parts to enclose the explosives, the steel armor plate for the outside cases and all the electronic gear that was required. All this stuff was out there for this kind of assembly operation except there was no active material on the site at this time. It would be sent out separately on the Green Hornet aircraft under the watchful eye of one of the Project Security Officers, or as we know, one piece of the active material came out aboard the cruiser, U.S.S. *Indianapolis*. Captain Parsons believed that this would be the most secure way to ship this precious material, considering that there was always a possibility of the loss of an aircraft in the long over water-flight. I suppose now one might question that decision after the *Indianapolis* disaster.

PS: Were you in any way associated with the shipment of these bomb components in the cruiser U.S.S. *Indianapolis*?

FLA: In a way, yes. If I recall correctly, it was the target material, the U<sup>235</sup> material, for the Little Boy that came out aboard the cruiser. This was a relatively good-sized piece of U<sup>235</sup>. The projectile for the Little Boy was flown out later.

I had the job of going down to the small port on the south end of the island to take the material off and bring it back to the compound on the north end. I obtained an LCM landing craft from somewhere, the Port Captain probably, and went alongside the ship, which was anchored outside the port, to take off the package. The ship used a whip on a small boat-like davit to lower it into the LCM. Things progressed satisfactorily until the last moment when either the crew lost control or the LCM was lifted by a wave. The container hit the bottom of the boat with an uncomfortable crash, but it and the boat appeared to have survived OK. This was a heavy container, and could possibly have gone right through the bottom of the boat.

However, we got it safely ashore and trucked it up to the north end of the island. As we now know, after the ship left Tinian for the Philippines, I think it was, she was torpedoed and sunk with the loss of many of her crew.

PS: Were there any special storage precautions between the arrival there and then the eventual mission?

FLA: I don't know that there were any particular storage precautions. The containers in which the material was shipped were secure and provided protection from the small amount of radiation that was emitted by the material. At least I think that there was some radiation emitted by the U<sup>235</sup>, but I am not sure. I do know that Plutonium emitted some Alpha rays, I think they are, because it was warm to the touch. The Los Alamos group had quonset hut-type laboratories for their specialized assembly and test work, and I suppose the material was delivered directly into their custody where they would be working to get it ready for assembly into the bomb.

You see, we are talking about the middle to late July, and the whole effort was targeted to the first of August, when General Groves had said that all should be ready for the combat operations. This of course was an educated estimate with inputs from all parts of the project that would be involved in meeting such a readiness date.

Now, it's interesting to also point out that, as far as the Fat Man was concerned, there had been considerable difficulty developing the system to bring about the implosion process. Especially difficult was the development of the coaxial cables connecting the condensers to the detonators which had to be designed in such a way that the charge from the condensers to the detonators, would reach each at exactly at the same time since each of the cables was of a different length. Time delays had to be developed to accomplish this requirement. Many tests had been made at Wendover during this process. There were other complications that needed solving before it was felt that the bomb would be ready.

As these test programs continued, the first of August was rapidly approaching. But finally on the eighth of August a final complete assembly of the Fat Man bomb was ready for testing. We used this opportunity to make a full-dress rehearsal of the processes of loading the bomb into the bomb bay, the aircraft takeoff and a drop on a target in the sea off the island. Captain Beahan, the bombardier in Major Sweeney's flight crew, used his Norden bombsight to make the drop, simulating a standard bombing attack. Telemetering and observation from shore

indicated that the bomb had functioned as expected. I should point out of course that there was no active material in the bomb for this test.

The next morning at around 3:30, we took off with a bomb aboard our B-29 configured like the one we used in the test, to make the attack against Japan. I am about as sure as I can be that this must have been the shortest time from development to use in combat of any weapon in the history of munitions.

PS: What responsibility did General LeMay on Guam have for the conduct of these operations?

FLA: He was in command of the XXI Bomber Command on Guam to which the 509th was assigned. I think that there was an intermediate command level, the 313th Bomb Wing. However, you can be sure that LeMay ran the show within the limits of his authority delegated from Washington. There wasn't much left for his command decisions, because much of the strategic, and some of the tactical, decisions were closely held back in Washington. The targets



*This is a photo of North Field on Tinian from which the Nagasaki mission took off. Only useful to show the concentration of B-29s that raided Japan toward the end of the war.*

had already been selected by a special committee designated for this purpose by General Groves and approved at the highest levels of government. Dr. Oppenheimer from the Los Alamos Laboratory was a member of this committee to provide the best technical input possible. I don't know whether President Truman had any part in the selection of targets or not, but his agent Henry Stimson, Secretary of War, certainly did. In this regard it should be understood that the recommendation of the target selection committee placed Kyoto at the top of the list, followed by Hiroshima, Kokura, Nagasaki and Niigata. Secretary Stimson objected adamantly to the inclusion of Kyoto and forced its removal from the list. It was his position that since Kyoto was the cultural center of Japan it was one area that should be preserved for the Japanese when the war was over. Therefore, with the targets already designated, General LeMay's responsibilities involved the local tactical aspects of the operations. His Mission Orders (see Appendix F) prescribed all the operational parameters of the missions, and his was the selection of the time for the attacks according to the weather conditions that would exist over the empire.

Yes, General LeMay had a very active concern about the conduct of the 509th, as any superior commander should. I recall an official visit that I made to LeMay's headquarters on Guam to conduct some sort of business which now escapes me. While there I met with the General. "Where the hell is Tibbets?", he asked. I told the General that he was still back in the States. This was around the middle of July. Tibbets was pretty relaxed in this regard. I expect he was taking advantage of his private airline and the opportunity to watch the Trinity test. General LeMay just exploded, as only he could. "You tell him to get his ass out here, or I'll send somebody up there who can run his outfit". There are many references in some of the accounts of the time about a hurry-up trip that Tibbets made out to Tinian, that Ferrebee, his bombardier, called him to the island for an emergency. I suspect that my reporting the conversation with LeMay was the emergency that resulted in the hurry-up return to his duties on the island.

But to continue. The bomb preparations were essentially completed by the first of August. However, there was a small typhoon in the area of Japan which would preclude any bombing operations. The weather forecasters believed that it would be five or six days before the disturbance cleared out and bombing would be possible. Thus the target date for the Hiroshima attack was set for August 6.

As I mentioned earlier, the Trinity test took place on the 16th of July. Many of the Los Alamos people returned to the States to witness the test. Captain Parsons was aboard an aircraft to better observe the shot. Unfortunately, for some reason, he was about 200 miles away when the test was fired, so he didn't have an opportunity to see much of it. I think that this occurred because of delays due to weather which probably were not communicated to him. In any event, motion pictures of the shot were made and brought back to Tinian by Captain Parsons.

Briefing of the flight crews that would be involved in the Hiroshima mission and all the crews of the 509th was done at mid-night, the night of August 5-6. The movies of the Trinity shot were shown, and for the first time they became aware that they were involved in something very special. "Yes, this is an atom bomb that you will be dropping tomorrow, and here's what it will do when it goes off."

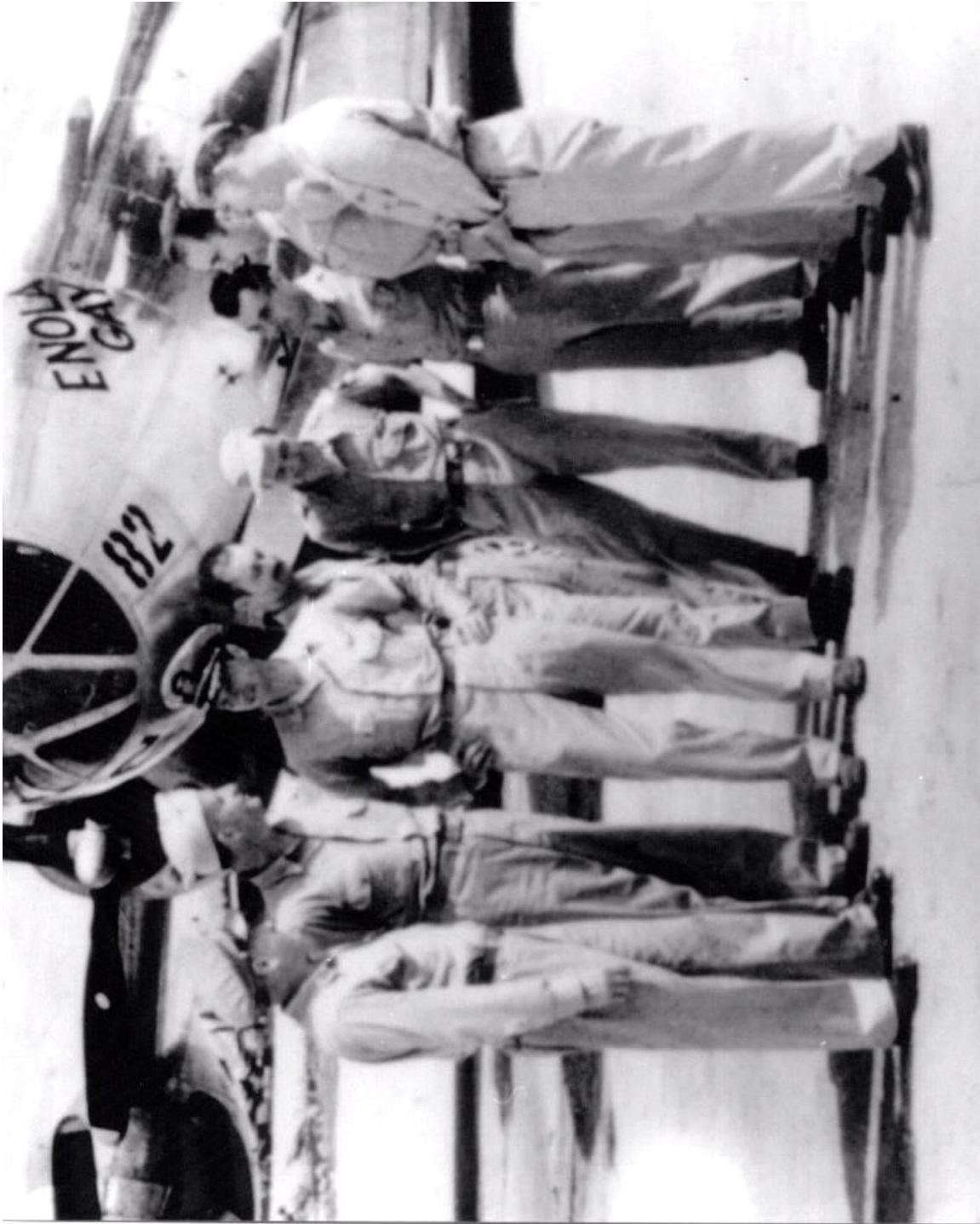
The departure of *Enola Gay* that night was a relatively gala affair. There were lights and cameras, sort of a Hollywood preview, with many of the senior officers in the area present. The bomb had been loaded into the aircraft earlier in the afternoon, Captain Parsons had completed



*Tinian - All the top brass. Left to right: Commander F.L. Ashworth, U.S. Navy; Brigadier General Tom Farrell, U.S. Army, Deputy for General Groves on Tinian; Major General Frank Armstrong, U.S. Army Air Forces, CG 315th Bomb Wing; General Nathan Twining, U.S. Army Air Forces, senior Army Air Forces officer in the Pacific theater; General Tooley Spaatz, U.S. Army Air Forces.*



This is an unusual photo because it includes all the major players on Tinian. Left to right: Brigadier General Tom Farrell, U.S. Army, General Groves's deputy on Tinian; Captain W.S. Parsons, U.S. Navy, weaponeer in crew of Enola Gay; Commander F.L. Ashworth, U.S. Navy, weaponeer in crew of Bockscar; Major Tom Ferrebee, U.S. Army Air Forces, bombardier Enola Gay; Captain Dutch Vankirk, U.S. Army Air Forces, navigator Enola Gay; Colonel Paul Tibbets, U.S. Army Air Forces, pilot Enola Gay; Major Charles Sweeney, U.S. Army Air Forces, pilot Bockscar; Captain Kermit Beahan, U.S. Army Air Forces, bombardier Bockscar.



*This is the same photo as on the previous page, but is a better view of the Hiroshima bomb-carrying aircraft.*



*Tinian 1945. Members of the Los Alamos technical team responsible for the atom bomb preparation. Left to Right: Dr. Norman Ramsey, leader of the civilian group; Captain William S. Parsons, U.S. Navy, in command of the Los Alamos technical team; Brigadier General Thomas Farrell, U.S. Army, General Groves's deputy on site at Tinian.*



*Tinian. Left to Right: Dr. Norman Ramsey, leader of the civilian group; Captain Kermit Beahan, U.S. Army Air Forces, bombardier Bockscar; Commander F.L. Ashworth, weaponeer Bockscar; Sheldon Dike, Los Alamos aeronautical engineer.*



his familiarization with the new breechblock by which he would “arm” the bomb. Takeoff was around 2:30 in the morning.

I think that this is the first time I have mentioned *Enola Gay*. It is, of course, generally known that Tibbets had named the aircraft after his mother. Not so generally known is how this came to pass. This particular B-29 had been assigned to Captain Bob Lewis as the aircraft commander. It was routine that the Group Commander would not be assigned any particular aircraft, and being the boss, could fly in whichever aircraft he chose.

It was also routine in the Air Forces that the crew of an aircraft choose the name that they wished the plane to carry. I don't know why, but Lewis's crew had not yet chosen a name; maybe they couldn't agree on what it might be. So, unbeknown to Bob Lewis, on the night prior to the Hiroshima operation, Colonel Tibbets ordered whomever in the Air Group organization that did things to paint “*ENOLA GAY*” on Bob Lewis's aircraft. It has been reported that Lewis was furious over this, but the old rule of “rank hath its privileges” took precedence over one Captain's wishes. It has also been reported that Captain Lewis was, and for many years after, of the view that since it was his aircraft, he should have flown the mission. This of course was wishful thinking, for I am sure that as soon as General Groves approved the assignment of Tibbets to command the group, he was slated to fly the first mission. Tibbets had a superb record as a bomber pilot while with the Eighth Air Force in Europe, and I believe, led the first bombing mission over Germany. Apparently he was well impressed with the professionalism of Bob Lewis's crew, so he chose that B-29 for the mission, moved Lewis over to the right seat and became the aircraft commander. I understand that Lewis, up until his death many years later, never forgave his boss for depriving him of this honor. A hollow dream, to say the least.

The operational plan for the Hiroshima mission was set forth in “Mission Orders” from General LeMay's headquarters, with major inputs, I am sure, from Colonel Tibbets. There were to be two B-29s accompanying the bomb-carrying aircraft, *Enola Gay*, after having made a rendezvous over Iwo Jima. One would carry Los Alamos-designed instruments which when released from the aircraft simultaneously with the dropping of the bomb, would be suspended by parachute as they dropped. These were blast gages monitored in the aircraft from which they were dropped to attempt to get the yield of the bomb.

The second plane would carry observers, including William L. Laurence of the *New York Times*, who had been designated as the press correspondent for the Manhattan Project and Group Captain Cheshire of the Royal Air Force. He was a Victoria Cross winner who, after more than 30 bombardment missions over Europe, requested and was assigned to a fighter squadron and participated brilliantly in the Battle of Britain. It is obvious that this officer was highly qualified to make comments on and critique the missions, a subject that I will touch on later.

About an hour prior to the take-off of these B-29s, two others would be launched to scout the weather in the target areas and report to Tibbets on the way to the primary target, who could then make the decision to proceed with the attack.

The targets assigned were Hiroshima first and Kokura as the secondary target. These targets had been included in the list of targets that had been set aside from conventional bombing, to be saved as potential targets for the atom bomb operations. They were without question good military targets. Hiroshima was the headquarters for all the Japanese forces that

would be engaged in defending against the invasion of the Japanese mainland. Kokura was a relatively small city where a major military production arsenal was located.

There is nothing much to be said here about the Hiroshima mission except for the events that took place on return to Tinian. It was a textbook performance. The bomb was dropped on the city of Hiroshima within not more than 15 seconds of the planned time. It experienced no unforeseen problems to interrupt the plans for the mission, and was in all respects a superb job. This reflects well on Colonel Tibbets's experience and capabilities, the excellent performance of his, or rather, Bob Lewis's crew, the Navigator, Captain Van Kirk and the Bombardier Major Ferrebee.

Upon return to Tinian, Tibbets taxied the aircraft to the operations area and was met by most of the brass in the Western Pacific. General Spaatz was there and pinned a Distinguished Service Cross on Tibbets as soon as he stepped from the plane. There was a lot of picture taking and fanfare. Later Captain Parsons was awarded a Silver Star by the Army, a decoration three levels below that of the DSC. I have always felt that if Tibbets deserved a Distinguished Service Cross, Parsons did too. It can be argued, if one is so inclined, that Parsons didn't do anything but ride along, babysitting the bomb. His successful arming of the bomb in flight by the insertion of the powder charge after take off was crucial. True, he had no important decisions to make except to verify the target that they were about to attack. But that does not change in any way the responsibility that he had to make those decisions if they had been required. Further, his duty on that flight was the culmination of more than three years of superb performance in bringing the bomb to its operational readiness for the attack on Hiroshima. In my opinion, without him in the program, it might never have reached that point of readiness. Performance like that deserves the highest recognition the services can give.

A report to General Groves as to the results of the mission was transmitted as soon as the crew was debriefed and it was at this time that President Truman was informed of the results of the mission. He was on his way back from the Potsdam conference, and the public announcement was made from the ship in which he was embarked, U.S.S. *Augusta*.

So the secret was out. We had attacked Japan with an atom bomb.

The original plan for the assembly of the Fat Man bomb envisioned a period of five days to complete since the same people who had worked on the Little Boy would be involved in the assembly and preparation of the Fat Man. However, the forecast by the weather experts predicted that the good weather, after the earlier disturbance had passed through, would probably last not more than three days. If this good weather was to be taken advantage of, the time to assemble and prepare the Fat Man bomb had to be compressed into this three-day period. This required around-the-clock work by everyone involved.

So early in the morning of August 9, and after the operational briefings, we gathered on the flight operations line where the aircraft were being preflight-checked for the coming mission. There was no fanfare this time, no high-level officials, just us working folks, getting ready to go. There were thunderstorms in the area, some rain, and an occasional flash of lightning stabbed through the darkness. Airmen don't like lightning. In many ways it seemed that our mission was to be somewhat of an anticlimax, but perhaps a more exciting one than the operation a few days before. It was at this point that our troubles began. Sweeney's aircraft, *The Great Artiste*, named after Captain Kermit Beahan, the suave Bombardier in the crew, still had the yield recording



*B-29 "BOCKSCAR" delivered the atomic bomb to Nagasaki, Japan. Bombardier's position in the nose, pilots above.*

instruments installed for the Hiroshima operation. It had been decided that the bomb would be loaded in another B-29, *Bockscar*, with Sweeney and his crew manning the plane. In the preflight check, the Flight Engineer in Sweeney's crew found that the transfer pump in *Bockscar* which would move gasoline from the after bomb bay auxiliary tank into the main fuel system to supply the engines seemed to be inoperative. He reported that it would be impossible

for us to use the 600 or so gallons of fuel that had been loaded into that tank. We were confronted with our first decision, should the mission proceed with the knowledge that we would be carrying around 600 gallons of unusable fuel? However, it should be noted here that the fuel loaded into the tank in the after bomb bay was intended to provide stability to the aircraft by balancing the weight of the bomb in the forward bay. It was recognized all along that if the mission was carried out as briefed there would be no need for this fuel.

I suppose that my responsibilities required an input from me about this, but I felt that this was an airplane problem and should be solved by the airplane people; Sweeney and Tibbets. They decided, and I agreed, that if things went more or less as expected, it would be possible to make the round trip to the target and back with no problem. In any event we could stop at Iwo Jima to refuel if we had to. As things were envisioned at the time, this was a good decision. However, I'll have more to say about this when I critique for the record, this, the second most important bombardment operation in World War II.

There was another complication that would require us to deviate from the flight plan used during the Hiroshima operation. There was a large storm centered over Iwo Jima which would preclude the rendezvous of the three aircraft there as contemplated --- the bomb-carrying aircraft and the aircraft with the instruments aboard and the one with the observers. We would rendezvous over a small island off the coast of Kyushu, Yakushima, some 1,500 miles from our base on Tinian.

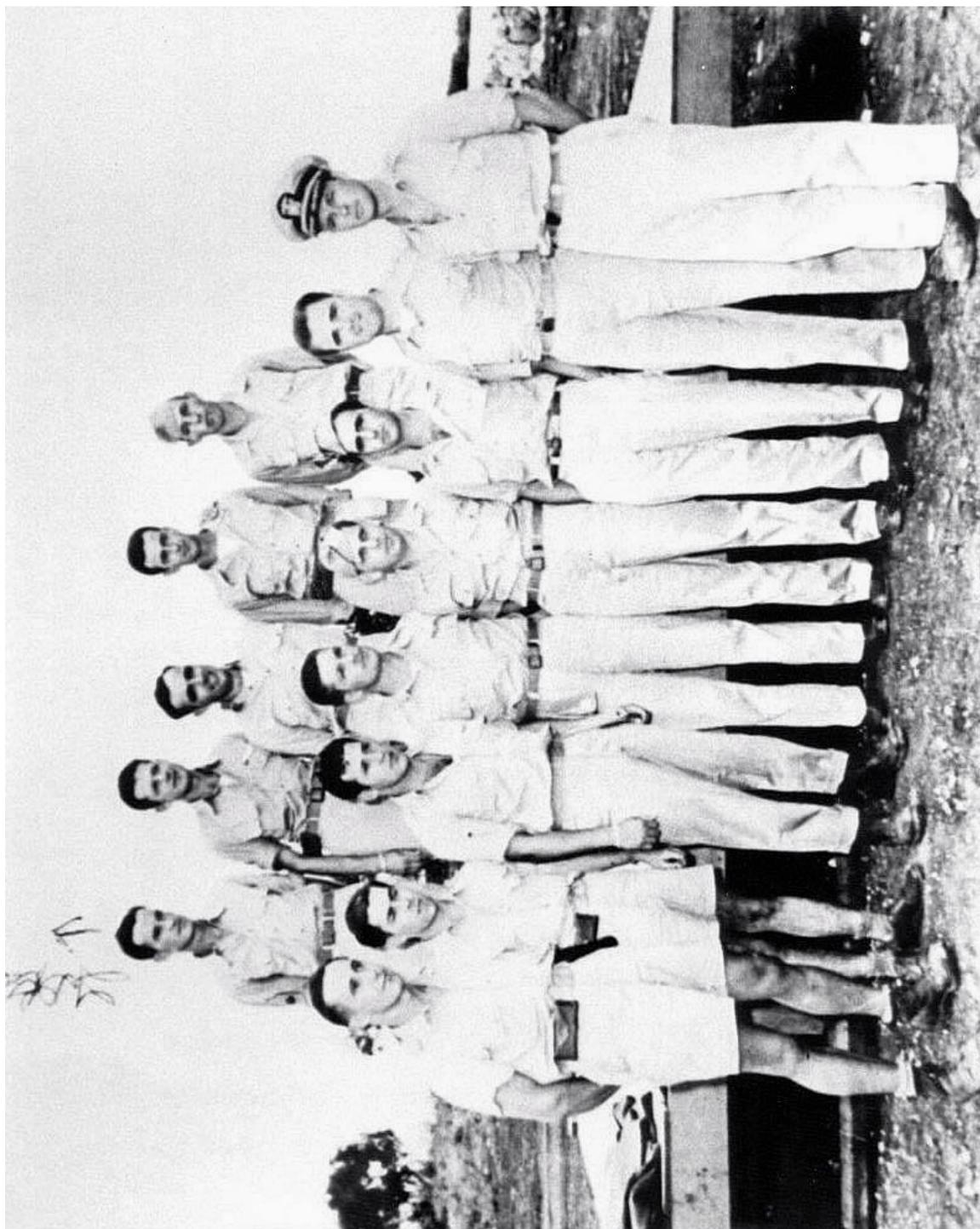
The three planes took off individually with no problem and proceeded independently to the rendezvous island.

PS: Were you the only one from the Los Alamos group aboard the bomb-carrying aircraft?



*On Tinian prior to takeoff for Nagasaki. Left to Right: Colonel Paul Tibbets, U.S. Army Air Forces, CO, 509th Composite Bomb Group; Rear Admiral Purnell, U.S. Navy, member of General Groves's Policy Committee; Captain W.S. Parsons, U.S. Navy, weaponeer Enola Gay and Military Commander, Los Alamos Technical Group; unknown; Commander F.L. Ashworth, U.S. Navy, weaponeer Bockscar.*

*Topic of Discussion: whether to go in spite of gasoline problem.*



*Photo showing full crew of Bockscar. This is the only one that I know of which I am in.*

FLA: No, there was also a young Army Second Lieutenant, named Phil Barnes, an electronic specialist, who was aboard to assist the Weaponeer, me, in monitoring the electronic components of the bomb during the transit to the target. There had been designed and built by the Los Alamos electronic group a “black box”; all “boxes” that contain instruments to test things are usually called “black boxes”. This one was actually painted black. The meters, switches and lights on the face of this box permitted the electronic assistant, through an umbilical cable connected into the bomb, to monitor the performance and readiness of the many components in the bomb that would be required to cause the bomb to explode as expected and when expected, several hundred feet above ground.

Recently I was at the Smithsonian Institution where the *Enola Gay* is being restored. There I saw a post-war version of the “black box”, smaller, as one might expect as a result of refinement, and this time painted gray, where it was installed in the Navigator’s compartment just behind the flight deck as it had been in the *Bockscar*, the aircraft that we were flying for the mission.

Both the Little Boy and the Fat Man were designed to be self sufficient once released from the bomb bay of the aircraft. That is, they were designed so that once they left the aircraft bomb bay, they were on their own. The bombs had an internal power source in the form of a typical lead-acid storage battery to energize the electrical components. While still in the bomb bay, power was provided from the electrical system of the aircraft, and connections to all the components in the bomb were made through an umbilical cable connected to the instrument box.

In addition to the storage battery power source, there was a bank of nine “safe separation timers”; clocks that were started at the time of the bomb release. These disarmed the system for 15 seconds in order that as the bomb dropped away from the plane, a detonation would be impossible, ensuring the safety of the plane. Any three of the nine clocks operating would provide the delay required, and during this time the bomb would have dropped some 10,000 feet from the plane. Here we find the redundancy built into the bomb. Captain Parsons demanded a failure rate of only one in 10,000 chances.

There were barometric switches that were designed to close at an altitude of about 8,000 feet, at which point the fuses would begin to radiate to measure the height above the ground desired for the bomb detonation. Again, there were nine of these switches, any three of which would be sufficient to perform their function. It was mandatory that the fuses not radiate until they reached this altitude to limit the chances of the Japanese monitoring the radar frequency and thus set up jamming radiation.

The voltage pulse that would set off the detonators around the sphere to initiate the detonation of the explosive charges was provided by a bank of four large condensers called the “X-unit”. Any two functioning satisfactorily would be all that was required. Again, the reliability factor at work.

The radar fuses could be activated to determine their condition. Any two of four of the fuses would provide the necessary firing signal.

All of these components could be monitored throughout the flight by means of the black box, and the expertise of the electronics officer on board.

PS: I think that you have mentioned another safety feature of the bombs in the form of red and green plugs installed on the outside of the bomb cases. Could you describe them and their function?

FLA: These were ordinary A-N standard electrical connectors that were modified in such a way that when the green plug was installed in the bomb case receptacle, the arming and firing systems of the bomb would be isolated completely from the rest of the electronic components. These connectors, or plugs, were painted green, denoting that when installed, there was minimum chance of a premature detonation of the bomb, either on the ground or in the air. There were similar plugs painted red, which, when installed on the bomb, would remove the isolation of the firing and fusing systems so that they would be ready as the bomb fell away from the aircraft.

After takeoff and when well clear of the base on Tinian, I entered the bomb bay, removed the green plugs and installed the red ones. The electronics officer ran a complete check of the bomb by means of the black box, found everything satisfactory and I announced to the pilot, Chuck Sweeney, that we were ready to proceed on the mission.

PS: So the long-awaited adventure was about to begin?

FLA: I can't say that it was a long-awaited adventure, but it turned out to be an adventure indeed. We proceeded independently in accordance with the modified flight plan cruising at around 17,000 feet. Navigation was excellent, and we arrived over the island of Yakushima as planned and circled to await the other two aircraft that were to join and accompany us on the rest of the mission. Approximately five minutes later one of the B-29s arrived at the rendezvous.

Now, all these years later, it seems to be clear that there was a disconnect in the communications between Sweeney and me. After another five minutes or so when the third plane failed to show up, I told Sweeney that it was particularly important that we have the plane carrying the bomb-yield measuring instruments with us before we proceeded to the primary target. I wasn't worrying much about the plane carrying the observers, but wanted very much that we be able to attempt to measure the yield of the bomb. Memory does strange things after this many years, but there are some things that at the time must be so indelibly etched into the memory circuits that they don't change with time. This was one. I mention this because it became a bone of contention later about why so much time was taken at the rendezvous and who was responsible.

We continued to loiter at the rendezvous. After about 45 minutes and there was no sign of the third B-29, I told Sweeney that we had to give up on this guy and hope that it was the instrument-carrying aircraft that was with us. You must remember that we were required to maintain radio silence. It was well beyond the time that we should have left the rendezvous and headed for our primary target, the city of Kokura.

It doesn't take much imagination to see that there was something definitely wrong here. We were using up precious fuel, perhaps needlessly, and after all the facts were in, it was clear that this nearly caused us to lose the mission. We should not have wasted that fuel needlessly. There have been some who have charged Ashworth with this, but more on that later.

I think that, for the record, I should refer again to the interview that was held at the Smithsonian at the time of the restoration of the *Enola Gay*. Sweeney, then a Major General in the Air National Guard incidentally, held forth in the interview at great length on how he commanded the Nagasaki mission. In talking about the rendezvous, he stated that within five minutes Captain Fred Bock, piloting the B-29 with the blast-measuring instruments on board had joined. Later I asked Sweeney why, if he knew that the instrument-carrying aircraft was with us, did he loiter for 45 minutes waiting for the third B-29. Answer: dead silence.

PS: How do you spend time on a flight like that?

FLA: How do you spend the time? Well, of course there was plenty to do. I was keeping a log. I was closely following my assistant as he made his checks on the bomb's readiness. In between times I guess that you just worry a little. Most of the flight crew took turns napping. We had three pilots on board, so that was not a strenuous thing for them. I am sure that having heard the reports of the devastation brought about by the bomb on Hiroshima, there was some nervousness on the part of all of us about what we had to do and what might be the Japanese reaction to a couple of B-29s flying around in circles. I know that Sweeney was anxious, because I heard him announce over the plane's inter-communication system that he wanted to do this mission perfectly, "for Paul", referring to his boss, Tibbets. And you just wait and if things look like they may be going a bit wrong, you sweat.

We left the rendezvous accompanied by the one B-29 that had arrived and set course for Kokura, our primary target.

At this point I should say that these missions were under strict orders from Washington that under no circumstances would the bombs be dropped other than by visual bombing, using the Norden Mark XV bombsight, with which all the planes in the group were equipped. Of course, Captain Beahan, the Bombardier, was aware of this. This was a reasonable directive, for there had to be no question that the target being attacked was the target assigned. The Weaponeer was charged with the responsibility of visually certifying this. Parsons did this by direct visual observation at Hiroshima, and I was to do the same when we arrived over our primary target. For reasons that I will point out later, I verified the Nagasaki target by checking the radar image on the radar repeater at the navigator's station.

About two hours earlier we had received a weather advisory for the target areas from the weather scout B-29s that had been launched ahead of us. Kokura was clear and would be available to become our target. The report from Nagasaki was that it was clear, but that there appeared to be a chance of cloud build-ups in the area later.

As we approached the city of Kokura conditions appeared to be favorable for the attack. The navigator took us to the "initial point", that geographic point from which the final bombing approach would be made. Captain Beahan took control of the maneuvering of the aircraft as it approached the target, based upon the bombing solution being calculated in the Norden bombsight. The target area appeared to be hazy with some smoke in the area. The approach continued, but at the last moment as we neared the drop point, Captain Beahan reported over the plane's intercom, "No drop". The smoke and haze had obscured his actual aiming point so that a visual drop could not be made. We were experiencing the situation frequently found when flying

at high altitudes. At the long slant range to the ground it was difficult to see clearly through the natural haze. Then came the frustrating part. As the plane reached a position more nearly above the target, it became visible through the bombsight telescope, but then it was too late to solve the bombing problem and release the bomb.

It occurred to me that it might be possible to make the bombing approach from a different direction and that surface winds might clear the target area. I suggested to Major Sweeney that we try to approach the target from a direction 120 degrees from the original approach path. Perhaps from a new direction we might be successful. Sweeney agreed with the suggestion, but the visibility was no better. "No drop", reported Captain Beahan.

I suggested that another 120 degrees might work. But again no success. Fifty-five minutes of precious fuel had been expended. It was time to think about the secondary target, Nagasaki.

There has been considerable criticism of these decisions, particularly in view of the fuel situation. It is still my position that what we did was entirely justified. Our job was to attack our primary target, Kokura. What might happen after that was incidental to the failure or success of the mission. Should fuel starvation later result in a ditching operation in the sea, so be it.

PS: Well, after three passes over the target you must have got their attention.

FLA: There have been reports that during the last approach to Kokura heavy antiaircraft fire began to reach our altitude. Although I was in no position to see directly, my recollection of the reports from members of the crew better able to see, was that indeed, antiaircraft bursts had been seen, but a long way behind us and lower than our flight level. I do recall that Lieutenant Beser, who was aboard to monitor Japanese radio frequencies with a view to determine if there might be jamming on the frequency of our radar-type bomb fuses, reported action on fighter director circuits which could indicate that fighters might be on the way to attack.

We did not need any more evidence that it was time to proceed to the secondary target.

The original flight plan had us circumnavigate the island of Kyushu and approach Nagasaki from seaward. The shortage of fuel precluded any such maneuvers, and we flew directly across the island headed for Nagasaki. This was not entirely comfortable, for we were aware that the Japanese fighters that were being hoarded for the final defense of the Empire against invasion were based on the island of Kyushu. On the way I noted an ominous buildup of clouds below. I wondered what the weather might be over Nagasaki. I was soon to find out.

When we approached the area of Nagasaki, the Navigator announced that he had the target on radar. One of my responsibilities was to verify personally that the target that was about to be attacked was the assigned target. The radar image of Nagasaki was distinctive by the long bay leading to the city. There was no question but that we were approaching our assigned secondary target. A visual look outside the aircraft indicated that there was also no question but that the area was, or appeared to be, completely covered by an undercast of clouds. Decision time!

We were well aware of the precariousness of our present situation. A shortage of fuel, calculated by the Flight Engineer to provide barely enough, if enough, fuel to carry the bomb aboard the plane to the nearest friendly airfield on Okinawa. If not enough, a ditching in the sea

with the bomb aboard would be inevitable. At the same time it was clear that there could be no fiddling around in the target area trying to drop the bomb. To do so would ensure a ditching at sea before an arrival on Okinawa. We would have one and only one attempt at a successful drop, and that appeared to be impossible by visual bombsight in view of the clouds beneath us. I informed Sweeney that we would make our approach by radar and if necessary drop the bomb by use of the electronic bomb director which would be operated by the Navigator. The approach continued.

A well qualified and trained bombing team using an electronic bomb director can very rarely make an accurate drop under these conditions. One thing that can be done is for the electronic bomb director operator to call out to the visual bombardier dropping angles calculated by his director so that the visual bombardier can follow the approach moving the telescope in the Mark XV bombsight down the calculated flight path. Captain Beahan was getting these reports from the Navigator and adjusting his bombsight accordingly.

As the approach continued, what had appeared to be a solid cloud coverage below from the longer slant ranges now became patchy, with numerous large holes through which the ground could be seen. The cloud cover now was only about five tenths. The Bombardier called out, "I have the target." He refined the bombing solution generated by the bombsight, and the bomb was released automatically by a signal from the bomb sight. So we ended up actually dropping the bomb visually as had been directed.

Captain Beahan wrote in a memorandum several years later that the radar crew had made an excellent approach and when he spotted a hole in the sky below he was able quickly to refine the bombsight telescope synchronization and release the bomb "on the industrial area of the city".

PS: I think that you said yesterday he had maybe a 20-second break in the overcast.

FLA: Precisely. He had about 20 seconds to synchronize and release the bomb. When you think about it, under the pressure of the shortage of fuel, picking out an aiming point through a hole in the clouds below, and knowing full well that the success of the mission depended upon this one bomb run, the skill and coolness displayed by Captain Beahan under such stressful circumstances were extraordinary and a performance that probably could not be matched by many, if any, bombardiers in the Army Air Corps. A superb performance which does not appear to me to have been adequately recognized by his superiors.

PS: Did you encounter any fighters at all?

FLA: No fighters. No effective opposition whatsoever beyond what I have already mentioned.

Upon release of the bomb the pilot put the plane in a 60 degree bank and made a 150 degree turn to the right, a maneuver that had been calculated by the scientists at Los Alamos to place the aircraft at the maximum distance from the bomb detonation when the shock waves arrived.

About 45 seconds after release, the time of fall of the bomb, we were able to see through the heavy welders' goggles that we all were wearing, a brilliant flash of light. Shortly after that,

and when we were about eight miles away from the detonation, the first shock wave arrived, followed immediately by a second, and then, according to my recollection, a third. There is controversy about this too, for there are reports that as many as five shock waves struck the plane. I still say there were but three. Two we expected from the experience at Hiroshima. The third bothered me a bit, because I didn't expect it and wondered if it had not been a close antiaircraft burst. It has since been rationalized that the first was the direct wave from the explosion, the second a shock wave reflected from the ground beneath where the bomb exploded. The third another reflection from the surface. Later it was speculated that the third was a reflection from the low-elevation mountain that separated the city of Nagasaki from the Urakami river valley close by the city and where we discovered later the bomb had actually exploded.

PS: Can you describe the sensation in the plane from the shock waves?

FLA: The evidence of these shock waves was more one of noise than anything else. I have always characterized it as if someone had struck an empty metal trash can with a baseball bat. There was a minor movement of the plane, no worse than a sharp bump frequently experienced when flying in a commercial aircraft in clear air turbulence. The current literature describes them as violently tossing the plane about. No way, at least in my experience.

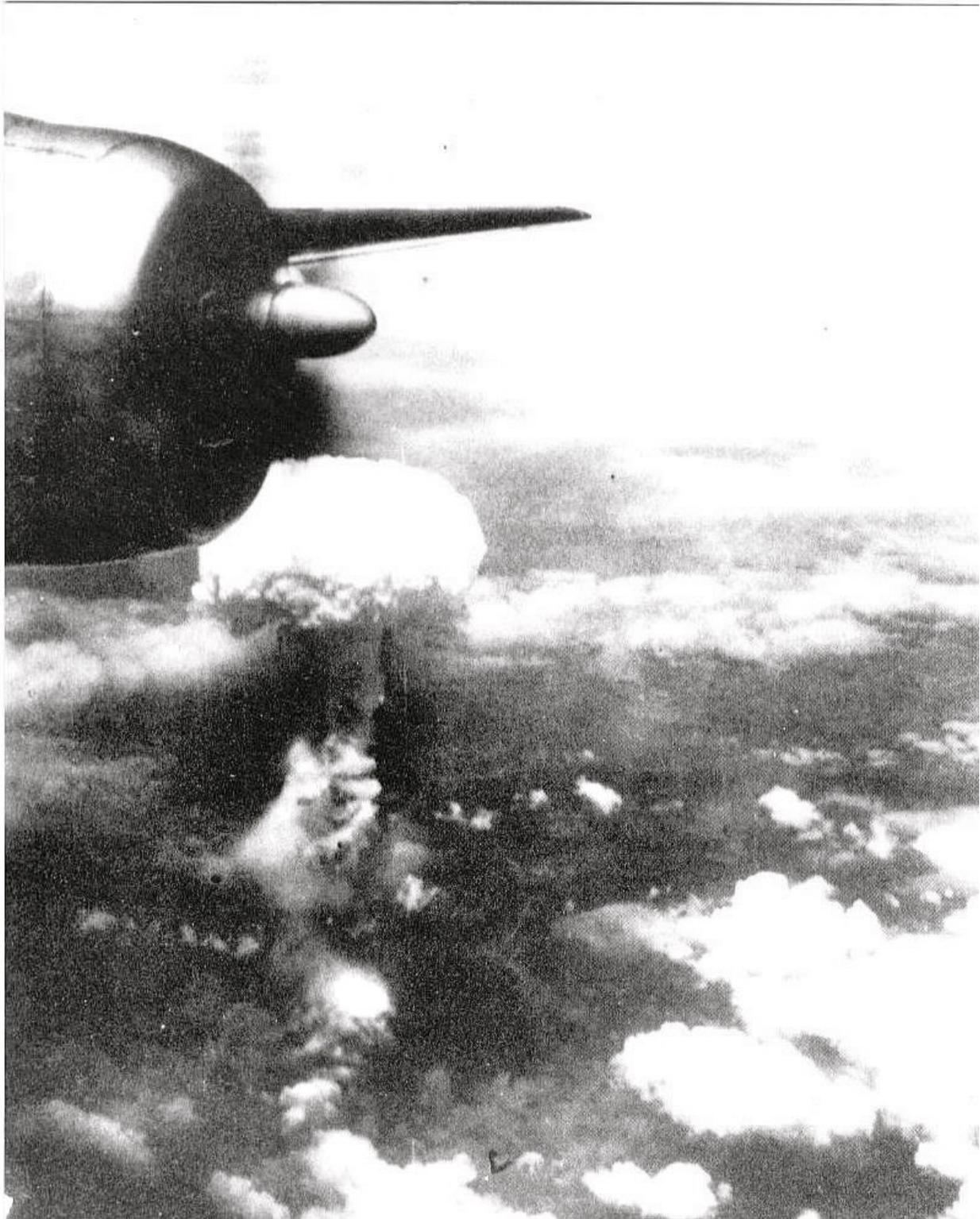
PS: At what point could you take your goggles off?

FLA: It was safe to remove the goggles as soon as the flash had subsided, almost instantly.

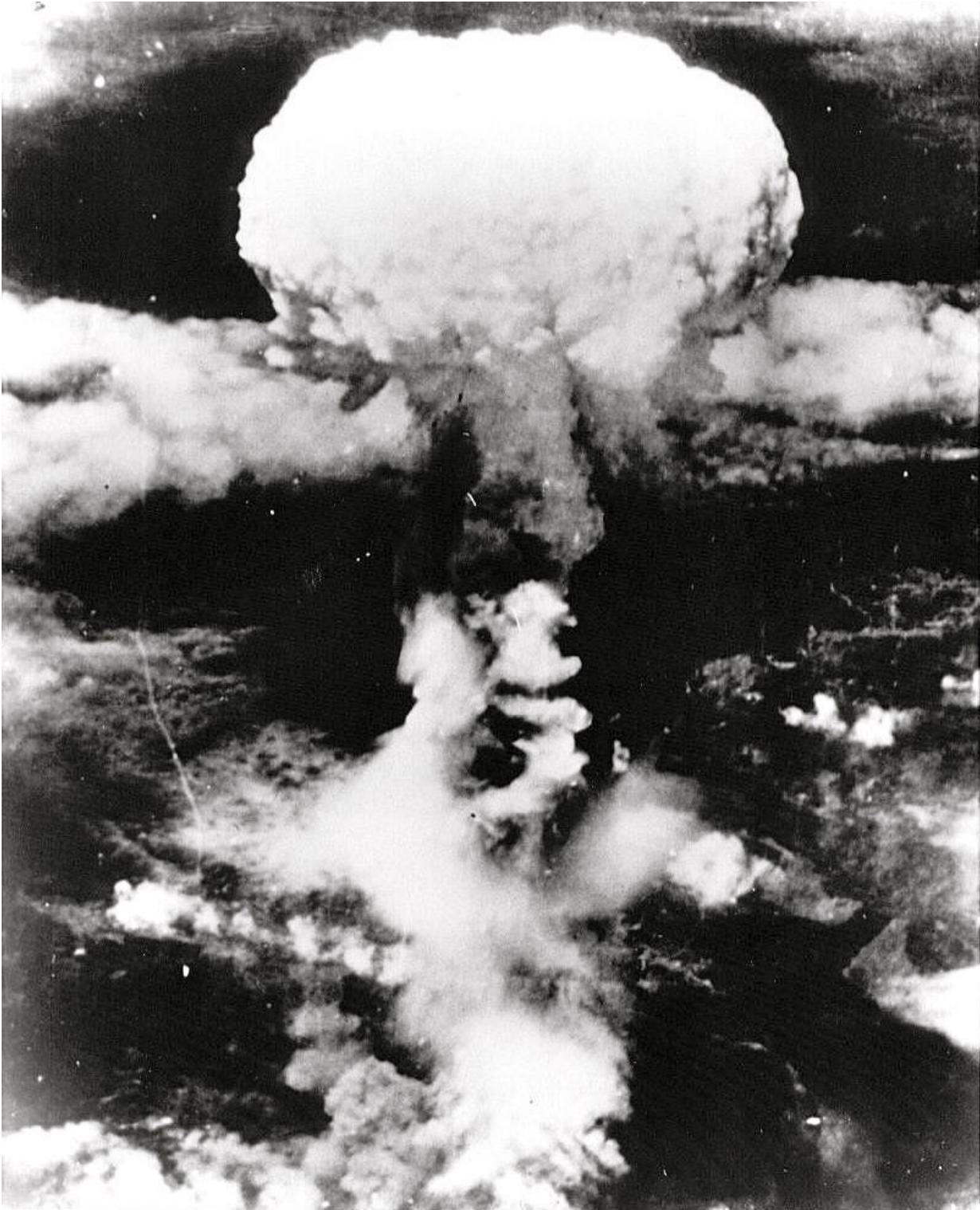
PS: Did you observe the mushroom cloud from close aboard?

FLA: Yes, after the shock waves had passed, we returned to the vicinity of the explosion, made one turn around the cloud and, because of our fuel situation, departed immediately in a long slow glide, engines throttled back to save fuel, for Okinawa, the closest friendly airfield. By this time the cloud had reached our altitude of around 29,000 feet. There was a tall, dark column of smoke, and I suppose debris, from the target area, topped by a mushroom shaped cloud, boiling and roiling as it climbed. It looked as if there was flame and fire in the cloud as it swirled around, colored a salmon pink-like color. We learned later that the pink color was from the nitrous oxide generated in the explosion. This is probably a superficial explanation, but the one that was given to me after the flight.

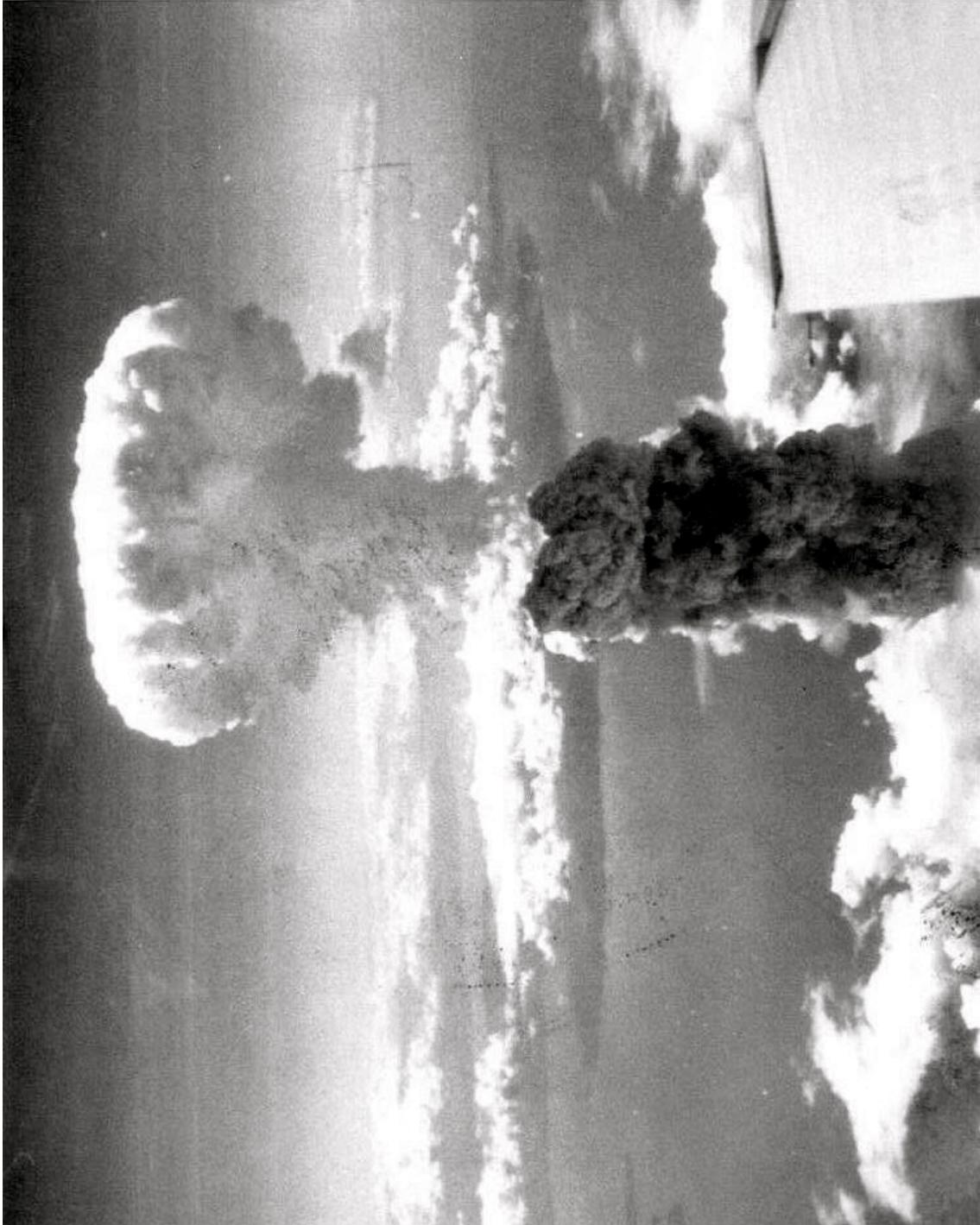
There is more controversy about this as well. There are several crew members who are absolutely convinced that the plane was very nearly enveloped by the mushroom cloud as it expanded and reached our flight level. What I was able to observe through the small port in the Navigator's compartment does not agree with this. I remember that we were close, but I didn't feel that we were in any danger. Of course, most of the crew were in better positions to observe and therefore they may be correct. Had this actually occurred, we would have been in a very dangerous situation and would have received massive amounts of radiation from the cloud as it would be pulled into the aircraft pressurizing system. By anyone's guess, it was too close for comfort.



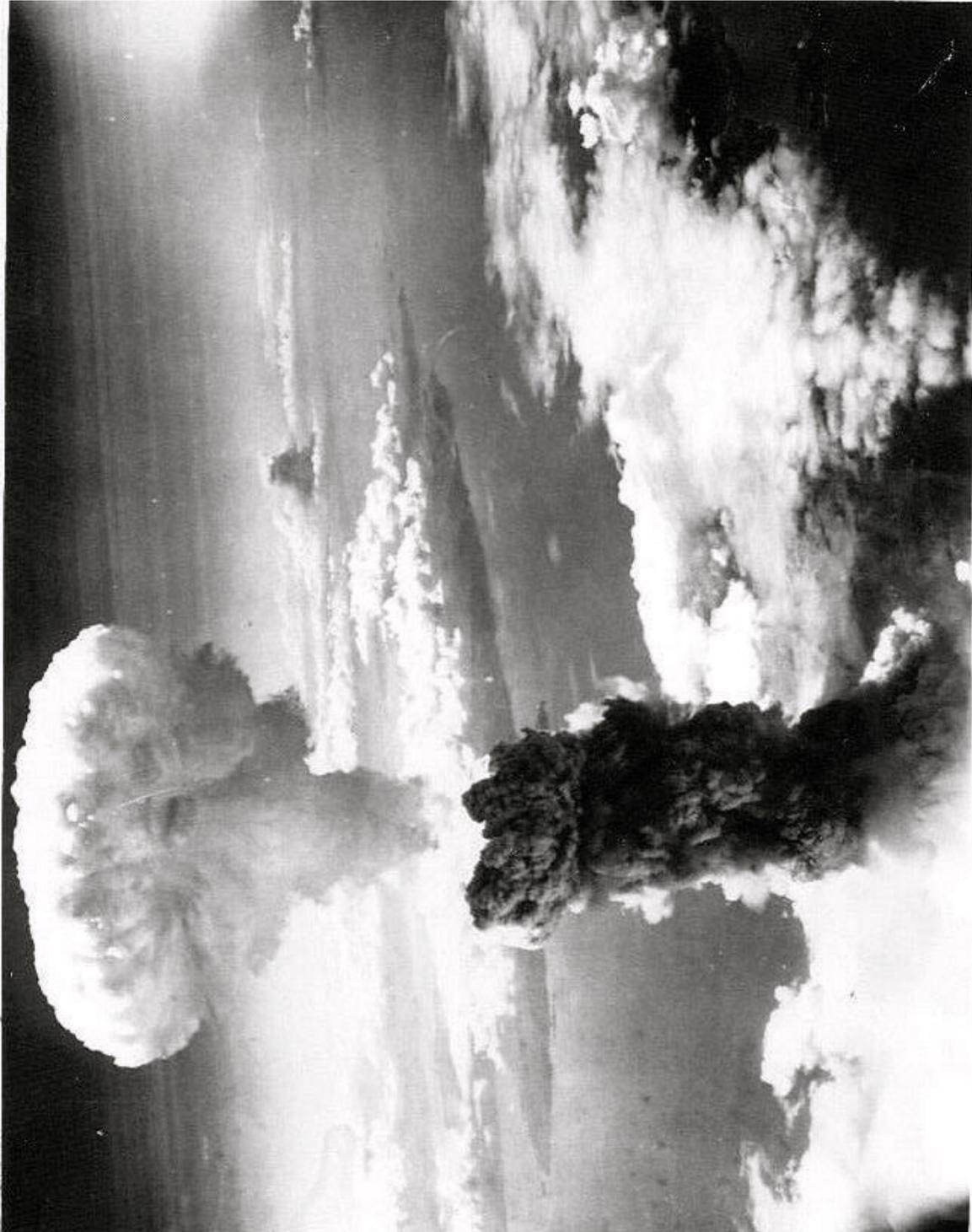
*This page and next. Photos of the cloud from the Nagasaki bomb immediately after detonation. The top was at about 30,000 feet at this time and rising, close to 50,000 feet. Taken from Bockscar.*



*As can be seen in this photograph of the Nagasaki bomb “mushroom cloud” taken from the dropping aircraft, there were large areas of the ground visible from the aircraft making a visual drop on a specific target aimed at by the Bombardier entirely credible.*



*Nagasaki bomb cloud taken from Bockscar. Note the aircraft wingtip.*



*Another view of the mushroom cloud of Fat Man detonated over Nagasaki, Japan, August 9, 1945.*

PS: The people back at your base on Tinian must have been worried by the silence from your B-29 after a couple of hours. Were there any in-flight reports made to them after the attack?

FLA: Yes, I know that they were worried, doubly so because we learned later that the third B-29 that was supposed to have rendezvoused with us and never did, sent a message back to the base asking, “Has 77 aborted?”, 77 being the aircraft squadron number of *Bockscar*, our aircraft. This was approximately an hour after it was expected that we should have reported on the attack. I have been told that General Farrell, General Groves’s representative on Tinian, was having his breakfast when the message was delivered to him, left the mess hall and “tossed his cookies” so to speak, he was that upset.

We did make an in-flight report immediately after the bomb was dropped and observed to have functioned as expected. Prior to these missions we, of the Los Alamos group, prepared a code from which a strike report could be composed describing what had happened. The code consisted of several categories each given the name of a fruit. In each category were listed possible events indicated by numbers, that might be used in preparing a message. I recall that the message that I composed from the code and transmitted to the base was about as follows: “Nagasaki (GCT)<sup>2</sup>. Technically OK. Conference required before any press releases. Trouble in aircraft-fuel. Landing at Okinawa.”.

The item about the “conference required” referred to the fact that at that time we were not at all sure exactly where the bomb had gone off since much of the target area was obscured by clouds during the bombing approach and due to the fact that this had required that we approach the target under radar navigation.

PS: Did you have any idea on the yield at that point?

FLA: Not at all. There was not much question that the bomb had functioned as expected, based upon the experience at Hiroshima and the reports of the Trinity test, but there was no way that we could guess the yield. As a matter of fact, I visited Los Alamos many years after and found that they were still trying to determine exactly what the yield of both bombs had been. The best information on this came from the blast gages that had been dropped simultaneously with the bombs over Hiroshima and Nagasaki. Had it been possible to have measured the buildup of the fireball by “Fastax” camera as intended, but which failed, a more accurate measure might have been obtained.

So we headed for Yontan Field on Okinawa in a long, slow, throttled back glide to conserve fuel as much as possible. We finally approached Yontan Field, and Sweeney called the control tower for landing instructions. As usual in the vicinity of a large active airfield there was a lot of chatter on the landing control radio circuits and Sweeney’s request seemed to be ignored. After all, we were just another aircraft wanting to land. Knowing that he was low on fuel and might lose his engines at any time, Sweeney was wisely flying closer than usual to the airport on the downwind leg in order that he might be able to glide into the field without the help of his

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<sup>2</sup> “Nagasaki (GCT)” represents the Greenwich Civil Time that I was reporting that the actual drop of the bomb was made on Nagasaki for reporting purposes.

engines. With still no response from the control tower, Sweeney announced over the radio that he was going to land. As is routine in a situation of this kind, Sweeney also ordered the Copilot to fire a green Very's pistol flare signifying that he needed to land immediately. He thought that this should get some response from the tower, but lacking this he told the Copilot to fire all the flares we had aboard, red, green, yellow and announced over the radio, "This is B-29 on final. I am going to land."

The pyrotechnic display of the flares indicated that the plane not only had to make an immediate emergency landing but that we had killed and wounded aboard, and need ambulance assistance on landing. This got their attention and we were met at the end of the runway by fire trucks, rescue equipment and ambulances.

I had been watching the landing approach through the pilot's windshield and recognized immediately that since we had made our landing pattern so close to the field, we were going to land well up the runway. It didn't look to me that we would be able to stop in time, so I curled up against the low bulkhead that separated the Navigator's compartment from the flight deck and waited for the plane to run off the end of the runway. Our B-29 was equipped with reversible propellers and we came to a roaring, but safe, stop. While we taxied to the operations line, the two outboard engines stopped from fuel starvation. I learned later that the Flight Engineer measured the usable fuel in the tanks by dipstick and recorded but 35 gallons. A current story says that they measured only seven gallons, a more sensational figure, but to my mind hardly plausible.

PS: You mentioned a moment ago about scanning the frequencies for jamming. What option would you have had if the Japanese were jamming that frequency?

FLA: I don't recall that I was given any instructions as to what action should be taken were this to happen. I suspect that, although we were looking to see if this were to occur, it was believed that the chances of the Japanese finding our fuse radiation frequencies were very low, because they would have been radiating for only a few seconds during the Hiroshima mission. The barometric switches were installed precisely to start the fuses radiating at an altitude of about 8,000 feet. The fuses were set to detonate the bomb at about 2,000 feet. But to answer your question specifically, I am sure that I would have ordered that the bomb be flown back to base to decide what should be done.

PS: You got to the end of the runway. What you needed, and didn't have, was a tailhook.

FLA: We sure could have used one, but the reversible-pitch propellers were a good substitute under the circumstances. Full power in reverse pitch and hard braking did the job, but just barely. And we made it back to the parking ramp under our own power.

My first concern was to get an amplifying report of the operation back to our headquarters on Tinian. The problem was that I didn't know any more than I had known when I sent the in-flight strike report. I had to have some idea where the bomb had actually exploded.

It was no more than about 15 minutes before the two B-29s that were supposed to be with us landed at Yontan and were directed to park alongside our B-29. I did not learn then, and I still don't know with any detail, where the third B-29 had been while we were attacking Nagasaki. He apparently was not far away, because he did have an opportunity to circle the target area as did the accompanying B-29 which carried the yield blast gages. They should be my best source of information in determining the actual ground zero of the bomb. I gathered the three Pilots and Beahan, the Bombardier, together, laid out our target maps and asked each of them for an evaluation of just where the bomb detonated. Based on their observations, Captain Bock and Major Hopkins, the pilots, and Captain Beahan agreed that ground zero was probably directly over the Mitsubishi Steel and Arms works in the Urakami River Valley, a mile and a half or so from the city proper and in an area where most of the industrial activities were located. It didn't take much thinking for me to realize that we had probably spared a large segment of the city itself.

It is interesting to note that I have mentioned this conference to both Bock and Sweeney and neither recalls it. But this was very important to me and I guess that this is another of those experiences etched clearly in the memory circuits. I now had the information that I needed to make my amplifying report to Tinian.

Yontan had just become the headquarters for the Eighth Air Force recently moved from Europe to the Pacific under the command of General Jimmy Doolittle. This, I thought, would provide me the facilities to transmit my amplifying report. All I needed now was transportation from the flight line to the headquarters.

Sweeney and I hailed a passing jeep with a young GI driver, stopped him in the street and asked him to take us to General Doolittle's headquarters. We looked a little raunchy to be sure. I had on an old flight suit, like a jump suit, with no rank marks. Sweeney was in about the same shape, but I had a .45-caliber pistol in a shoulder holster and when I sort of made this obvious the kid stopped and we commandeered his jeep. "Take us to General Doolittle's headquarters."

I located the communications tent, went in, identified myself as a Commander, U.S. Navy and asked to talk to the officer-in-charge which turned out to be an Air Forces colonel. I told him that I needed to send an important message to my headquarters on Tinian and asked for his help. Essentially, he said, "Run along, little boy. Don't you see that we are busy?" Then I asked him to direct me to General Doolittle's quarters. He nodded up the street to a double pyramidal tent as much as to say, that won't help you either.

I found the tent, knocked on the door and was asked to come in. It was General Partridge, General Doolittle's Chief of Staff. I told him that we had just dropped the second atom bomb on Japan, and I needed some help to have his communicators send an amplifying strike report back to General Farrell on Tinian. He said that he could help with that, but first I had better tell my story to General Doolittle. I was ushered into the other half of the tent and introduced to General Doolittle. He asked me to sit down. I spread out on his desk our target maps and proceeded to tell him about the operation and how it had happened.

I indicated the point on the map where we were supposed to aim and told him where we were sure that it actually went off and related in some detail how and why we had apparently missed our target by about a mile and a half. General Doolittle studied the map, asked a couple of questions and said, "Son, I am sure that General Spaatz will be much happier that the bomb

WAR DEPARTMENT  
CLASSIFIED MESSAGE CENTER  
INCOMING CLASSIFIED MESSAGE

**TOP SECRET**

~~TOP SECRET~~  
URGENT

From: CG, 313th Bomber Wing, Tinian

To: War Department

Re: AFCON 5479

9 August 1945

Re Groves personal from Farrell AFCON 5479 TOPSEC.

Strike and accompanying airplanes have returned to Tinian. Ashworth's message from Okinawa nr 44 is confirmed by all observers. Cloud cover was bad at strike and it will be necessary to await photographs to give exact point of strike and damage. Strike plane had barely enough fuel to reach Okinawa.

After listening to the accounts one gets the impression of a splendidly tough job carried out with determination, sound judgment and great skill. It is fortunate for the success of the mission that its leaders, Ashworth and the pilot Sweeney were men of stamina and stout heart. Weaker men could not have done this job. Ashworth's small doubts reflected in his first strike report were resolved after checking at Okinawa with crews and observers from all 3 planes. He now feels confident that the bomb was satisfactorily placed and that it did its job well. Some detailed observations follow:

An observing plane reported that 20 minutes after explosion the southern edge of cloud was tangent to north end of Nagasaki harbor with southeastern part of city visible. There were scattered fires on west side of Nagasaki harbor. Boats were seen in harbor. Top mushroom of cloud broke off in a manner similar to cloud at Hiroshima.

CM-IT-9254

(9 Aug 45)

~~TOP SECRET~~  
DECLASSIFIED

DOD Dir. 5200.9, Sept. 27, 1953

NWD by ga date 27 May 59

*Copy No. 9 destroyed - also 25 + 26*

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COPY No.

THE MAKING OF AN EXACT COPY OF THIS MESSAGE IS FORBIDDEN

*Follow-up strike report from General Farrel to General Groves confirming my early, abbreviated report.*

10 AUGUST 1945  
REPORTS 091541

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Noted by  
W H B

COMGENUSASTAF GUAM

INFO: COMGENUSASTAF (REAR) WASH (URGENT) ATTN: GENERAL HORSTAD  
INFO: BOMWG 313 FOR 509TH GROUP (SAME PRECEDENCE AS ACTION)  
AIMCR 5480 SUBJECT IS CREW OBSERVATIONS FROM RECONNAISSANCE  
PLANE ON CENTERBOARD 509TH SBM 16, FLOWN 9 AUGUST 1945.

APPROACH TO NAGASAKI BY RECCO PLANE WAS FROM THE SOUTH AT  
32,000 FEET ALTITUDE. COLUMN OF SMOKE EXTENDED TO AN ESTIMATED  
ALTITUDE OF 19,000 FEET WITH BLACK SMOKE COVERING MOST OF THE  
CITY. APPROXIMATELY 20 LARGE FIRES WERE SEEN THROUGH THE SMOKE  
IN THE CITY AREA WITH THE GREATEST CONCENTRATIONS IN AND AROUND  
AIMING POINT LOCATED AT 113061 ON LITHOMOSAIC, NAGASAKI AREA,  
MITSUBISHI STEEL AND ARMS WORKS, TARGET NO. 90.36-546. LARGE  
EXPLOSIONS WERE VISIBLE AT APPROXIMATELY 084071 AND 094079 AS  
RECCO PLANE PASSED OVER TARGET AT 090522 ZEBRA. NO APPARENT  
DAMAGE TO INSTALLATIONS ON SOUTHWEST SIDE OF HARBOR AND TO THREE  
LARGE AND THREE SMALL VESSELS ANCHORED IN HARBOR. CLOUDS AND  
SMOKE IN THE NORTHERN AREA OF CITY PREVENTED FURTHER OBSERVATIONS.  
NO TURBULENCE ENCOUNTERED OVER TARGET.

RECONNAISSANCE PLANE LANDED AT NORTHWEST FIELD, GUAM, BECAUSE OF

SECRET PAGE 1

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GP 509-50  
AF Hst Ach

0920-12 0412H  
WEATHER CAUSING DELAY IN RECEIPT OF PHOTOGRAPHY. ESTIMATE PRELIMINARY  
DAMAGE ASSESSMENT REPORT READY AT 092100 ZEBRA DEPENDING UPON QUALITY  
AND COVERAGE OF PHOTOGRAPHY.  
END...

SECRET PAGE 2

REVISED CARTRIDGE DESIGN IN RECEIPT OF PHOTOGRAPHY

TOP SECRET

10 AUGUST 1945

REPORTS 091848Z

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*Mailed by  
WFB*

COMGENUSASTAF GUAM

INFO: COMGENUSASTAF (REAR) WASH (URGENT) ATTN: GENERAL NORSTAD

AIMCR 5482 SUBJECT: FINAL REPORT, 509TH SBM 16, STRIKE  
CENTERBOARD, FLOWN 9 AUGUST 1945.

1. TARGET ATTACKED: NAGASAKI
2. TIME TAKE OFF: FIRST: 081749Z LAST: 081751Z
3. NUMBER A/C AIRBORNE: 3
4. BOMB DATA: A. LOAD AND TYPE: SPECIAL  
B. FUSING: SPECIAL  
C. DISPOSITION: 3 SECONDARY NAGASAKI URBAN AREA  
A/C VICTOR 77, VICTOR 89, VICTOR 90
5. METHOD OF BOMBING: VISUAL
6. TIME BOMBS AWAY: FIRST: 090158Z LAST: 090201Z
7. WEATHER: 7-10/10 ALTO CUMULUS. BOMBED THROUGH HOLE.
8. PRESSURE ALTITUDE: 28,000 FEET.
9. ENEMY AIR OPPOSITION: NONE
10. ENEMY ANTI-AIRCRAFT: A/C VICTOR 77 REPORTS ABOUT 13 BURSTS  
FROM YAMATA AREA, ALL LOW ALSO 8 BURSTS AT 8 O'CLOCK. MEAGER.

GP 569-50 AF Hist Arch

11. OBSERVATIONS: 1 LARGE SHIP IN HARBOR AREA AT NAGASAKI, NUMEROUS SMALLER VESSELS IN SAME AREA. 4 UNIDENTIFIED SINGLE ENGINE AT 33/15 N 132/00 E, LOW, CIRCLING. 13 UNIDENTIFIED S/E AT 30/25 N 130/38 E, 12 SILVER IN COLOR, 1 OFF COLOR, 2 MILES EAST AT 12-15,000 FEET. NEAR SENDAI, SE COAST OF KYUSHU SMOKE WAS SEEN, VERY MUCH LIKE THAT OBSERVED WHEN SPECIAL BOMB EXPLODES, INTENSITY MAINTAINED TILL OUT OF SIGHT.
12. BOMBING RESULTS: FAIR TO GOOD.
13. TIME OF LANDING: FIRST: 091308Z LAST: 091339Z.
14. OTHER SIGNIFICANT INFORMATION: 90 PERCENT OF RUN WAS RADAR, BOMBARDIER TOOK OVER AND MADE VISUAL CORRECTIONS IN LAST 10 PERCENT. BOMB HIT APPROXIMATELY 500 FEET SOUTH OF MITSUBISHI PLANT. COMPANION SHIP OBSERVED. AFTER EXPLOSION LARGE WHITE SMOKE RING FORMED, RED BALL OF FIRE COVERING 1/2 OF AREA. THEN COLUMN OF SMOKE FORMED 1/2 MILE WIDE, FUNNELING UPWARD, BOTTOM DARK BROWN IN COLOR, CENTER AMBER COLOR, TOP WHITE. COLUMN ROSE TO 50,000 FEET, RISING TO 30,000 FEET IN ONE AND ONE HALF TO TWO MINUTES. MANY SMALL BRIGHT FIRES OBSERVED. CONSIDERABLE SMOKE OBSERVED 175 MILES FROM AREA. FIVE SHOCK WAVES FELT.
15. MISSION EFFECTIVE.
16. REMARKS: A/C VICTOR 83 STOOD BY AT IWO JIMA FOR EMERGENCY BUT WAS NOT CALLED UPON, RETURNING THIS BASE 090910Z. A/C VICTOR 77, 89, AND 90 LANDED OKINAWA 090400Z - 090404Z, SHORT OF GAS, TOOK OFF 090703Z - 090706Z.

exploded where it did over the industrial area and not over the city. There will be far fewer casualties. Now, I'll help you send your report." He picked up his field telephone, rang for the communications officer and told him that the Navy Commander who had just been there will be back. This time send his message.

I composed a fairly detailed report of the operation which should have clarified the questions in the in-flight strike report. The young GI was still standing by and drove us back to the flight line. I have often wondered if the young man had any idea how close he was to some history in the making.

Then it was just a matter of refueling, which had already been done, and flying back to Tinian. It was then that I learned about how much fuel remained after we had landed. It was a comfortable ride back to the base. The radio operator had the intercom system plugged into the radio and we could listen to music and news reports. It was then that we learned that the Soviets had joined the war against Japan and that the Japanese had approached the Swiss with a request for them to explore the possibilities of peace arrangements with the Allies. We couldn't help but feel in the flush of the excitement that we had won the war. Obviously the war had been won long before the two atom bomb operations, but the Japanese were refusing to give up. In the final analysis I believe that it is safe to say that the bomb attacks ended the war, for this gave the Emperor the leverage with the War Council to demand that surrender terms be offered to the Allies.

When one arrives at these considerations, it invariably leads to the question of whether we should have used the bombs and whether it was morally right to have done so. I've been asked, "Do you have any regrets about your part in these operations?" My answer has always been, no, this was war to be pursued to unconditional surrender, a policy established by the Combined Chiefs of Staff long before these operations took place. How much different were these attacks from the fire raids on Tokyo when probably 150,000 people were killed and more than 16 square miles of the city destroyed? That doesn't make it any better. But it is wartime. Then I finally come to the point when I say, "Let's talk to the troops waiting on Okinawa for the invasion of Japan and see how they feel about it." And the answer universally is, from people I have talked to, "Thank God for the bomb. We didn't have to go into Japan." No one knows the number of casualties that would have been taken by both sides in the invasion, but I am sure that the general conclusion is that there would have been more Allied and Japanese casualties in that operation than from the atom bomb attacks.

Well, we got back to Tinian OK with no fanfare, no decorations. We debriefed and told them our story, and that was just about the end of the operation.

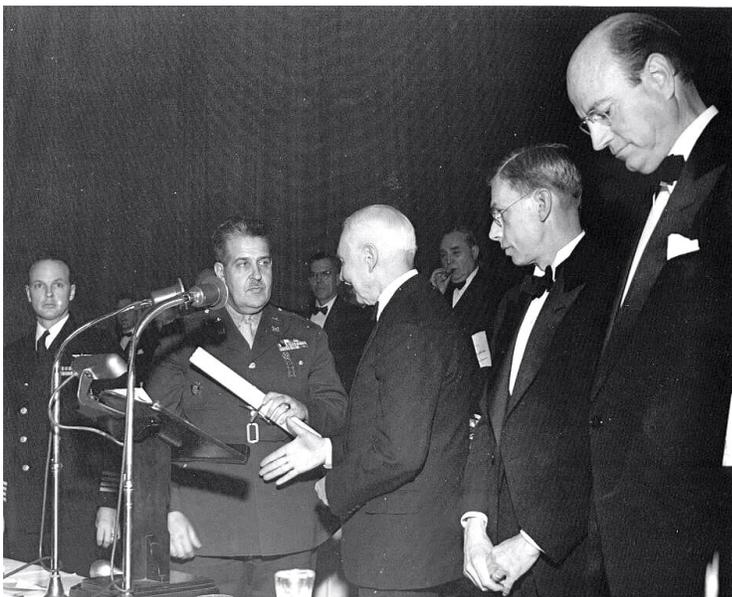
I can't conclude this discussion of the Nagasaki mission, the last use in wartime of an atom bomb, without saying a few things about the future. I think that it is safe to say that no one involved in the development of the bombs, from the highest command levels to us working folks, had any realistic concept of the magnitude of the devastation one of these so, called nominal 20,000-ton energy equivalent bombs would cause. Oppenheimer might be one who did. From the Bhagavad-Gita in Sanskrit that he could recite from memory "Now I have become death, the destroyer of worlds."

However, when one reads the recorded impressions of those who witnessed the Trinity test, particularly the scientists most closely involved in the development of the bomb, you find

that their reaction to the awesome sight was one of the technical magnitude of the thing. On the other hand, General Farrell's first remark to General Groves was, "The war is over"; what one might expect from a military man.

If my assumption is correct that we had yet to understand the magnitude of the devastation of an atom bomb explosion in terms of the total destruction of a city's infrastructure, the total elimination of the fire and police departments, elimination of the medical and hospital facilities and people, total destruction of all communications and yes, the magnitude of the results of the prompt and residual radiation, the question as to whether the bombs should be used probably would have been looked at in a different light than from its purely military significance. There was, at the time, no other measure to cause it to be considered other than just another weapon in the arsenals of war. That is what Truman called it when he stated something to the effect, "This is a weapon of war, of course we will use it."

After the fact, however, when this all came into real focus with full realization of what a nuclear bomb would do, the policy known as "Mutual Assured Destruction" came into being.



*Here I am (far left) next to General Groves who made me earn my lunch by telling the story of the Nagasaki operation.*

"You attempt to destroy me with atom bombs, I will destroy you."

One may not like this policy and the philosophy behind it, but it is safe to say, I believe, that it was this policy which has preserved the peace of the world for the last 40 years or more. Sane people would not dare to use the bomb against another country equally armed with these bombs.

There is of course, a real fear that some idiot like Saddam Hussein or Qaddafi would use the bomb if he had one, which may occur sooner than we would like. If I can think of one good reason for the development of the Strategic Defense Initiative, Star Wars, it would be to defend against this kind of random attack.

Otherwise as a total defense against nuclear missile attack, I think its crazy.

So that's the story of the first combat use of the atomic bombs as I saw and experienced it.

**PS:** You told me, when the tape wasn't running, that General Groves had you repeat the story over and over. What was the occasion?

**FLA:** All through the war the Production Board, I guess it was, recognized many industrial companies for their contribution to the war effort. If a company deserved such recognition it would be awarded the "Army-Navy E". Employees could wear pins signifying the award and

the “Army-Navy E” flag would be flown over the plant. Due to the total security surrounding the entire Manhattan Project any recognition of this sort for performance in support of the Project would have to wait until after the war. Therefore, for several weeks after the war, General Groves and a small group from his headquarters toured the country making awards to those companies considered to have made an outstanding contribution. I was a member of this group for many of these awards and the award ceremony was usually followed by a luncheon with the top



*Army/Navy “E” Presentation. Left to Right: B.Gen. Farrell, Gen Groves’ deputy; K.T. Keller, President Chrysler Corp.; Col. K.D. Nichols, CO Manhattan Engineer District, Oakridge, TN; Cdr. F.L. Ashworth*

people of the company. General Groves never failed to make me earn my lunch by relating the story of Nagasaki, very much as I have told it here.

One of my jobs during the actual award ceremony was to present the “E” pins to a man and a woman selected to represent all the employees. On one occasion, one of these representatives was a young lady with a very well endowed female figure, well presented in a tight-fitting silk blouse. I started to go through my little part of the ceremony to award her an “E” pin, took one look, backed off, and handed her the pin, much to the amusement of the whole audience. I wasn’t about to pin that --- maybe I should have, but I wasn’t about to pin that pin on that young lady’s silk and tight-fitting blouse.

I don’t know how many times I gave that speech and have given it since. It may well be that like so many of these stories it gets embellished with time. But basically what I have said here is about the way it happened.

PS: So you put yourself out of a job then because the war was over.

FLA: Well, not exactly. The first thing that General Groves did after the bombs were dropped was to place everything involved, drawings, pictures, documents and the like in a Top Secret category. While the Los Alamos people were all ready to go home, they had finished their job, Groves put a freeze on that as well. “Nobody Leaves”, because at this time the surrender had not taken place and Groves was taking no chances that something might go wrong and put us back in business. It wasn’t until later --- August when?

PS: September second.

FLA: Yes, September second. So now we are talking about at least three weeks that had gone by and nobody was quite sure what was going to happen next. Furthermore, there had been in preparation the active material, Plutonium, for a second Fat Man bomb, which I think was scheduled --- well I have heard various dates talked about, but somewhere around early September was the time I remember. I think I have mentioned it before, but when General Groves was asked how many bombs did we have his answer was always, "Enough."

But finally, after about a week or ten days, when it was obvious that the surrender was going to take place, the Los Alamos people on Tinian were permitted to go home to Los Alamos. Most were anxious to shed the mantle of being involved in wartime things and to get back to the universities and to more peaceful work.

Some of the 509th people managed to go up to Japan to see the atom-bombed cities. I believe Tibbets went up maybe as early as the 10th or 12th of August together with Sweeney and some of the crews from the 509th.

Colonel Kirkpatrick and I were directed by General Groves to close up the operation on Tinian. I am not sure whether I have mentioned Kirkpatrick before, but he was the Corps of Engineers officer designated by Groves to supervise the construction of all the facilities of the project on Tinian. So we had the job of disposing of all the material and turning the buildings over to the island commander.

All the bomb-manufacturing material that had been sent out: explosive blocks, explosive lenses, steel bomb cases and the aluminum pieces that made up the Fat Man sphere, all the X-units, fuses and other electronic equipment, all the stuff that we would be using in the three shift assembly operations had to be disposed of. Much of this material was of insufficient value to justify shipping back home either by air or by ship. This stuff was laid out on a hard surface and broken up by bulldozer. We collected it together, loaded it into boats and dumped it at sea off the island. Of course, a lot of the electronic equipment and laboratory test equipment was worth saving. This was packed up for overseas shipping and returned to Los Alamos.

Colonel Kirkpatrick and I left Tinian about the tenth of September. I went home to Los Alamos. As soon as I arrived I, wanted to get away and into something new. There were many loose ends to be handled at the laboratory that required continuing Navy input, but I had nominated Commander Tom Walker to relieve me and Captain Dick Larkin relieved Captain Parsons. He and I had been ordered back to Washington to organize the Atomic Energy Division in the Office of the Chief of Naval Operations, which, after some fits and starts, ultimately became OP-36.

PROJECT A HEADQUARTERS  
Marianas Base

12 August 1945

Dear Commander Ashworth:

The unqualified and outstanding success of the atomic bomb project is now world history.

Only a few people in responsible positions at the Marianas Base have knowledge of the degree of excellence of performance required on the part of each individual who came from Los Alamos to form Project A. We, who represent the Military Policy Committee, Major General L. R. Groves, Director of the Atomic Bomb Project, and Project Y, commend and congratulate you on your superbly resourceful, thorough and effective performance of work which only you in this hemisphere were qualified to do. Without this individual and team performance success would have been impossible. With it we were able to beat even the most optimistic schedules and take advantage of fleeting good weather to give Japan the coup de grace.

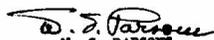
Commander Frederick L. Ashworth, USN



W. R. FURRELL  
Rear Admiral, USN



T. F. PARSONS  
Brigadier General, U.S.A.



W. S. PARSONS  
Captain, USN

THE SECRETARY OF THE NAVY

WASHINGTON

The President of the United States takes pleasure in presenting the LEGION OF MERIT to

COMMANDER FREDERICK LINCOLN ASHWORTH, UNITED STATES NAVY  
for service as set forth in the following

CITATION:

"For exceptionally meritorious conduct in the performance of outstanding services to the Government of the United States in connection with the development of the greatest military weapon of all time, the atomic bomb. Joining the Atomic Bomb Project in November 1944, Commander Ashworth was assigned the duties of supervising and coordinating field tests in which facsimiles of the weapon were dropped from B-29 aircraft. Thoroughly understanding the principles and functions of intricate and complicated mechanisms, he was able to make sure that no time was wasted and the maximum information gained, both as to the components and as to the technique of delivery. Serving with intelligence, resourcefulness and devotion to duty, Commander Ashworth inspired the full confidence of all of the organizations and individuals concerned in the tests and insured the complete cooperation which was essential to achieve results in the time available. As a result of his successful fulfillment of this exacting and important assignment, he acted as representative of General Groves in the historic delivery of the second atomic bomb on Nagasaki, August 9, 1945. Commander Ashworth's leadership, professional skill and distinctive performance of duty throughout the test and development of this project were in keeping with the highest traditions of the United States Naval Service."

For the President,

*James Forrestal*

Secretary of the Navy

*Citation to accompany the award of the Legion of Merit*



General of the Army Henry H. "Hap" Arnold presenting the Silver Star for gallantry in action while engaged in aerial flight against the Japanese Empire on August 9, 1945 from a base in the Marianas Islands. This photo demonstrates the photographer's wisdom when he asks for "just one more for sure"!

## CITATION FOR THE SILVER STAR

Commander Frederick L. Ashworth, 72354, United States Navy, (Attached to 509th Composite Group). For gallantry in action while engaged in aerial flight against the Japanese Empire on 9 August 1945 from a base in the Marianas Islands. Commander Ashworth was Senior Military Technical Observer on a B-29 aircraft carrying the second atomic bomb to be employed in the history of warfare. After the Superfort was well away from its island base, Commander Ashworth personally entered the bomb bay to fuze the atomic bomb. Following a circuitous course to the Japanese Empire in order to avoid heavy weather, they arrived over the primary target with low reserves of gasoline. Despite this and the possibility of damage from anti-aircraft fire or enemy fighters, he advised that an effort be made to bomb the primary target and the big plane remained over the city for nearly one hour, making three attempts to drop the new bomb, all failing because smoke obscured the target. Little more than enough fuel remained for the Superfort to reach the nearest emergency landing field but they set a course directly across the Empire, disregarding the dangers of flak and enemy fighter attacks, and under Commander Ashworth's direction released the bomb on the secondary target, the important industrial city of Nagasaki. The tremendous blast which followed destroyed a square mile of the city and played an important part in bringing forth an offer of surrender from the Japanese within 24 hours. Although the B-29 was shaken by the detonation, they proceeded to the emergency field and landed with fuel tanks virtually empty. Commander Ashworth distinguished himself by his high degree of skill in directing work with the atomic bomb, the great personal risk he took in placing the powder charge in the bomb during flight and his bravery in advising the Airplane Commander to remain and persist in the attack despite unfavorable conditions. His actions reflect great credit on himself and the United States Navy.

*Citation to accompany the award of the Silver Star.*

### Post Publication Comment

A few years ago, during the year 2000, there came to my attention some information that has settled the question of exactly what the Bombardier was aiming at and where was the bomb explosion “ground zero”. This new information consisted of two aerial photographs of Nagasaki; one taken before the attack and one taken of the same area after the attack.

There are some, including some members of the crew of *Bockscar*; who have stated that Captain Beahan had no specific target in his bombsight when the bomb was released.

After consultation at Yontan Field on Okinawa as described in this chapter, we decided that the ground zero was directly on the Mitsubishi Steel and Arms Works in the Urakami River Valley, just east of the city of Nagasaki.

During this consultation Captain Beahan, the Bombardier, remarked that the target on which he had synchronized his bombsight was what he called a “race track”. The “race track” or “stadium”, whichever one wants to call it, appears clearly in both of these photographs and is geographically located in the vicinity of the Steel and Arms Works. The “after” photo has imposed upon it the location of “ground zero” as it was later determined after the explosion had occurred. These two photographs clearly show that the ground zero was not more than a few hundred feet from the “race track” and therefore confirms satisfactorily that the target aimed at and the bomb ground zero was indeed over the Steel and Arms Works; a creditable job of bombing with the Norden bombsight.

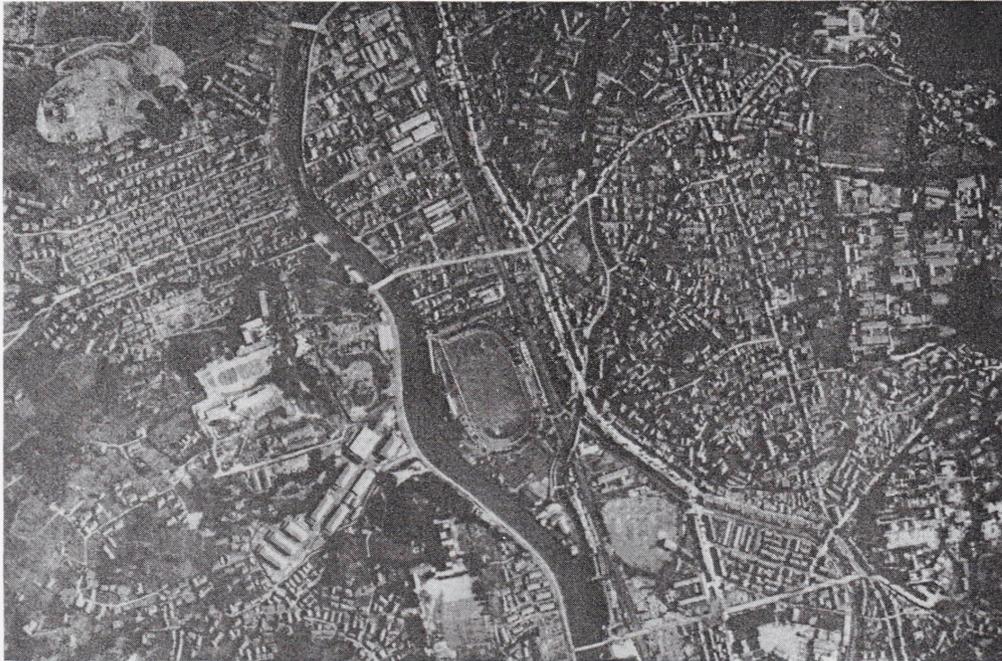


FIGURE 2-12. CITY OF NAGASAKI ON 7 AUGUST 1945 BEFORE THE ATTACK; AND ON 12 AUGUST AFTER THE ATTACK

Photo provided by Dr. Frank Shelton from his work titled "Reflections of a Nuclear Weaponeer"

## CHAPTER THIRTEEN

### NAGASAKI MISSION - A CRITIQUE

PS: Before we get into the post-war activities in Washington, you have mentioned a couple of times during the discussion of the Nagasaki mission that you would have more to say later about some of the situations faced in your capacity as the Weaponeer. Further, it has been rumored that the Nagasaki operation was not a textbook example of an aerial bombardment mission and came close to finishing as a disaster. Now would be a good time to go ahead with this if you care to comment.

FLA: This is a complicated subject with many ramifications and a certain amount of speculation on my part, but one that I think should be written down somewhere, I can't think of a more appropriate place for it, but in this oral history.

It is a fact that the mission could have resulted in a disaster of major proportions, and the fact that it wasn't rests squarely on the shoulders of a 27-year-old Air Forces Captain by the name of Kermit K. Beahan. He was the Bombardier in Major Sweeney's crew. He died in the late '80s and, in my opinion, was never given the recognition that he deserved, perhaps because the Air Force, by then a separate force from the Army, was looking at the mission in total and concluded that it was not very professionally executed. Apparently Tibbets didn't think so either, because he said that should another attack be made, he would lead the operation.

That there was in writing a discussion of just how badly some people thought the mission was screwed up came to my attention when I was given two years ago a copy of a letter that was written to General Groves in 1965 by Dr. Luis Alvarez. He was a famous scientist who prior to World War II had invented the ground-controlled approach system for guiding aircraft to a landing at an airport in bad weather. He was, among other things, an expert in radar. He was at Los Alamos during the development of the atom bombs.

PS: Why did he wait until 1965 to write such a letter?

FLA: That has always mystified me ever since I learned of the letter. The fact that he did wait 20 years, however, is not important here. He was aboard one of the B-29s on the Hiroshima mission, using a Fastax camera as well as the parachute-suspended blast gages to try to record the growth of the fireball and the strength of the shock waves from which a fairly accurate measure of the yield of the bomb could be made. Any success with the Fastax camera was probably doomed from the start, because the film ran through the camera in about two seconds, and to be pointed in the right direction at the right time from 30,000 feet was just about impossible.

He did write the letter, and it was a scathing indictment of Commander Ashworth, whom he apparently assumed had complete responsibility for the success of the mission from both the flight operations point of view as well as any technical problems that might arise relating to the bomb. He set forth to General Groves all the things that went wrong with the mission which

were the results of my bad judgment and lack of any qualification to “command” a strategic bombing operation. This is an indication of what appeared to me later to be a general misunderstanding of mission responsibilities and line of command, about which I will talk in a moment. He stated that having come up with the story that mysteriously, a hole appeared in the clouds below through which we could drop the bomb, we should be just getting out of Leavenworth (the military prison — therefore having lied, I presume).

I was gratified when I saw, a year or two later, General Groves’s reply to the letter in which he told Alvarez that if there were mistakes made as to who carried out the Air Forces part of the mission it was Parsons’s and Farrell’s responsibility. “Ashworth,” he said “was responsible only for the bomb and the dropping of it.” He also said that it was not his habit to Monday morning quarterback what had been a successful operation. Now I am doing exactly that and I believe that it is important that someone talk about it and set the record straight.

PS: Would you explain that ?

FLA: Well, let me first enumerate some of the things that contributed to the impression that the mission was pretty badly fouled up.

First, the matter of command relationships. It is clear to me now that few people on Tinian had any clear idea what were the responsibilities of the so-called Weaponeers, Parsons and me, on the missions in spite of the fact that we were expected by General Groves to make major technical and tactical decisions should they be required.

Second, fuel shortage. The Crew Chief in Sweeney’s crew reported, after conducting his preflight inspection of the aircraft *Bockscar*, that it would be impossible to transfer 600 gallons, more or less, of fuel from the auxiliary tank in the after bomb bay into the main fuel system due to a faulty transfer pump. It turned out, based on recent conversations with the regularly assigned Aircraft Commander of *Bockscar*, Captain Fred Bock, that this was not necessarily so. That it was a real possibility that the engineers in Sweeney’s crew may not have been familiar with the special idiosyncrasies of the fuel system in *Bockscar*. The apparent inability to use the fuel in the auxiliary tank was to have a major impact on the success or failure of the mission. Had it been necessary to ditch the plane either with the bomb aboard or not, because of fuel exhaustion, this information would have been very important testimony in the inevitable board of inquiry.

Third. The unnecessary and inexcusable delay in loitering at the rendezvous waiting for our accompanying B-29s to join. This also illustrates where the definition of responsibility between me and Sweeney was not entirely clear.

Fourth. The maneuvers around the primary target Kokura, and the decision to go to the secondary target Nagasaki. I believe that these maneuvers were entirely appropriate for the accomplishment of our mission. The time spent over the primary target, however, aggravated the fuel problem.

Fifth. My decision to make the approach on Nagasaki using radar and to release the bomb by the electronic bomb director in spite of the specific orders that the bomb would be released only by using the Norden visual bombsight.

And sixth. The matter of the Bombardier's designated target aiming point for the Nagasaki attack. Although the mission orders state that the aiming point was to be the Mitsubishi Arms and Steel works in the Urakami River valley, where the bomb went off, I have enough evidence to convince me that everyone knew that the aiming point was actually in the vicinity of the docks area not far from the center of the city. This raises questions as to whether the mission orders that are now in the public domain were not "adjusted" after the fact to make the mission look good.

PS: That all sounds like in reality, if your opinions are correct, there might have been a lot of professionalism to be desired in the execution of the Nagasaki operation. Do you want to elaborate on each for the record.

FLA: Yes, I think that now is the time and place for me to place on the record some of the facts as I believe they existed. Again, I have to emphasize that after all this time the memory does strange things and what might not have been facts appear now to be facts. However, as for my recollection of the "facts", there were some things that are so clearly etched into my memory due to their immediate significance and importance at the time, that I have confidence in most of the statements that I will make. Some other statements will be largely based on what I would call intelligent speculation. Since this mission was without doubt the second most important bombing operation of World War II and probably of all time, I believe that this analysis for the record is appropriate.

The duties and responsibilities of the so-called Weaponeers in the crews of the bomb-carrying B-29s were covered in a letter from General Norstad, Chief of Staff, 20th Air Force to Major General LeMay, Commanding General, 21st Bomber Command late in May or early June 1945. There were discussions about these responsibilities in Washington and also in the operation area among Colonel Blanchard, Army Air Forces, General LeMay's Operations Officer, Parsons, Tibbets, Ashworth, and Sweeney. It was agreed during each of the meetings that the Weaponeer would be consulted if there was any difficulty on identification of the targets. It was also understood that there would be joint agreement between the Aircraft Commander and the Weaponeer on questions of ditching the bomb, delivery on a less favorable than the primary target, delivery at a lower altitude than ordered, or by other than visual observation. In case of disagreement, the Weaponeer would have final decision. It was recognized that the Aircraft Commander did not have sufficient detailed knowledge of the bomb and its operation to render final judgment in these matters. The important features of this letter also appear in General Groves's book, *Now It Can be Told*, wherein he quotes a message from Norstad to LeMay saying essentially the same thing. It is important to note that there is no reference to these instructions from Norstad included in the field orders.

First, let me say that at no time during the mission was there disagreement between Sweeney and me. If that is true, one may ask with good reason, why did I agree to spend 45 minutes at the rendezvous awaiting the arrival of the third B-29 knowing that there was possibly to be a shortage of fuel in view of the transfer pump problem. From the point of view of my responsibilities, it was appropriate that I should advise Sweeney that I didn't want to proceed to the primary target unless the instrument-carrying plane was with us. It was important that we try

to get a measurement of the yield of the bomb. After waiting for 45 minutes for the third aircraft, I told Sweeney that I thought that we ought to get out of there and head for Kokura, hoping that the one B-29 was carrying the measuring instruments. When to leave the rendezvous was clearly a decision that should have been made by the Aircraft Commander. I believe that Sweeney's orders in the operation plan were to wait no more than 20 minutes at the rendezvous location.

I learned just a few months ago that Sweeney was fully aware that Captain Bock in the instrument plane had arrived at the rendezvous within five minutes of our arrival. Somewhere our understanding of things and communications broke down. The net result was that the wait was unnecessary, and indeed, inexcusable. It was an unjustified waste of fuel and very nearly cost us the mission with possible dire results.

In relation to the matter of the apparent faulty fuel transfer pump, I believe that a fundamental mistake was made when it was decided that Sweeney and his crew would fly in *Bockscar*. Their regular aircraft was *The Great Artiste*. Even in my limited experience with large aircraft, I know that frequently there are idiosyncrasies in the operation of equipment from plane to plane. The regularly assigned crew of an aircraft has lived with these idiosyncrasies and learned how to handle them. The regularly assigned Crew Chief in *Bockscar* told Captain Bock later that there was no trouble with the transfer pump. All you needed was to know how it operated.

It is quite appropriate for the Pilots, the Bombardiers and the Navigators to fly in any of the aircraft in the organization. It is the crew members who know well how their own particular aircraft works. I believe that when it was decided that Sweeney's aircraft, *The Great Artiste*, would not be carrying the bomb and it was moved to *Bockscar*, the regularly assigned enlisted crew of *Bockscar* should have flown in it for the mission. It is reasonable to expect that had this been the case the fuel shortage would never have been an issue.

The transit from the rendezvous to the primary target was as prescribed in the flight plan. A standard bombing approach was made with the intention of making the drop using the Norden bombsight. I satisfied myself and so reported to the Aircraft Commander that we were about to attack Kokura, the assigned target. The only problem was that Captain Beahan could not see his assigned aiming point clearly enough to identify his aiming point. It was obscured by smoke and haze. Three times we approached the target with the same results.

I had suggested to Sweeney that we make these three attempts, because I thought that it might be possible that the wind direction on the ground might carry the smoke and haze away from the target permitting it to be seen visually. Sweeney agreed that we should try it. The 55 minutes spent in the Kokura area has also been highly criticized in view of the fuel situation.

I believe that since this was our assigned target, every attempt should be made to carry out the mission as directed. Sure, the fuel expenditure jeopardized our completion of the mission. But from my point of view we were obliged to make every attempt to conform to the operation plan as far as we would be able. To attack Kokura were the orders.

With the failure to attack Kokura and the well-recognized shortage of fuel, at least that is what we thought at the time --- and we were making all our decisions on that basis, it was time to move on to the secondary target, Nagasaki. Fuel shortage dictated that the route to the target be direct across Kyushu rather than by the planned route circumnavigating the island and approaching from the sea.

Now comes one of the more fascinating questions that arise from the attack on Nagasaki, the matter of the designated aiming point for the Bombardier, and where the bomb actually went off after our blind radar approach. And probably most important, the very short time for the Bombardier to make his drop. Failing to have done so would probably have doomed the entire operation to failure and probably disaster as far as the bomb and the crew of the aircraft are concerned.

There is much that has disappeared from my memory after this passage of time. I have no recollection of the preflight operational briefing where the matter of target designation and aiming point would have been discussed. After reading some of the books and articles about what went on in the aircraft as we approached the target and tried to decide what to do, I must again say that my memory is blank. It seems to be clear that the final decision to use the radar for the approach to the target and indeed, the actual drop to be made by the electronic bomb director, were my decisions, as they should have been based upon the definition of the responsibilities of the Weaponeer. All that I can try to do is collect the evidence that is now available and draw some speculative conclusions.

The crux of the question is where in the city of Nagasaki were we directed to drop the bomb. All the evidence, circumstantial however, that I can put together says that the aiming point was to be on the east side of the harbor in the vicinity of the dock areas there and inland toward the center of the city. I have already related my meeting with General Doolittle during which I told him that we were supposed to hit close to the middle of the city. This is one aspect of the operation that I can recall with total clarity. In Doctor Alvarez's letter to General Groves it is clear that he understood that we were supposed to strike more or less in the center of the city. Correspondence from Sir William Penney, present on Tinian with the Los Alamos group, says clearly the same thing.

Then there is the mission planning summary which, after listing all the profitable specific targets in the area, states that the size of the city made it ideal for an atomic attack. It says that based upon a 7,500-foot radius, it was believed that an accurate blow would destroy the bulk of the city east of the harbor and possibly carry across to the western shore. It was on the western shore and north where the bomb exploded.

Field Orders, Number 17 that covered the operations against Kokura and Nagasaki state that the aiming point for the secondary target, Nagasaki, was the Mitsubishi Steel and Arms works. And that is exactly where the bomb exploded. Yet, it has been generally recognized that the actual drop that day missed the assigned aiming point by as much as two miles. This is why I have reached the speculative conclusion that maybe the field orders that now exist may have been "adjusted" to fit the actual facts.

As a last word about all this I should mention for the record the performance of Captain Kermit K. Beahan, the Bombardier in Major Sweeney's crew. He knew exactly what the situation was. He knew that we did not have enough fuel to reach Okinawa with the bomb aboard if he failed on the first bomb run to make a successful drop. No one wanted to drop by the electronic bomb director system. It is notoriously inaccurate. I suspect that never was a young Captain faced with the pressure confronting Beahan. But a hole did appear; the cloud cover was probably about five to seven tenths. And he did his job magnificently.

In my opinion, there was a very fine line separating all of us in a command position from the court of inquiry that surely would have come had the mission failed. And how close it did come to failure, and for reasons that would not have looked very good on the record of the court.

With that, I guess it is time to get on with the activities in the atom field in Washington directly after the conclusion of the war.

ARMY AND NAVY DEPARTMENTS  
ARMED FORCES SPECIAL WEAPONS PROJECT  
P. O. BOX 2610  
WASHINGTON, D. C.

IN REPLY REFER TO:

29 February 1948.

SUBJECT: Commendation.

TO: Commander Frederick L. Ashworth

THRU: Chief of Naval Operations.

1. My retirement from the Army today separates me from close association with you for the first time since you reported to me for duty with the atomic bomb project on 17 November 1944.

2. I wish to express my appreciation for the part you played in our success. When I approved of your selection as the weaponeer for the Nagasaki bombing mission I did so with confidence that you would ensure the success of that operation no matter what difficulties were encountered. My confidence was not misplaced despite the fact that the difficulties proved to be far greater than any of us had anticipated. Knowing today the extent of the actual problems with which you were faced I am certain that there are few officers who would have been as wise a choice for the assignment. Your good judgment, determination, and courage were of the utmost value in bringing complete success out of what came so close to being disastrous failure.

3. Your services since that time to the preparation of our country's atomic security while not spectacularly hazardous have been most competently and courageously performed.

4. I am grateful to the naval officers who first recommended you to me. You have certainly brought great credit to the Armed Forces of our country and particularly to the United States Navy.

5. My best wishes for your continued success.

  
L. R. CROWLES,  
Lt. General, USA.

### ***Chapter Thirteen - Post-Publication Comment***

*It is inevitable that amateur writers and publishers such as ourselves will make errors that are missed during the numerous proof readings. Shortly after this book was published, Dad prepared an "Errata Sheet and Post Publication Comments for the Ashworth Biography". In preparing this PDF electronic version of the book, I have endeavored to incorporate these corrections. Following are the post-publication comments for this chapter.....Rick*

There is a lot that can be said and should be said about the Nagasaki mission. It has always been my view that Tibbets made a mistake in selecting Sweeney as the Aircraft Commander for that mission. This was the first, not counting a couple of "Pumpkin" runs, combat mission that he ever made. Were there others in the 509th more qualified than he? Yes, there were several combat-experienced pilots in the group, including Colonel Tom Classen, who had organized and trained the 393rd Bomb Squadron before it was transferred to the 509th Composite Group. His command was taken away from him by Colonel Tibbets and handed to Sweeney. I think that I am correct that Classen held a Distinguished Service Cross for earlier B-17 and B-29 combat operations. There were several others also combat experienced. There is nothing like getting shot at to provide "growth" and to take command responsibility seriously.

It was the lack of aggressive command that nearly cost us the mission. Sweeney had his orders for the execution of the mission and he was the Airplane Commander. His first violation occurred at the rendezvous. He was supposed to have stayed there no longer than 20 minutes for the other aircraft to join. I believe that his desire to make a perfect mission "for Paul" influenced him more than did his operational orders. To do that would require that the third aircraft join at the rendezvous. My input at the rendezvous was proper in that it was of the utmost importance to me that the Los Alamos representatives were with us to make the observations of the bomb yield with the Los Alamos instruments aboard *The Great Artiste*. It now turned out that everyone else on the plane knew that it was the one carrying the instruments that had joined not later than five minutes after our arrival. Still departure was delayed for 45 minutes waiting for the third plane to arrive.

There has been much criticism of our performance at the primary target, Kokura. I may have known it at the time, but I have no recollection now of it as a fact that we were required by operational orders to make one pass only at the target and if not dropped bring the bomb back to the Tinian Base. Had Sweeney taken that route I would have had no grounds to question the decision. Admittedly, this is not consistent with the fact that we had a secondary target assigned, namely Nagasaki.

Let's face the fact that the Nagasaki atom bomb mission was a botched-up job and the matter of command responsibility was the root of the problem, notwithstanding the fact that Tibbets has put it in writing that had Sweeney told Ashworth to "shut up" everything would have been fine. He has placed the responsibility for the near failure of the mission directly on me. He is supposed, however, to have said to Sweeney, "You are the only mistake made by the 509th Composite Group".

The question of who made the decision to approach the Nagasaki target area by radar navigation in view of the clouds below will never have a clear-cut answer.

With much of the facts having disappeared in the fog of the moment and over time, I am unable to say with certainty whether it was I or Sweeney who made the decision. I do know I was totally aware of the situation that we were in and that a decision had to be made without delay. I am certain that I approached Sweeney with some proposal in mind, and I believe now, as I did then, that to proceed using the radar and electric bomb director was the only feasible option that we had. To jettison the bomb most certainly did not enter my mind at any time.

Sweeney has stated in his book *War's End* that he consulted with me in regard to proceeding by radar to preserve "inter-service harmony". I suspect that this was his least important thought at this particular time. He states in his book that he made the decision and asked me to back him, or, at least, that I offered to do so. That has also escaped my memory if it happened at all.

So whose responsibility was it to make the decision, the Airplane Commander or the Weaponeer? I believed that it was General Groves's desire that the Weaponeer would be on board the bomb-carrying aircraft precisely to make decisions of this nature that related to the success or failure of the bomb to be dropped on the assigned target. In the final analysis, someone had to say something and it wasn't coming from the Aircraft Commander.

One may wonder why, on an operation of this magnitude, there was any question of command responsibility. The Army Air Forces had no experience with operations of this singular importance except for Hiroshima. Bombs normally carried were "iron bombs". In this case they were carrying a bomb of which they knew little or nothing of its tactical and technical limitations. It was necessary from General Groves's position that there be someone on the bomb-carrying aircraft who was sufficiently knowledgeable of those limitations that decisions would reflect that input. That is why there was aboard these aircraft a Weaponeer in whom the General had confidence to make such decisions. Later the Air Forces would provide these aircraft with a crew member called the "Bomb Commander" whose duties were clear, probably dictated by our experience at Nagasaki.

CHAPTER FOURTEEN

POSTWAR WASHINGTON  
STAFF, DEPUTY CHIEF OF NAVAL OPERATIONS (SPECIAL WEAPONS)  
OP-36 AND OPERATION CROSSROADS  
CHIEF OF STAFF TO TECHNICAL DEPUTY COMMANDER  
September 1945 - July 1948

PS: Before we talked about your critique of the Nagasaki bombing mission, you have mentioned that you closed out the bomb operations on Tinian and were anxious to get on with something new and inevitably had been ordered back to Washington. Let's start with that now.



*Our first home, 4 Pinehurst Circle, Bethesda, MD.*

FLA: It was around the middle of September, 1945, and I, in response to the inevitable orders to duty in Washington, had moved there into the small house in Bethesda that we had bought while I was serving on the Amphibious Force staff and that my wife had furnished by skimping on every daily expense. It was the first house that we had ever owned.

Captain Parsons arrived about the same time and assumed the rank of Commodore, a spot promotion granted

by the Secretary of the Navy, which Parsons claimed was simply a dividend that the Navy had declared for him after the atom bomb performance. It is not surprising that we were joined by Captain Tom Hill who, as you will recall, was Operations Officer for Admiral Nimitz in the Pacific during the war, and Parsons's roommate at the Naval Academy. His only exposure to the atomic program had been through his experience supporting the wartime effort on Tinian. Captain, I think he was at the time, Horacio Rivets Rivero joined us to complete the "staff". He had not participated in any part of the program before this time.

I am unable to recall just exactly how it came to pass nor exactly the details of how Vice Admiral W.H.P. Blandy became involved and, as the low man in the organization, certainly had

nothing to do with it, but the first organizational entity of our group was given a Deputy Chief of Naval Operations status with Admiral Blandy as the Deputy. It was along here time wise that through the normal promotion procedures, Commodore Parsons was selected for and promoted to Rear Admiral. Admiral Blandy became the Deputy Chief of Naval Operations, Special Weapons, OP-06, Parsons his Assistant CNO and Hill, Rivero, and Ashworth the staff.

We were not in business very long when the Joint Chiefs of Staff, at the urging of the Army Air Forces, decided that a test of an atomic bomb against surface ships should be carried out. But more on that in a minute.

While this was going on, there was a great argument in Washington involving the Congress and the military as to how atomic energy should be managed and who should do it. The first proposal was the Acheson-Lilienthal Plan, which would place all atomic programs under an international organization and control. The Soviets, of course, were opposed to any such plan because it might preclude their independent development of the bomb. They were further ahead along this road than was generally known as a result of the spying while at Los Alamos by the Britisher, Klaus Fuchs. So the Soviets had vetoed or refused to participate in any international control and the Acheson-Lilienthal Plan was abandoned, probably to the detriment of world peace.

Now the battle was to be waged in the Congress, and as one might guess, sides were taken. Either complete military control of the program or complete civilian control. As the argument was played out, it became clear that a major component of any national atomic program would be the matter of the development of atomic power for civilian use. So it was not all a military weapon monopoly.

Nevertheless, the military made a good argument for complete control as did the civilian side, and the hearings to formulate the legislation to resolve the argument were held before a committee headed by Senator McMahon. I believe it was called the Atomic Energy Committee.

Out of these hearings, and the subsequent deliberations in Congress, came the Atomic Energy Act of 1946. The logjam of control was broken when Senator Vandenberg proposed that there be included in the final law the provision of a committee to be placed between the military and the civilian national control organization known as the Atomic Energy Commission (AEC). The committee would be the legal and formal conduit for all the exchange of atomic energy plans and information between the civilian commission and the military. The committee was to be called the Military Liaison Committee (MLC) to the Atomic Energy Commission. A Division of Military Applications was set up in the commission organization although it was not there to be the commission input organization to the committee. The commission and the military were charged by the law to keep each other fully informed of all atomic energy activity that related directly to the other. There was also a provision in the law that required Presidential approval of all "important", whatever they are, activities in the programs of each. We will mention later how this worked when the Navy decided to establish an aircraft carrier with atomic bomb operational capability.

I got the job of organizing the MLC, and became its first Executive Secretary. The committee was chaired by Lieutenant General Lewis Brereton from the Air Forces. The Navy members were Rear Admiral Parsons and Rear Admiral Ralph Ofstie. The Army had two members, one was General Hines and there was an additional Air Forces member whose name I

can't come up with at the moment. It was not long before it was realized that General Brereton was somewhat out of his element and a civilian chairman was appointed. He was Mr. Donald F. Carpenter who came to the job from president of the Remington Arms Corporation, a subsidiary of DuPont. It is fair, I think, to assume that Mr. Crawford Greenewalt, who was president of DuPont, the company that ran the Hanford works where the Plutonium was being manufactured and was a member of certain advisory committees, had a hand in the appointment of Mr. Carpenter.

Mr. Carpenter was a fine person and very good to work for. Of course, he was a stranger in the new atomic world, and I had an enjoyable year acting as his guide and tutor. It was not long before he was up to speed and assumed his rightful guidance of the committee.

The new Secretary of Defense, James Forrestal, set up the Armed Forces Special Weapons Project (AFSWP) under the command of Major General Groves, as the coordinating organization within the military for all military atomic energy programs.

There was also in existence during the war the Research and Development Board under the chairmanship of Vannevar Bush. It was natural that a new committee should be set up within the Board and it became the Atomic Energy Committee. As an additional duty I assumed the job of secretary for this new committee. The members were Oppenheimer, James B. Conant, president of Harvard University, Crawford Greenewalt, president of DuPont, Vannevar Bush and all the members of the Military Liaison Committee. So this was a very potent committee. I don't have much recollection of the deliberations of the committee, but I understand that there is in the National Archives a large volume of the records of the meetings of this important committee. I suppose that I should research this, for I am sure that there is lots of history there. I doubt that I will ever take the time to dig into those records however.

I said that I don't remember much of the deliberations of the Atomic Energy Committee, but there is one thing that stands out very clearly in my memory. The committee was discussing the matter of the development of the "super" bomb as it was known then, which became the hydrogen bomb or thermonuclear bomb. I remember that Oppenheimer stated his opposition to the development of that bomb at the time. It was his opinion that we needed to build up the stockpile of Plutonium bombs before undertaking anything like the "super". It was his opinion that the reactors at Hanford should continue making Plutonium and not use the neutrons in the reactors to manufacture tritium, an important ingredient of the "Super". We should be making Plutonium and building up the stockpile.

Recall that sometime later Oppenheimer objected to the development of the super bomb, presumably for moral reasons. This, of course, started the feud between Oppenheimer and Teller that lasted until Oppenheimer's security clearance was revoked by the Atomic Energy Commission under Lewis Strauss. It could be that the objections that he posed to the RDB committee were misinterpreted. I don't know. My guess is he probably did have moral concerns about it later and decided that the super bomb just was not --- it shouldn't be in anybody's stockpile. Unfortunately this didn't deter the Russians from going ahead with it, as we did also.

Now I have gotten ahead of myself and should return to the Navy's organization for atomic energy matters under DCNO (Special Weapons).

Before we had hardly settled down, the new Army Air Forces started pushing the idea that there should be a test of the atomic bomb against naval ships. It was obvious that the Army

Air Forces was trying to establish that now they had the atom bomb, which surely could destroy naval vessels, the Navy was becoming obsolete. The Army Air Forces proposed to the Joint Chiefs of Staff that a test similar to that of the General Billy Mitchell days be carried out and under the total control of the Army Air Forces. The Joint Chiefs recognized immediately that this had tremendous political implications and could cause unacceptable turmoil in the military establishment. Therefore, wisely, the Chiefs agreed to the need for the tests, but that it would be a joint operation to be conducted by a Joint Task Force reporting to the Chiefs and under the command of Vice Admiral Blandy with Admiral Parsons as his technical deputy. So Joint Task Force One was created and the brunt of the initial organization and planning fell to Admiral Blandy's small staff in OP-06. This was to take up our total effort for the next several months.

It was to be known as Operation Crossroads and it was decided that there would be two phases to the operation: Test Able, an air drop of a Fat Man bomb against an array of anchored target ships and an underwater burst below the surface of the target array, to be known as Test Baker. A third test was proposed where there would be a test of a bomb submerged in deep water against the target array to be called Test Charlie. This phase of the operation, however, was canceled because it would require a complete move of the target ships from the shallow water of a lagoon or wherever the shots would be fired, to a deep-water site. Just to anchor the ships in several hundred fathoms of water would be a formidable job and not worth the effort.

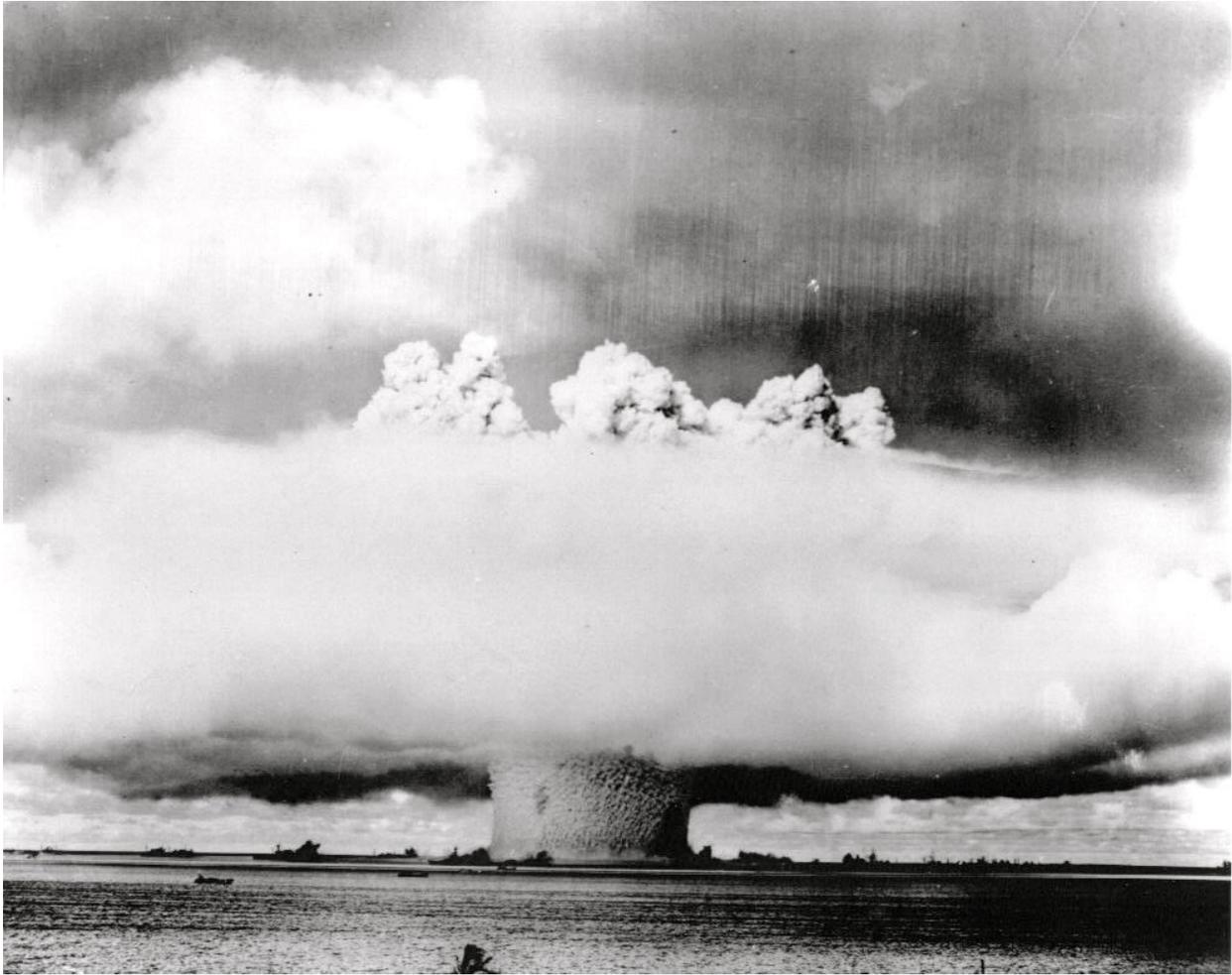
I was spot-promoted to the rank of Captain and was designated Admiral Parsons's Chief of Staff. I, at the tender age of 34, put on my four stripes and had a wonderful job as Parsons's Chief of Staff. During the operation I was aboard U.S.S. *Albemarle*, a large seaplane tender, which had been set up to assemble atom bombs, and did so for the air-burst test by the Army Air Forces. The flagship was stationed alongside the pier in Kwajalein lagoon for the duration. My memory fails me as to whether or not we assembled the Baker shot bomb aboard *Albemarle* and had it flown to the lagoon for the Baker shot where it would be lowered below an LST. My guess is that we did.

PS: Another important factor was the site selection that you were involved in.

FLA: Oh, yes. As I have said, initially Blandy's staff consisted of Parsons, Hill, Rivero and me. Of course, after the test was approved, the staff organization as Task Force One grew very rapidly. But those early days were tough. One of the first things that had to be decided was where the test should be conducted. It was obvious that the Pacific offered the best possible location, for there would be many very isolated locations to consider, more than might be found in the Atlantic. This job was assigned to me.

There were some definite parameters that would force the site selection. It would have to be in some remote area of the Pacific ocean. It had to be in reasonably sheltered water, fairly shallow so that the ships could be easily moored into the desired target array. That sounded pretty much like an atoll with a fairly large lagoon. Then there would be required fairly easy ingress and egress through the reef. I was assigned the job of locating a site that would fit most, if not all of these variables.

After going through, I don't know how many, but for at least a week or two, looking at charts of the Pacific to see if I could put my finger on an atoll that might fit the bill, I finally



*Operations Crossroads, I was assigned as the Chief of Staff to Admiral Parsons, the Deputy Commander for Technical Operations of Joint Task Force One. This photo is of the test of the Nagasaki-type atom bomb against Navy ships, Shot Baker, the underwater explosion in the Bikini Atoll. Note the size of the target ships.*

discovered the atoll of Bikini. It seemed to answer all these requirements. It was fairly shallow, good sized, it was essentially round. The reef was large enough to provide space for observation stations and the equipment to observe the results of the shots and had reasonably large openings for easy navigation into and out of the lagoon. And it was remote. The Sailing Directions gave me most of this information when consulted together with the charts.

It appeared that there were very few inhabitants on the atoll, maybe about 40. At that time, perhaps as a result of the freewheeling during the war, no one seemed to consider that to move these few natives would present much of a problem. Of course, it turned out to be more of a political problem than it seemed at the time and was a thorn in the side of the Trust Territories, I believe, for many years after.

But my selection was approved. I sometimes think that I'm the originator of the name "bikini" for the abbreviated female swimsuits. I don't know. But anyway, that was about the time that they were called bikinis, and I don't think anybody had ever heard of the Bikini Atoll before the Crossroads tests.

Once the site had been selected and the test ships rounded up, they needed to be manned and sailed to the Bikini lagoon. I am not sure of the number, but the figure of 40,000 personnel and more than 100 ships were involved in the operation. Each of the test ships had to be moored precisely into the array planned to get the best distribution of damage and at varying distances from the point of detonation of the bombs. This job was carried out by a salvage organization provided by the Navy Bureau of Ships. I think that the Captain in charge of this group was a Captain Manson, but my memory may be failing me here. He would also be responsible for the massive job of salvage at the conclusion of the tests. After the ships were moored, they had to be secured and abandoned after all arrangements for subsidiary tests against ships' equipment had been arranged. All sorts of Army stuff like tanks and trucks had been loaded aboard and a menagerie of animals, mostly goats, I think they were, tethered aboard at various distances to observe the effects of the detonation and the resulting radiation.

While all this was going on, I was down at Kwajalein aboard the *Albemarle* with not much more to do than to preside over the Admiral's mess consisting of a very small staff. The mess steward was one of the late Admiral Richardson's stewards. He was a super cook and was especially good with red snapper which we provided in abundance fishing off the reef. So you see that we weren't very busy down there. It was a great opportunity with not much to do in supporting my new rank of Captain.

But, anyway, we finally got the target array set up and all the stuff aboard the target ships for test purposes for the Able shot. The Fat Man bomb that had been assembled aboard *Albemarle* was turned over to the Army Air Forces group equipped with B-29s operating from the airfield on the Kwajalein atoll and under the command of Major General Roger Ramey. The bomb would be dropped on the center of the array, marked by the battleship U.S.S. *Nevada* painted with International Orange paint to provide a clear aiming point for the bombardier. The launch of the mission was successful and beautiful weather as usual was the rule.

It has never, to my knowledge, been determined why, but the bomb, released from around 30,000 feet, missed the *Nevada* by more than 2,000 feet. Needless to say this was very embarrassing for the Army Air Forces who probably believed that they were about to prove navies obsolete. The error was studied for months, and to the best of my knowledge the cause of the error was never determined, officially that is. There was a lot of speculation. Some was that the bomb tail came off, but photos from the dropping aircraft for the first 15,000 feet of fall showed that the tail was completely intact. Perhaps the best guess came from a study of the ballistic data used by the Bombardier as inputs into the Norden bombsight. This was done by Colonel Tibbets and his Bombardier Tom Ferrebee. They alleged that the data was wrong, there was no reason for it to be wrong, and it would result in almost exactly the actual error of the bomb drop. There are many who doubt this for apparently Ferrebee hoped to be given the Bombardier job for the test and didn't get it. I'll have to leave it at that.

Well, the net result of this was that much of the data that was expected to be determined was lost because the important ships were in the middle of the array. The ships that were badly damaged were less important for the test consisting of auxiliaries and smaller ships which were located in the outer areas of the target array. They obtained some information about the overpressures experienced around the array. Most of this information came from devices dreamed up by Bill Penney, a Los Alamos physicist, later Sir William Penney and then Lord Penney. He

used beer cans spread around the ships to see their deflection by the shock wave as it traveled away from the bomb detonation. More precise, if you can call it that, were "Penney's harps" also spread around the array. These were pipes of differing length welded to a base plate. The amount each pipe was deflected gave some information about the over-pressure. The earliest indication of the yield of the bomb came shortly after the test shot by collecting Penney's harps and observing the various deflections of the pipes.

Then came the Baker shot, the shallow-water test of a submerged bomb. The Fat Man type bomb, and incidentally these bombs were identical to that used against Nagasaki, was lowered beneath an LST which was also the firing "bunker" for detonating the bomb at the time desired. Accuracy of course was no problem because it was fixed. The firing was successful and demonstrated itself in the famous pictures of the water column and what looked like a ship traveling vertically in the column. Apparently the LST was evaporated in the explosion.

It was quickly learned that the major effect of an atom bomb explosion like this one underwater was the distribution of the radioactive seawater that rained down on most of the ships in the array. So all of a sudden we have all these ships contaminated with radioactive seawater. I am sure that the radiation specialists must have expected something like this, but it is my guess that the magnitude of this effect came as a surprise. They discovered that the ships could not be boarded for a few days to see the damage to the equipment on board and especially the effects to the animals tethered aboard. It was a matter of days before salvage crews could board the ships and start cleaning up the radiation left on board.

As far as I was concerned personally, probably the most important problem involving the airburst test was to determine as accurately as possible the distance from each ship and its orientation to the airburst in order to be able to determine the damage, and what over-pressures caused it. Had the bomb exploded where it should have, more or less directly above the target ship *Nevada*, this would have been a relatively simple job since the locations of ships in the array were known. But now we had a problem because the bomb detonation was about 2,000 feet away from the center.

There had been set up on the beach, on the shore of the atoll, two camera stations looking more or less at right angles to each other taking horizontal pictures across the lagoon. We had to take those pictures and come up with some kind of a plot showing the positional location and the orientation of the ships from the bomb burst.

PS: Had not one been prepared at the time the anchorage was set up?

FLA: Yes of course, but as I just commented, had the airburst happened over the center of the target array, sure, you could use the anchorage plot. We knew accurately where the ships were relative to one another and could identify each, but the burst was not in the center, but offset. We needed to know the relative position of each ship from the point of burst so that the distances could be determined and also the orientation of the ship relative to the burst. It had to be a plot with the bomb burst as the center. It was a triangulation job using the horizontal photos from the shore cameras using some sort of trigonometrical solution.

One of the scientists aboard the command ship at Bikini was Dr. John Isaacs, an oceanographer from the University of Washington. Another was the Head of the Engineering

Department at the University of California, Berkeley. I can't recall his name, but he was a super individual. Isaacs had figured out a triangulation procedure which was based upon comparing the known distance between masts, mostly, and masts and stacks, as they were observed from the photos from the shore cameras. Isaacs's calculations could be plotted to show not only the location of the ship, but its orientation. The problem was to identify each ship and measure the distance on the photos between the masts, for example, and compare this to the actual distance between them as shown on the ships' characteristics data. I had the job of identifying the ships in the pictures and making all the measurements using a magnifying glass and a steel rule with hundredths of an inch divisions.

PS: So you could get the direction in which she was heading as well as the location.

FLA: Exactly.

PS: This must have taken you back to your days in the late '30s when you were doing aerial photography.

FLA: In a way, yes. It is something like making a vertical mosaic from horizontal measurements, I guess. So it was my job to make all those measurements involving more than 100 ships and identifying each one. I would read off the measurements to Isaacs, who would make the calculations which he would give to our partner, name forgotten, who did the plotting.

After the shots, there was no use for the *Albemarle* in the area so she was sent back to Pearl Harbor with the measuring, calculating and plotting team aboard. We had five days to finish the job when the ship would arrive at Pearl.

We left Bikini and proceeded east to Honolulu, and our job was to have the plot completed by the time we arrived. We worked around the clock, literally. For the first and last time in my life I took amphetamines to stay awake. I am sure that on the average none of us had more than an hour or two of sleep each day during the five-day transit to Pearl. It took us the entire transit time measuring, doing the calculations, plotting them on the piece of paper and finally making a tracing of the whole thing.

When we arrived at Pearl Harbor and while proceeding up the entrance channel, I was put over the side in a small boat and taken ashore at the Navy Yard. I went immediately to the Public Works department and convinced them to run blue prints from the tracing. I don't recall how many, but there had to be at least 200 blueprint copies. I was given the whole bundle of the prints. There was a transport aircraft waiting for me traveling west and through to Kwajalein, where I was to deliver the blue prints of the "exact" array of the target ships. I remember getting into that plane and falling asleep as soon as I sat down. There were a couple of stops on the way, but I didn't even know it. I was never so exhausted in all my life.

PS: Did you work from just one print or did you blow up little pieces of the negative?

FLA: No, we worked from one print from each camera on the beach, which I recall to have been eight by ten. I can't remember whether there were two or three camera stations, but I had to get the measurements of each one of the ships on each of the photos.

PS: It certainly would have helped to have had a bigger print than eight by ten.

FLA: Yes, I'm sure that it would have been. Of course we knew essentially where each ship was from the basic plot of the array, so that helped with the identification. But looking through this forest of masts and stacks on the flat angle made it extremely difficult to pick out which ship you were looking at and measuring these distances that were required.

PS: Did you have any references or copies of the silhouettes of these ships to help you?

FLA: Oh yes, it would have been impossible without them. The calculations were pretty complex as well, and without computers Isaacs had only a calculator to work with.

PS: Did you have any observation of the work with Blandy, Parsons and Rivero?

FLA: Oh yes, that was a great combination. I sat in on a lot of the planning conferences that Admiral Blandy held. Invariably, he would identify the problem that needed to be solved. He would go around the table. There might have been a dozen or as many as 20 people there. He'd go around the table and get each person's input, what he thought ought to be done or how the problem should be solved. After everyone was heard, Admiral Blandy would say, "This is my decision". He would outline what he wanted to be done. It was as simple as that. Everybody had his say, but the Admiral made the final decision.

PS: Do you remember any specific examples of that technique?

FLA: No, I can't. I don't recall any of the details of any of it, but I recall very clearly how he operated. That impressed me so much that here was a guy who would make decisions. He listened to everybody and said, "This the way that we are going to do it." Everyone said, at least to himself, "Aye, aye, sir," and marched away.

PS: It doesn't sound much like the Turner technique.

FLA: No, you are right about that, but remember that Blandy worked for Turner during the Central Pacific campaign and suffered with Turner. Perhaps that is where he learned how decisions should be made.

Now, as far as Parsons was concerned, of course he was deeply involved in all the technical aspects, not only as it related to the bomb itself and its assembly, and stationing, but found himself deep into the new problems of radiation. That was his job as Technical Deputy. But his technical assistant was Rivets Rivero who, was always at his right hand, bringing his immense intellect to bear on the problems. He came from Puerto Rico, and as I understand it,

didn't speak English when he arrived at the Naval Academy. That didn't hold him back any, because he ended up standing number three in his class. I think that it is true that one year he stood "one-half" in the class. He was ill when the final exams were held and had to take delayed examinations. When his multiples were figured, he came out higher than the number-one man already graded. So they labeled him "One half".

He was to take a lot of the technical load from Parsons, letting him keep focused on the job. He could keep up with Parsons intellectually. When something came up to Parsons, Rivero would say, "Admiral, I'll take care of that. I'll handle it for you."

Parsons was Deputy Chief of the Bureau of Ordnance at the time of his death. He was always ready to help with someone else's work. He would take his home at night. It was just too much for him, at least that is the way I feel about it.

Perhaps you remember, along in December of '53, one night he woke up with some chest pains. In his inimitable fashion he got up, consulted his *Encyclopedia Britannica*, concluded that there was nothing to be alarmed about, and went back to bed. The next morning he told Mrs. Parsons, Martha, about his experience and she insisted that he go to the hospital at Bethesda. They gave him an electrocardiogram. As I understand it, while he was on the table taking the test, the trace went to zero and he died right there --- heart failure. It was a great loss to the Navy. He was a brilliant officer. I have the feeling that he did too much of other people's work. Maybe I'm wrong, but that's the way I feel about it. Had the Navy been wise enough to assign someone like Rivero as his immediate assistant to take some of the load, perhaps he might have survived longer and been able to continue to bring his gigantic intellect to bear on the Navy's technical problems.

PS: Did you encounter a naval aviator named Herb Riley out there?

FLA: I remember Herb Riley, but I don't remember what he was doing.

PS: I don't remember specifically. I know that he described in his oral history flying around with General Power and I think making some observations from the air.

FLA: Now that you mention it, I recall that he was out there in some capacity, but I don't know what. He must have been representing somebody. General Power --- I don't think that he was Strategic Air Command.

PS: No, certainly not at that point.

FLA: No. But he was LeMay's Chief of Staff down on Guam while the bomb operations were going on. That's where I first met him. So I suspect Power was there as a result of this experience. Why Herb Riley was there, I don't know.

PS: One conclusion I think I've heard is that the radiation level, as you mentioned, exceeded expectations, and the problem was that they had a bunch of highly contaminated ships they didn't know what to do with.

FLA: That's pretty much the case. Exactly. I think that they sunk a lot of them in the lagoon. What did they do with the old *New York* for example.

PS: She was sunk.

FLA: She was still out there.

PS: *Pennsylvania? Arkansas?*

FLA: In the bottom of the lagoon.

PS: The *Prinz Eugen* was towed to Kwajalein, I think.

FLA: Right.

PS: And she went belly up.

FLA: That's right, yes.

PS: Some were brought back and rehabilitated

FLA: *Saratoga* was in the test.

PS: She was sunk.

FLA: She was sunk in the Baker test.

PS: The *Nevada* was not sunk until couple of years later.

FLA: Yes, that's right.

Now, as far as I was concerned, after Crossroads, I went back to Washington, where the first order of business was to finalize the status of DCNO (Special Weapons), OP-06. I guess the first conclusion that was arrived at was that there was no need for a DCNO (Special Weapons). Admiral Blandy disappeared from the scene, and I am unable now to recall what happened to him. It may be that he retired about that time, but I am not sure.

In any event, it was decided that the whole package of Special Weapons should be placed in OP-03 under Admiral Jerrauld Wright DCNO (Operations), OP-03. Admiral Parsons continued to head the tiny organization that was trying to do something about atomic energy for the Navy in the Washington area. The designation OP-36 was given to the group with a division status in DCNO Operations. Then followed a great argument about what the new division was to be called. Parsons proposed "The Office of Atomic Warfare". Someone, I suppose Admiral Wright, believed that "atomic warfare" was too belligerent, and after a bit of thrashing around it

was decided to call it “The Office of Atomic Defense”, OP-36, with Admiral Parsons as head of the division with his direct assistant Captain Tom Hill and the staff consisting of Rivero and Ashworth.

This put Admiral Wright between Admiral Parsons and the Chief of Naval Operations, Admiral Nimitz, in the command structure. Admiral Wright was totally uneducated on atomic matters, but unfortunately he was very jealous of his position as Parsons’s superior and expected that all relations with CNO go through his office and vice versa. Obviously there was a disconnect in this channel because of Wright’s unfamiliarity with things atomic with the net result that Nimitz would invariably go direct to Parsons when it came to atomic matters. I was too low on the totem pole to be directly involved, but I think that it is a fact that this situation generated a bit of bad blood between Parsons and his “boss”, Admiral Wright. It worked apparently, but could have been better.

Parsons, in his inimitable style, immersed himself immediately in the generation of Navy policy as to the future of nuclear weapons and the totally new field of the possibility of nuclear power. I remember many sessions he had with, first name escapes me now, a Mr. Colbohm of the newly established Stanford Research Institute. Parsons had already concluded that the possibility of nuclear power made it possible to build the true submarine. Later, he was sure, these submarines could take on a missile capability and make a major contribution to the strategic defense of the country as an invulnerable part of the nuclear triad.

Shortly after these times when things had settled down a bit, Tom Hill was selected for Rear Admiral, assumed Parsons’s duties as head of OP-36 and Parsons finally had his heart’s desire with command of a division of cruisers on sea duty.

PS: Wasn’t it about this time that you were involved with the newly established Military Liaison Committee to the Atomic Energy Commission?

FLA: Yes, I think that we covered earlier how the Atomic Energy Commission and the MLC came into being. That was when I was designated the Executive Secretary of the Military Liaison Committee which had been authorized by the Atomic Energy Act.

It was recognized that there were going to be a lot of Army Air Forces Colonels on the staff of the committee, and I was still a Commander. Oh no, I had been spot promoted to Captain while serving in Joint Task Force One. Spot promotions were granted on the basis that you would hold the rank as long as you were serving in the particular duty for which you had been promoted. If you were assigned to any other job, then you were no longer spot promoted, you reverted to your regular rank.

They recognized that as committee secretary, I was going to have a lot of Army Air Forces Colonels working for me who would be younger than me, but would be senior in rank to me should I revert to my regular rank of Commander. A recommendation was put in to the Secretary of the Navy that I be continued in the rank of Captain while serving as secretary of the committee.

I learned later that this recommendation went up to the Secretary of the Navy through his Aide, Captain Smedberg. I heard that it was approved by the Secretary, but when it came back out from the Secretary’s office Captain Smedberg convinced the Secretary that it was time to

stop spot promotions. Apparently, although the Secretary had approved my continuing in the rank, he acquiesced to Smedberg's view and it was turned down and I was to revert to my rank of Commander, the young Colonels notwithstanding. So here I was, in limbo. I was still assigned to the task force as additional duty. It was hoped that this might let me keep my stripes. After two or three months, and no one had told me that I was no longer a Captain, I called the pay office people to find out whether I was still drawing Captain's pay. They said they were still paying me. I asked them what do I do to stop it because I didn't want to get stuck with a lot of back pay to return. They said, "you will have to bring us a piece of paper saying that you had been reverted to Commander." And, by golly, finally after, I think it was, three months went by, I got the piece of paper that satisfied them so I was reverted to Commander and had to give back three months of the difference between Captain's pay and Commander's pay. So I had to take off my fourth stripe and had to live with the Army Air Forces Colonels, which turned out to be no problem.

PS: Can you describe briefly what some of your duties would be while Secretary of the MLC?

FLA: To start from the very beginning, I had the job of organizing the committee staff and getting money to get the operation going. The committee was given space in the same building as the Atomic Energy Commission on Constitution Avenue. Now we needed money to equip the offices and to pay the very small secretarial staff that I planned to have. I made a guess, educated I would hope, that we needed \$140,000 to get started. I arranged a hearing with the congressional appropriations committee, I think it was, and stated my case. I was asked how I had arrived at the figure of \$140,000. I replied that it actually was a guess. The response from the questioner was something to the effect, thanks, that is one of the truly honest answers that we get in this committee, I recommend that you have the money.

Since all the correspondence between the commission and the military went through the committee and most of it required action by the members of the committee, I had to draw up an agenda for each meeting, every two weeks if I recall correctly, circulate it to the members and act as recorder at the meetings. I would prepare the minutes to be presented at the next meeting for approval. It wasn't long before the work became more extensive and complex and it was necessary to farm it out to the various members of the staff responsible to prepare discussion papers for the members when the committee was in session. As you might expect, since by this time nothing had really settled down to any kind of a routine, the hours for the staff were long and busy.

To add to my occupation with the committee, I tried to keep close touch with what was going on in the Navy Department involving atomic energy. OP-36 was doing the staff work and was my route of input. The Navy needed all the experience in the field that we could bring to bear.

The Army Air Forces seemed to have the objective that now that they had the bomb with all its potential, they should become the dominant organization in the new Defense Department and concluded that the fighting part of the Navy had become obsolete. We would be good to help transport the Air Force people and equipment about the world, stuff that they couldn't move by air. It was this attitude that led to the so-called revolt of the Admirals.

Some of us thought that there was a need for a carrier-borne atomic bomb capability, and the sooner that we could get underway with its development the better. It was decided, as initiated by Admiral Parsons, that the Navy would get authorization to proceed with the project. It was our opinion that under the provisions of the Atomic Energy Act presidential approval would be required. Although not exactly in my line of responsibility being out of the Navy Department and working for the Secretary of Defense, I prepared such a letter for the Secretary of the Navy to sign to the President asking for authority to proceed. It is a long story, but it took nearly six weeks to get the letter out of Admiral Radford's<sup>1</sup> office and on to the Secretary. In hindsight, I am sure that this was not for any reluctance by Radford to proceed into the program, I am sure that he was waiting for the right time politically to move the program into the open. Finally, the letter was returned from Secretary Forrestal's office with the note that presidential approval would not be required.

While this was ongoing, Admiral Parsons said to me that certainly, when time came to organize a carrier squadron, I should take command. I demurred on this and told him that there was only one Naval Aviator who could pull this off, Chick Hayward. I told Parsons that I



*P2V Neptune*

believed that there would be lots of political and technical aviation problems to be solved for which I did not have the experience. Hayward had forgotten more about naval aviation than I ever knew, and he was a good politician. Admiral Parsons accepted this, and I proposed to him that I would like to be Executive Officer, and if a second squadron was ever to be formed I would like to have command. The net result was the organization and commissioning of Composite

Squadron Five under Hayward's command. The squadron would be equipped with Lockheed Neptune type aircraft which were later designated as P2V-3Cs. These aircraft were selected because the bomb bay was large enough to take a Little Boy type atom bomb, and because Hayward was of the opinion that they could be launched satisfactorily from *Midway* class carriers.

We knew that the P2V would never be adaptable for total carrier operations because it would be impossible to operate from the carriers in both launching and landing requirements. I should add that Hayward thought that it might be possible to rig a hook on the aircraft and land it aboard under ideal conditions. He had a hook installed in a test aircraft and made practice arrested landings into the landing gear at Naval Air Station, Patuxent River. He made several

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<sup>1</sup> Admiral Radford was, at the time, the Deputy Chief of Naval Operations for Air. He was a principal player in the Revolt of the Admirals and was later appointed to be the Chairman of the Joint Chiefs of Staff.

successful landings into the gear, but when less experienced pilots tried it, only damage to the plane resulted and the program was given up.

Also when I was the secretary of the MLC, I learned through contacts in the Navy Bureau of Aeronautics that there was being developed by North American Aviation a carrier-capable aircraft that was to carry an 8,000-pound bomb. It struck me that this was not all that far from the weight of the Fat Man bomb and it might have possibilities of providing a true carrier-capable atomic bomb carrying aircraft. Captain J.N. "Mother" Murphy who had the attack aircraft desk in the Bureau of Aeronautics and I went out to North American to see the mock-up of the new plane to try to determine if there was any possibility that it might be adapted for the Fat Man bomb. On first look it seemed that it might be entirely possible. There were some obvious conflicts in the bomb bay such as the location of hydraulic lines and wiring, but these seemed to be solvable. It looked as if the large box tail of the bomb would be difficult to fit in and still close the bomb bay doors. Ultimately bulges were worked into the doors to accommodate the bomb tail.

Before we could be sure that we were on the right track it seemed as if we would need a full-scale model of the bomb to make the fit. However, because of security regulations, it didn't seem that we could make any definite commitment at the time. I thought that maybe I could get the matter cleared with a phone call to General Nichols, the Chief of AFSWP.

Murphy had been cleared for the atom information and happened to have brought with him an actual bomb suspension lug and the dimensions of the sway braces from which he could locate in space their contacts on the bomb case. I knew that the case was an ellipsoid, and I thought that it might be possible that the North American draftsmen would be able to take these locations and make a mock-up of the bomb. I called General Nichols, told him of our problem and how we proposed to solve it. He agreed immediately and we went ahead.

About an hour later the Project Engineer showed up with what appeared to be an exact wooden copy of the external Fat Man bomb shape. We attached the lug and hoisted it into the bomb bay and checked it for clearances. All the while it had been necessary to do this fitting with the North American people restricted from the mock up room. Presumably, they didn't have the proper clearances to witness what we were doing. It looked as if it was entirely feasible to use the aircraft just about as it had been designed. After it was all over, the North American people said that they didn't understand what all the secrecy was about; they had just gone through the whole exercise with the Air Force, fitting a Fat Man into the B-45. What finally emerged for the Navy was the North American AJ-1.

I had spent nearly two years in the MLC job and it was time to move on and take up Admiral Parsons's commitment that I should go to sea duty as Executive Officer of Composite Squadron Five, the Navy's first venture into carrier atom bomb operations. So in September 1948 I moved my family to Palo Alto, California, where, at the Naval Air Station, Moffett Field, the squadron was being organized and would be based. A reserve naval officer who had worked for and with me on Tinian, whose aunt lived in Alameda, had located a house for us which, unfortunately turned out to be on the wrong side of the tracks so to speak, but which did provide us a place to live until we could find other accommodations. A fine house in Palo Alto turned up shortly thereafter to where we moved and where we spent an enjoyable year.

In reply address not the signer of this letter, but Bureau of Naval Personnel, Navy Department, Washington 25, D. C.

Refer to No.

23 July 1947

NAVY DEPARTMENT  
BUREAU OF NAVAL PERSONNEL  
WASHINGTON 25, D. C.



From: The Chief of Naval Personnel. jss  
To: Captain Frederick L. Ashworth, 72354, USN.  
Office of the Chief of Naval Operations  
Navy Department  
Washington 25, D.C.  
  
Via: The Chief of Naval Operations.  
  
Subject: Award - forwarding of.  
  
Enclosure: (A) Citation (1).  
(B) Gold Star.

1. The Chief of Naval Personnel takes pleasure in forwarding with his congratulations a Gold Star in lieu of the Second Legion of Merit and Permanent Citation awarded you for meritorious conduct as a member of the Naval Service.

2. It is requested that presentation or delivery of this award not be made until 2 August 1947 and that no publicity be released until that date.

  
W. C. THOMAS,  
By direction.

THE SECRETARY OF THE NAVY  
WASHINGTON

The President of the United States takes pleasure in presenting the GOLD STAR in lieu of the Second Legion of Merit to

CAPTAIN FREDERICK LINCOLN ASHWORTH  
UNITED STATES NAVY

for service as set forth in the following

CITATION:

"For exceptionally meritorious conduct in the performance of outstanding services to the Government of the United States as the Chief of Staff to Commander Task Group ONE POINT ONE, Joint Task Force ONE, during Operation CROSSROADS, from February 7 to October 31, 1946. Captain Ashworth participated in the organization of both the military and technical staffs of Joint Task Force ONE from its inception and further assisted in the basic planning of the operation, including the selection of Bikini Atoll as the site of the tests. As the operation proceeded, he worked tirelessly and with resourceful initiative, effectively coordinating the work of diverse military and civilian groups, particularly those involved in the preparation and the air and underwater delivery of the atomic bombs. By his foresight, professional ability and determined effort, Captain Ashworth contributed materially to the success of Operation CROSSROADS. His conduct throughout upheld the highest traditions of the United States Naval Service."

For the President,

*James Forrestal*

Secretary of the Navy

IN REPLY  
REFER TO:

JOINT TASK FORCE ONE

Kwajalein, Marshall Islands  
30 June 1946.

Dear Davie,

This is for you to read when you  
get older. Mummy will read it  
to you now, but you probably won't  
understand it. But later you  
will read in school about the  
atomic bomb and the tests at  
Bikini that will take place  
tomorrow. By then you will think  
what we are doing now very elementary.  
Today it is the beginning of a  
new era. Your Daddy has helped  
start this new era for he helped  
drop the atomic bomb on Japan  
and made her stop the war.

IN REPLY  
REFER TO:

JOINT TASK FORCE ONE

Now he is helping with this great experiment. Perhaps, in not too many years you will be helping with what is being started to morrow. It won't be bombs I hope but something bigger and much more important.

Now you and Mummy and Ricky are helping, making our home and our family the wonderful thing it is. And soon I'll be back with you and we'll be complete

Yours.  
Daddy.



IN REPLY  
REFER TO:

JOINT TASK FORCE ONE

Kwajalein, Marshall Islands  
30 June 1946

Dear Ricky,

When you grow a little older, perhaps you will look back and better realize why Daddy has to go away and leave you and Mummy and Davie, once in a while. You see tomorrow the first of the atomic bomb tests will be held, and Daddy is helping. Your Daddy helped drop the second atomic bomb on Japan which made her stop the war. Now we are trying to find out how we can best protect ourselves in the future, should some one decide to drop atomic bombs on us. And perhaps we can also find out how to keep others from dropping them on us, so that you, when you grow older,

IN REPLY  
REFER TO:

JOINT TASK FORCE ONE

will never have to go to war.

So you see, Ricky, that is why  
Daddy is not home with you now.  
And when you read in your history books  
about the atom bomb tests at  
Bikini, you can be proud that it  
was your Daddy who helped to do  
it, and to make this world a better  
place for you and Dairie and Mummy  
to live.

You too are helping, staying  
with Mummy, making our home a good  
home for Daddy when he comes back.  
You must be proud of that, always.

Love from your  
Daddy.

## CHAPTER FIFTEEN

### COMPOSITE SQUADRON FIVE (VC-5)

#### EXECUTIVE OFFICER

September 1948 - January 1950

### COMPOSITE SQUADRON SIX (VC-6)

#### IN COMMAND

January 1950 - December 1950

PS: Admiral, we got up to the point in an era where you moved to VC-5 and got into the initial heavy atomic attack bombing squadron. The key figure there was Chick Hayward, and I'd be interested in what more you would like to say about him as a pilot, a leader, administrator, planner, and so forth.

FLA: Chick Hayward, --- I believe that it's a fair statement to make, had more flight time, I presume, than any of his contemporaries in the Navy at this time. He didn't do any postgraduate work except what he did on his own. I think that he probably had gained the equivalent of at least a master's degree in physics. I believe that everyone who ever served with him certainly liked him and admired him. He was good at delegating responsibility. I was his Executive Officer and he let me do my thing. We worked well together. He was a very gregarious individual and therefore has many friends.

There is one story that is told about him which is fairly characteristic. Perhaps you have heard it before. It is about the time some of the officers at Sandia Base in Albuquerque where he was serving at the time, chipped in for the fee and entered him in the bulldogging contest at the New Mexico State Fair.

PS: I don't think I've heard that one.

FLA: Well, when he was out at Sandia Base<sup>1</sup> after the war --- you see, he had been exposed to some of the nuclear program when he was Experimental Officer at the Naval Ordnance Test Station (NOTS), China Lake, Inyokern, California at the time. The Manhattan Project placed several programs there at China Lake, which we have already mentioned. After the war all the nuclear activities of the military outside of Washington were located at Sandia Base. It was known as The Field Command of the Armed Forces Special Weapons Project. Hayward was, I think, the senior naval officer there.

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<sup>1</sup> Sandia Base was located in Albuquerque and occupied space at Kirkland Air Force Base there. It was the "field operations" base for the Armed Forces Special Weapons Project with headquarters in Washington, D.C.. This was the main center for training personnel who would be involved in the assembly and maintenance of atom bombs, custody of which would be transferred to the military in accordance with the Atomic Energy Act. Located there also was the Sandia Laboratory of the Atomic Energy Commission which supported the Los Alamos Laboratory in the translation of the Los Alamos product into engineered weapons. Sandia Base managed the transition of the finished weapons to satisfactory installation into aircraft of the Air Force and Navy.

With all the friends that he had, and Hayward being the person he was, it was not surprising that some of the officers planned a little escapade for him. They entered him in the bulldogging contest in the State Fair Rodeo. Again, being Hayward, he said, "OK, I'll do it". If I remember correctly, he took fifth place. This is totally typical of the man.

Of course, he was a great fan of the New York Yankees having been a bat boy for the team at one time.

He was a superb pilot. There was nothing in naval aviation that fazed him, as far as I know.

PS: He was very forward looking, which is a quality that would work well in this squadron.

FLA: That is right. He was forward looking. I think that we have already mentioned that when Admiral Parsons offered me the job of commanding the first atom squadron, I told him no. I knew that there was going to be a lot of politics involved in getting the program started and we were going to have to sell the program to a lot of people high up in the Navy Department and the government. Further, this was going to be a whole new adventure in naval aviation<sup>2</sup> because we were going to be operating larger size aircraft on the carriers than had been done before. So he was able to bring to bear his broad experience in naval aviation as well as his broad technical background. In this connection it is worth mentioning that he was assigned to the Naval Aircraft Factory in Philadelphia, where he was in charge of the aircraft instrument division. It was here, while stationed in Philadelphia, that he was able to do the academic work that I have mentioned. I don't think that he had time to get a formal degree. I think that he has been awarded an honorary Doctor of Science degree, of which he is very proud.

It was during this period that he arranged to fly with American Airlines pilots for about six months on their East Coast routes to gain as much instrument flying experience as he could, using this experience in his duties in the instrument division of the Aircraft Factory.

PS: He was very glib, which would help in that salesmanship also.

FLA: Yes, that's probably so. But don't sell the glibness short. It was my experience that when he said something you could very well count on it as being just about right.

PS: Did he leave the administration of the squadron largely to you?

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<sup>2</sup> It was about this time that jet-powered aircraft came into practical operation aboard the carriers, thanks to the angled deck developed by the British. The angled deck permitted any aircraft that failed to be "trapped" by the cross-deck arresting gear to simply apply full power, fly straight ahead into open airspace and repeat the approach to a landing. Prior to this time, when carriers were "straight deck", failure to be trapped would require a violent maneuver to clear the deck, otherwise crash into the "pack" of parked aircraft forward on the flight deck. With the successful introduction of jet aircraft, the Navy intended to use the smaller aircraft in the atom bomb delivery operations. With this came smaller bomb design from Los Alamos and the need to develop bomb launching techniques to utilize the new jet aircraft capabilities. One was the "loft" technique. The plane would approach the target at a very low altitude, pull up into a steep climb and release the bomb at the appropriate time so the plane could roll out and proceed away from the detonation of the bomb. The bomb would continue on in flight to the target. There were developed other variations of this delivery method.

FLA: He did indeed. As far as the day-to-day running of the squadron he was perfectly prepared to delegate responsibility to me. We got along nicely from this point of view. Later, when I had command of VC-6, the second atom attack squadron, we did get a little crosswise. It had to do with the introduction into the fleet of the AJ aircraft.

PS: You have mentioned that you risked your professional friendship by saying that the AJ needed an operational test. But what you haven't said was the outcome, whether indeed it did cool the relationship.

FLA: Yes, I once confronted Chick with this. I said to him, "I suppose, Chick, when we recommended that these aircraft be taken out of service and placed under Service Test at Patuxent River to cure some of the problems that had been plaguing the program in the early days of the carrier operations, that this was the end of a beautiful friendship because you absolutely refused to do this." He said, "No, not at all. The real answer was, and probably you didn't realize it, that I was under a lot of pressure from the Navy Department to get this operation aboard ship. I felt that the fastest way to do it was the way we did it, and not get bogged down in Service Test. I understood what you were recommending, but it is obvious that you had no way to know the pressure that I was under from Washington." This was during the time that the Navy was in a last-ditch fight with the Army Air Forces and the new Air Force Department to save naval aviation, and to get authorization to augment the Air Force in making atom bomb strikes from carriers into targets along the littoral.

I am glad that he told me that, because I really thought that he had resented the fact that we had made this recommendation. As far as that is concerned, we had talked to Admiral Schoeffel, commanding the Test Center, and he agreed completely that with the background of the problems we had with the airplanes and the number of people that had been killed in several accidents, something like this should be done. However, with the inside information that Chick had, I think that in the long run he was right. Certainly we got the planes into the Fleet quicker. This is not to say that the going was smooth in operation nor that there were not quite a number of accidents after that.

PS: What were some of the kinds of problems that made you think that it did need that kind of testing?

FLA: This is covered completely in a series of articles in *Wings of Gold*, the magazine of the Association of Naval Aviation, written by Bill Scarborough, who had been closely involved with the program as a pilot in VC-5. As far as I was concerned personally, I left VC-6 before the squadron was outfitted with the AJ's. Almost, that is. I did have an opportunity to check out in the plane and make some field carrier landings. After that I was transferred to the U.S.S. *Midway* as Executive Officer.

One accident resulted in the death of Dave Purdon, a brilliant young officer with aeronautical engineering postgraduate experience. It was particularly disturbing for it illustrated exactly what Bob Townsend, my Exec in VC-6, and I were talking about. Prior to a catapult launching, he was observed to rotate his control stick throughout its range and bring it back to

center, as was standard practice to check the freedom of operation of the elevators and ailerons. He was launched, made a normal run down the catapult track as recorded by motion pictures, and immediately off the bow of the ship, where he should have started his rotation to climb, the aircraft dived straight into the sea ahead of the carrier.

The investigation of this accident concluded that after rotating his controls and bringing them back to center, the controls locked in the center position. If this were so, there was no chance for recovery and the crash was inevitable. What is worse, in checking other aircraft in the squadron it was learned that there were other planes which could have the same thing happen. This is the sort of simpleminded thing that could have been found in a well-controlled test and probably solved in Service Test.

There were hydraulic failures as well. One resulted in a fire in flight causing the plane to crash. All the crew were lost, including Dr. Fairless, the squadron Flight Surgeon.

Bob Townsend and I believed that fleet operations is not the place to find out these problems. There had been almost a 25% attrition rate. That's what Service Test is all about.

Hayward's solution to this problem was to bring a large group of North American engineers and repair people from California to Patuxent River, and set up a modification line in one of the hangars on the station. Most of the problems were straightened out, but even after that, when the aircraft were deployed to the Mediterranean and Port Lyautey, they continued to have accidents losing aircraft and people.

So the AJ had a pretty spotty career, and I still think that it was probably put into service faster than it should have been. It was somewhat of a radical design with a jet engine in the tail and two reciprocating engines. It was the largest carrier-type airplane that had been operated from the carriers up to this time. There was certainly a learning curve to be mastered.

PS: To put it in the political context of the times, there was a battle going on to absorb naval aviation into the Air Force, and that must have been what Hayward was trying to fight against.

FLA: That is exactly correct. I think that it was Admiral Radford who was on Hayward's back in this political environment. It is interesting to note that when we made the proposal, we thought that presidential approval was required by the Atomic Energy Act of 1946. Actually, I prepared the letter to go forward to the Secretary of the Navy which was intended to get that approval.

So I wrote the letter and started it up the ladder to the Secretary. Time went by, I guess about a month or six weeks, and nothing happened. Captain Frank Schade was OP-05B at the time. When I went to see him to try to get the letter moving, he said to me, "I don't think that this is the Navy's business. This is Air Force business, atom bombs and the like". I told him that I didn't agree with that and that there were a lot of other people who didn't agree with that. We thought that we ought to get on with it, and could he please get the letter going. Apparently it sat in Admiral Radford's office for a month or six weeks until he thought that the time was right to send it on to the Secretary. The letter came back down from the Secretary's office approving the program and stating that the President didn't need to approve it. That was the word that we needed to get the program underway.

PS: You have mentioned that you had top-notch personnel in that squadron. Any examples that you would like to cite?

FLA: I think that we did recruit some of the pilots with the best records. Admiral Parsons had arranged with the Bureau of Personnel to make available to us the records of all aviators in the ranks of Lieutenant, Junior Grade, Lieutenant, and Lieutenant Commander from which we could select people who appeared to have the qualifications that we needed. Joe Jaap, who was in OP-36 at the time, helped with this. We were looking for people who had some technical background, had excellent records and were multi-engine pilots. This probably turned out to be a mistake, however.

PS: Why do you say that turned out to be a mistake?

FLA: Hayward prescribed this qualification. He thought that future atom bomb-carrying aircraft would be multi-engine aircraft. He probably had more experience in multi-engine aircraft than he had in carrier operations. I think that he believed that multi-engine experience provides some expertise not acquired by single-engine pilots.

After the AJ was replaced by the Douglas A3D, a larger, heavier and all-jet-powered plane, the squadrons began to have trouble with carrier operations. It got so bad in the Med that Admiral Cat Brown, who was commanding the Sixth Fleet at the time, finally asked that the planes be removed from the carriers as being an unacceptable operation, and a nuisance aboard the ships because of their size and the operational problems that they were experiencing. One of the Squadron Commanders was Commander Jig Ramage. It was his opinion that the trouble was that the pilots had never learned to operate on and around the aircraft carriers. They were basically patrol-experienced pilots.

Carrier-experienced pilots were fed into the system as quickly as they could be as replacements and the operation was uphill from then on. I understand that Admiral Brown became convinced that the operation was feasible.

PS: So what you're saying is that it was easier to make a carrier pilot into a multi-engine pilot than vice versa?

FLA: I suppose that is one way to put it. Carrier operations are special, and it takes years of experience to make a good jet carrier pilot. There was an experience of one of our pilots in VC-6 that perhaps supports the other theory. Commander Tommy Robinson, an experienced multi-engine pilot, was practicing field carrier landings in one of our AJs. On his downwind leg he lowered his flaps as was normal procedure. One flap failed to come down which nearly threw him on his back flying at around 500 feet. He was able, perhaps by pure instinct from flying planes with two engines, to go full power on the lower engine, push full rudder in the proper direction and pull himself out of the predicament. It might be reasonable to assume that a single-engine pilot might not have reacted instinctively and recovered successfully. I don't know whether that says that our policy was good or not good. But in any event during this selection process we were favoring multi-engine pilots.

The other thing that I mentioned was that we were looking for pilots who also appeared to have a good technical background. Our first selection was Jack Sloatman. He had at least a master's degree or maybe a Ph.D. in mathematics before he entered the Navy, and he was excellent in electronics. We went through the records and were allowed to pick whomever we wanted, and they were ordered into the squadron whether they wanted the duty or not.

PS: I gather you were pleased with the way these men performed.

FLA: Oh yes, we had the pick of the crop, and they were all outstanding people. However, as I have already mentioned, it is probably a fact that our criteria were not necessarily good because of the problems the later squadrons had trying to operate the big A3D jets around the carrier. It came out then that carrier operations require long-term experienced carrier pilots.

There was another problem that faced us as the squadrons became organized; the pilots that were selected early. This involved the junior pilots of the ranks of Lieutenant, Junior Grade and Lieutenant. Many of these were up-and-coming carrier pilots and patrol pilots who found themselves riding in the right seats of the AJ aircraft and not doing much flying as pilots. They found themselves in what appeared to be essentially a dead end. They could not see much chance in the immediate future of getting their hands on an airplane as the pilot. All the plane commanders were Lieutenant Commanders or Commanders. So we really had a top-heavy rank organization, and the junior officers were not very happy.

PS: Understandably.

FLA: Exactly. However, it is worth noting that by selecting these highly qualified pilots, those who survived provided a group of excellent officers for the heavy attack program of the Navy for many years to come, even though, perhaps it turned out that we hadn't selected many of the better people for this particular duty as a result of the policy of looking first for multi-engine pilots. So I have to say that Jig Ramage was correct. I later had an opportunity to see firsthand what Ramage was trying to get across.

When I had command of the carrier *Franklin D. Roosevelt*, the commanding officer of the A3D plane squadron on board, or rather the officer in charge of the A3D detachment aboard, was clearly buffaloed by the plane. He had been a patrol plane pilot most of his career. His performance around the ship was bad. His landing aboard was always an accident looking for some time to happen, and unfortunately this reflected on all the pilots in the detachment. They tend to lose their confidence when they see the boss having trouble. This is the thing that Ramage was running into, and it was then that he started bringing into the program carrier experienced pilots. He deserves a great deal of credit for literally saving the program.

PS: In those early days back in VC-5 and VC-6, how did you go about putting together a mission and the tactics and flight profiles?

FLA: Well, it was fairly obvious that we had only one mission, and that would be to drop atom bombs, somewhere.

PS: Did you have a target list, for example?

FLA: In those early days we weren't integrated into the Single Integrated Operation Plan (SIOP), which later defined and assigned the targets for all the organizations that would be involved; both the Navy and the Air Force. And it should be understood that both the new Air Force and the embryonic Navy program was just getting started. Organizing for detailed target assignment was to come later. We were just struggling to get some kind of a capability. Our first aircraft was the Lockheed P2V-3C, a version of the Lockheed Neptune. The aircraft had been stripped of all guns except that in the tail and had a large auxiliary fuel tank installed in the fuselage aft of the wing. It was recognized that any operation with these planes would be either a one-way mission landing at a friendly airfield, or a one-way mission landing in the water alongside the carrier. For this water landing maneuver there was installed on the underside of the nose section of the plane a flat plate about two feet square that was actuated by a hydraulic system. The plate was hinged, and when deployed it was intended to help hold the nose of the plane up during the water landing. No one was particularly enthusiastic about this prospect, but nevertheless, this was the intent.

PS: So the planes would have to be loaded aboard the carrier in port?

FLA: Yes, that is correct. Furthermore, the planes would require jet assisted take-off (JATO), for launching from the carrier. This consisted of four, I believe, rockets mounted on each side of the fuselage. When starting to accelerate down the deck, the pilot would ignite the rockets to provide the extra thrust to get the plane off the deck at its weight of 70,000 pounds.

Also speaking of tactics, Hayward intended that all the pilots become excellently instrument qualified. We were all sent to Corpus Christi to attend the instrument flying school located there. Then we were given every opportunity to make long-range navigational training flights. I think that I made eight or ten trans-pacific flights to Honolulu and return to practice over-the-water navigation. We navigated by celestial navigation; the Bombardier-Navigators were well trained in this art. Mine was Lieutenant Lyle Cox, who later left the Navy and went on to get a Ph.D. degree in physics from California. Cox was especially good and could come up with a fix in about five minutes after commencing the operation. He would pick out the stars that he wanted to use, assume a time a few minutes before taking the sights, make all the calculations for that particular time, and when the time came all he had to do was get the elevations of the stars at the specified time. Working this into the already calculated problem gave him his fix in less than five minutes. Incidentally another one of these fine young officers was Bud Wiser who left the Navy and later became president of TWA, Trans World Airlines.

PS: With this inability of the P2V to land on the carrier, that's all the more reason to speed the AJ's entry into the Fleet.

FLA: That is certainly true. Obviously the P2V operation was a long way from being practical. But in the light of the political situation after the war when the Air Force was laying claim to all

military aviation including the carriers, and particularly the atom bomb as its particular domain, it was imperative that the Navy demonstrate that it was determined not to give up the possibility of competing in the A-bomb operations. It was indeed, a real capability, albeit not too practical, so this was the pressure that Hayward was under in trying to get the AJ into Fleet operation.

PS: The loft maneuver was developed for dropping the bomb, to get up and away to avoid the blast. Was that a technique you used?

FLA: No. The AJs were equipped with the ASB-1 horizontal bombing system. The loft maneuver came in later when the size of the bombs had been reduced to the point where they could be used on the jet fighters. The successor to the AJ, namely the A3D, was also essentially a horizontal bomber as well. However, I suspect that some intrepid characters like Hayward might have tried the maneuver in the A3D. In addition to the loft maneuver there was a technique used by the jet fighters called the over-the-shoulder delivery. In this maneuver the pilot would fly into a loop and when nearly vertical would release the bomb and do a wing over to retreat from the area. The bomb would travel several hundreds of feet up and then return to earth hopefully on the target while the delivering aircraft was heading at high speed away from the point of detonation.

PS: And the idea was that you had to come in low to avoid the radar?

FLA: Yes, that's correct. In this connection there is an interesting story about the young officer who invented the bombsight that was used in the over-the-shoulder delivery. He was Commander Joe Schwager. He had been in VC-6 with me. During this time he came to me and asked for advice as to whether he should apply for Navy postgraduate education. I told him that I thought that he definitely had the mental apparatus and academic capability to do very well in the program. I told him that I thought that in his case it was a good thing for him to do. So he requested duty at the P.G. school.

After about a year Joe called on me. He was wearing a pair of horn-rimmed glasses and not looking particularly happy. He said that he was ruining his eyes studying and that he wanted to get out of the program, what did I think? I told him that he had completed a year and if he would continue for another year he would have a master's degree. With that he might decide to go on for a Ph.D. in physics or something. Well, he finished the work and had his master's degree. I saw him again after that and he asked me, "What do I do now? I've wrecked my career in naval aviation with those two years out of the Fleet."

So I talked to Chick Hayward about this to try to decide what we should do. He needed advice right now, and badly, before we lost him altogether. I thought that we might be seeing some sort of a pattern developing for these young, bright naval aviators. I suggested to Hayward, "Why don't we see if we can get Schwager ordered to some government laboratory where he can use, and perhaps develop further his technical education, and at the same time go for his physics Ph.D.?" Joe said that he wanted to go to the Livermore Laboratory and pursue his education at the University of California.

Then I checked with the Secretary of the Navy to get his approval of this adventure. I told him, “We are proposing to put this kid’s naval career on the line by having him continue his education. Further, we want to offer him the chance to use his education working at whatever government laboratory he selected, to work on whatever project he thought would make an important contribution to the Navy.” The Secretary, I’ve forgotten who he was at the time, 1948 it must have been, okayed the idea. Schwager chose to stay at Livermore with the hope that he could get his Ph.D. under the guidance of Edward Teller.

Within a year he had his degree, and then wanted to know what he should do. He said that if he were to go to an operating Fleet squadron there would be none who he could talk with on his level. Then the idea struck me, why not have him stay right there at Livermore and work on some project that he thought would make a useful contribution to the military weapons capability. He agreed.

About a year later he called on me to tell me that he was working on a project which he thought would be useful; encapsulating Polaris missiles and placing them on the ocean floor from where they could be launched against preset targets. I said, “Joe, that’s an engineering job. You are a nuclear physicist with a Ph.D. degree.”

Well, the net result of all this was that he decided, with a little urging from Hayward and me, that he better come down out of the clouds and get back into naval aviation. We had him ordered to VX-5 at China Lake. It was there that he came up with the design of the over-the-shoulder bomb director, so I suppose that it was not all wasted. In any event, he resigned from the service shortly after that and as far as I was concerned disappeared. I think that he taught physics at the Postgraduate School for a while. After that I don’t have any idea.

He was the kind of officer that we had recruited for our atom bomb program. Maybe he was a little too ambitious, or maybe we didn’t know how best to utilize his talents. At least we tried.

PS: Maybe your guys were overqualified.

FLA: Some of them maybe, but I think that Joe Schwager was a special case.

PS: What kind of a bombsight did you use in the P2V and the AJ?

FLA: The P2V used a radar-controlled bomb director, perhaps like the one that had been used in the B-29s. The AJ was equipped with the ASB-1 which was a radar-controlled bomb director, a new-generation equipment, and when they had the bugs worked out, it was fairly successful. This all took place after I left the program, and I lost track mostly of the AJ program after that.

PS: How big of a concern was accuracy in those early days of the program?

FLA: The P2Vs were to carry the Little Boy, Hiroshima-type weapon, and the AJs were configured for the Fat Man, Nagasaki bomb, then known as the Mark IV. So what we are talking about is still the nominal 20 kiloton energy TNT-equivalent bomb. Although it may not be exactly “militarily correct”, realistically the size of the “bang” would make up for a lot of

inaccuracy of delivery. Later, when the smaller bombs came into being with lower yields, accuracy did become a factor. A lot of training, mostly on the ranges at China Lake, was carried out by the fighter delivery pilots to develop their accuracy skills.

In this connection, but a little far afield from the subject, it is useful to see how some of these smaller bombs came to be introduced into the Fleet. In the early 1950s, when I was assigned to the Military Applications Division of the Atomic Energy Commission (AEC), Norris Bradbury, then the Director of the Los Alamos Laboratory, where most of the bomb development was going on, came to Washington with an idea. He informed us that at the laboratory they thought a small bomb, of about 35 inches in diameter and around 5,000 pounds and with a pretty good “bang” could now be designed, if the service could use such a bomb. The answer was, “Of course”, because the sooner we could have weapons of this dimension, the sooner we could get the carrier-type fighters into the act. This particular bomb turned out to be the Mark V.

Soon Bradbury would again come to town and tell us that a bomb of about 22 inches in diameter with a yield of maybe ten kilotons was now possible and asked if we could use it. This turned out to be the Mark VII. So now we were getting down to bomb sizes that could be used by the current family of carrier-based fighters and attack aircraft. It was this experience that prompted me to say in those early days when no one knew much about atomic weapons that Dr. Bradbury was in effect setting military requirements for atomic weapons because he was the only one in a responsible position who knew the territory intimately.

PS: Did you go out on the ranges and bomb with your planes?

FLA: At the time that both VC-5 and VC-6 were organized and trying to get into some sort of operational capability, all the effort was directed toward bringing the pilots up to Hayward’s stringent requirements for night flying and instrument flying. There was a requirement, for example, that for any long flight, like either the transpacs or flights from the West Coast to the East, half the trip had to be made at night, and under no circumstances would the trip be canceled or delayed for adverse weather. At the same time, the bomb specialists were getting shaken down learning the squadron level maintenance and operational requirements of the bomb in the training and maintenance spaces at the airfield. Early on we simply were not ready for actual bombing training.

Then the AJs came into the picture and the squadrons were in a position to learn how to carry out bombing missions and many training flights were made using the ASB-1 bomb directors. Targets were in the water in the vicinity of the training areas and accuracy was observed from other aircraft.

I think that I have mentioned that after VC-5 was moved from Moffett Field in Palo Alto to Norfolk, the squadron was sent to the Mediterranean and based at Port Lyautey, Morocco. Detachments were put aboard the carriers in the Med and operated as a part of the air group aboard. Certainly bombing practice was continued as a part of these operations.

As you can see, I am not too familiar with these details since I had been moved from command of VC-6 to become Executive Officer of the carrier *Midway*.

PS: With your having had the torpedo squadron and being carrier-qualified, at least you had the experience to pass on to your guys in the squadron when you were working up to the carrier operations.

FLA: The actual facts of the matter were that most of the pilots in VC-6 had more carrier experience than I had. You will recall that when I had command of the torpedo squadron VT-11, the squadron was qualified to land aboard, but operated entirely from Henderson Field on Guadalcanal. We were fresh out of operational carriers at that point, and Guadalcanal was the major effort of the time in the South Pacific. Further, I had only one year as a “nugget” in a scouting squadron equipped with propeller-type aircraft operating from the old *Saratoga*. So, let’s face it, I didn’t have much carrier experience to offer to the pilots of VC-6.

PS: But I guess the other side is that you didn’t have to unlearn some of the things that these two-engine pilots had.

FLA: Well, perhaps that may be; I am not sure. Again I have to point out that I never got aboard a carrier with the AJ. I did have several full-load P2V-3C JATO takeoffs at 70,000 pounds from the CVB Carriers *Midway*, *Roosevelt*, and *Coral Sea*. One was fairly significant.

We launched from *Midway* off the Norfolk operating areas, filed a flight plan in the air, and proceeded south to the Panama Canal. We made a simulated bombing approach on the canal from 25,000 feet altitude and then north up the west coast of Mexico to land at Naval Air Station, San Diego, a flight of 5,200 nautical miles and 25 hours duration nonstop. I am fairly certain that this was a record for an aircraft launched from a carrier. A couple of weeks later Tommy Robinson followed the same route, but continued on to land at Moffett Field, setting a new record.

PS: I was struck by your mentioning that the flight took 25 hours. How did you deal with fatigue in a flight that long?

FLA: We had three pilots aboard as the regular crew, the Plane Commander, the Copilot, and the Bombardier-Navigator, so that we could rotate the flying among each of us. Actually there were two pilots working at all times while the third took a short catnap. This was no change for my crew because it was regular practice to rotate all three pilots through landings, takeoffs, and navigating. This was the only way that the Bombardier-Navigators would have any opportunity to fly at the controls. One may conclude, however, from the fact that two of our best young officers, Wiser and Cox, left the Navy because they were not getting enough actual flying, that our rank structure was faulty.

PS: So, unwittingly, you may have driven out some people by getting all this talent?

FLA: Yes, I think that has to be the only conclusion one can arrive at.

PS: How much support did you get from OpNav, OP-05, and BuAer in bringing along this program?

FLA: As far as bringing the squadrons along to become operational, I can't, from a personal point of view, recall any direct support from these organizations. Of course, in this connection Chick Hayward was the person who had the direct contact with Washington. He could answer the questions better than I. I was only his Exec and trying to run the squadron while he was off doing the politicking and the technical interfacing with Washington.

PS: Did you have any liaison with the AEC in this project, or was that pretty much a given what you had to work with.

FLA: No, I didn't believe that we needed direct contact with the AEC because this was actually a military responsibility under the technical and security control of the Armed Forces Special Weapons Project (AFSWP).

PS: Did your operational work with the P2V produce any lessons learned that you cranked into the AJ design?

FLA: I wouldn't say so, because they were two totally different airplanes. One was obviously not a carrier-based plane and the other was intended to be carrier-based. The AJ was a good transitional experience from the P2V into the A3D, which was the next aircraft in the program. Again I say, thanks to Jig Ramage, a first-class carrier pilot, for bringing carrier people into the program and who really put the program on its feet. Up until this time it was a marginal operation, not because we didn't try, but I think to some degree we were on the wrong track trying the way we did to bring the program into carrier aviation. Perhaps this is my fault because I wasn't really a carrier pilot; I'd never really been a carrier pilot. Chick, on the other hand --- well, I don't know how much actual jet carrier aviation experience he had.

PS: I don't think that he had a lot of carrier experience either.

FLA: Before the war he must have been aboard the carriers, but I am pretty sure all his wartime experiences were in the Navy B-24. So perhaps between the two of us we were not very well qualified to get into a paying carrier operation. At the risk of saying it again, the success of the program should be credited to Ramage.

Interestingly enough, the famous dispatch that Admiral Brown sent to Washington saying in effect "Get this gang of unqualified people out of my fleet" was followed later by a follow-up message saying, "This is a capability I want in the Sixth Fleet." That was quite an accomplishment on the part of Ramage, I think.

PS: When you moved from VC-5 to VC-6, you became the CO. Did Bob Townsend then do a lot of the things for you that you had been doing for Hayward?

FLA: Oh, sure. I was very fortunate to have Bob as my Executive Officer because he was a very capable officer. Furthermore, he was an aeronautical PG, so there were no mysteries in aeronautics and airplanes as far as he was concerned. These squadrons were a pleasure to command because we had so many capable people, and Bob was a fine Executive Officer. When I was detached, he took command of the squadron, which was a perfectly logical progression. He kept the squadron for at least a year and deployed in the AJs. Joe Jaap relieved him.

PS: Wouldn't he have been too senior?

FLA: No, Joe Jaap had VC-6 for a while, then he was relieved by Tom Connolly.

PS: It had some pretty senior skippers then.

FLA: Sure did.

PS: What specific role did you take for yourself as skipper since you weren't bogged down in administrative mire?

FLA: Oh, I don't know. I guess providing leadership. I ought to be able to come up with something specific in this regard, but I don't know how to answer the question any more than to say, "doing what skippers do". That's a terrible answer to your question, I admit.

PS: It was probably more akin to just normal squadron operations than some pioneering stuff that Hayward had been involved with.

FLA: Yes, that's pretty much the case. We just did our thing as a squadron.

PS: On the other hand, one advantage of having all these top performers is that they're going to be pretty competitive and really do a lot of good work.

FLA: I am not sure how competitive they were, but they sure made my job easier. There were several with advanced degrees in aeronautics. One that I recall strongly was Bill Shryock. He finally left the Navy and went to work for General Dynamics and was project officer for the F-111B, the Navy's version of the TFX or later the F-111.

I have had many discussions with Bill Shryock. Of course, I suppose that he was biased, but there was no question in his mind that the General Dynamics' proposal for the TFX was far better than Boeing's. I am not so sure, but it was his sincere opinion. You may recall that the program for the Navy was canceled when Tom Connolly was the "bull aviator". He testified in Congress that, "There's not enough thrust in all Christendom to get the TFX on and off a carrier."

PS: Well, at least Shryock convinced Secretary McNamara.

FLA: Not exactly, I don't think. The decision was made by McNamara and Zuckert, who was Secretary of the Air Force at the time. On what they based their decision I don't know, for you will recall that the Source Selection Board, of which I was the Navy voting member, recommended four times that the contract be given to Boeing. I don't recall how the Air Force finally reported their views on the program to McNamara, but I made the biggest mistake of my career when I signed off for the Navy. My evaluation people convinced me to go on record that the Navy could live with either submission, General Dynamics or Boeing. There was obviously a bit of frustration at work here, because it appeared that it didn't make any difference what the Source Selection Board thought. That seemed to give the decision-makers the grounds to make any decision that they wanted. As you pointed out earlier, according to Andy Kerr in his book *A Journey Amongst The Good and Great*, this goof on my part gave the Secretaries the opportunity to select which ever contractor they wished. My decision should have been, "The Navy still does not like either version of the aircraft, but if we have to take one, we prefer the Boeing submission." I am sure that George Spangenberg, who was in charge of the part of the Bureau of Weapons that evaluated design submissions, firmly believed that the Boeing submission was the better. And I had, and still have, great respect for George's judgment.

PS: You and a lot of other people do.

FLA: You bet! He was a crackerjack in his field; sort of a curmudgeon in a way. I started to say, "In a Mr. Milquetoast way". That isn't at all fair. What I am trying to say is that he was highly opinionated. He knew exactly what he was saying, and from that point of view he was a curmudgeon. But he wasn't one to ram it down your throat. He said, "I know it's right. Take it or leave it." And everybody else knew that it was right. He was a tower of strength for me when I was Assistant Chief of BuWeps for Research and Development.

PS: You have talked about Admiral Brown's reaction not welcoming the heavy attack and the not-great welcome you got down at Patuxent River when you showed up. Was the heavy attack sort of viewed as an oddball in naval aviation?

FLA: Sure, in a way. It was the old business. We moved in, took over a hangar on the station and built a fence around it for security purposes. To a large degree we were a bit of a nuisance, and the reason for it was that we were just different. We ran into this at Moffett Field when we organized VC-5 there. Here again, we took over one of the big balloon hangars, built a fenced-in bomb assembly and test area with Marines stationed at the gates, and all that sort of thing. I think that we got much the same reaction that the 509th Bomb Group did when they moved out to North Field on Tinian. There, they showed up with brand-new B-29 aircraft and rarely ever carried out strike missions. Meanwhile, all the rest were attacking Japan, getting shot up, and falling in the sea while this gold-plated organization just sat there. They did go out once in a while, on single-plane missions, nobody knew to where. The question was rightly asked, "What's this kind of gold-plated operation? They have a fancy area with a fence around it and some of the best living quarters on the island." We got a little of that same thing. Captain

Harris, the station skipper at Moffett, tolerated us. He didn't know what was going on and really didn't care very much. Patuxent River was pretty much the same.

PS: Was there any resentment or hostility?

FLA: Yes, to some extent. When I arrived at Patuxent River I became the senior fleet squadron commander. Prior to this time Al Fleming, who commanded VX-4 and attached to the air station, was the senior squadron commander. There was a set of quarters on the gold coast, so-called, where all the senior station officers were quartered; a two-car garage that had been converted into a small two-story house. This was the quarters for the senior fleet commander. When I arrived on the station, Fleming refused to move out. I could understand his position, but that was the way it was supposed to be. Frankly, I would rather have lived off the station in the neighboring small town, and I made that view clear to Admiral Schoeffel, the center commander. Shortly after the impasse took place, I had orders from Admiral Felix Stump, Commander Naval Air Force, Atlantic to go to Norfolk to his headquarters. He asked me what the hell was going on up there about those quarters, and when I told him of the tempest in a teapot, he told me to tell Admiral Schoeffel to tell Fleming to get out, and now. Stump insisted that he would have the senior squadron commander in quarters on the base. Needless to say, after Schoeffel told Fleming to vacate, he did. Yes, there was some, let's say, resentment.

PS: It was sort of necessary to put that "senior Fleet squadron commander" in quotes since you hadn't been to a ship yet.

FLA: I suppose one might take that position, but it was still a Fleet squadron within the Atlantic Fleet organization.

PS: What lessons came out of the operational testing of the AJ when it finally was brought out, that improved the airplane?

FLA: Well, I still think that there are no shortcuts in getting a new aircraft into the fleet in a successful manner. I think that the test components at the Test Center; Flight, Service and Armament have proved to be essential in bringing a new aircraft to a condition ready for Fleet operations. It may well have been true that had the AJ undergone these test programs we might have had fewer accidents.

PS: Was it a matter that the airplane itself had to be fixed or how people operated it?

FLA: No, I think the airplane had to be wrung out to see whether or not there were hidden problems that hadn't emerged and would come out in service operations. The Patuxent Service Test pilots would carefully ferret out any that might be experienced in Fleet operations and in a controlled fashion .

I am not too familiar with this, but I think that the Douglas SBD dive-bomber is a pretty good example. The plane was extensively tested before it went into full production. This was

just prior to or just after the war started. All, or certainly most of the potential problems were found and fixes developed, and then all-out production began. The SBD had very few problems when introduced to the Fleet and ready to go to war. As I mentioned before, there really are no sensible shortcuts if you want to get a safe and effective plane into service for the ordinary pilot to fly. And the quality of the pilot seems to make a difference.

PS: There's a great line in Herman Wouk's *The Caine Mutiny* that applies: "The Navy is a system designed by geniuses to be executed by idiots."

FLA: That is probably about right. All the stuff in the Navy has to be designed for operation by people not as good, perhaps, as the "Haywards".

PS: I've exhausted my questions on that tour. Do you have anything that you want to add? If not, we should go on to your next duty.

CHAPTER SIXTEEN

U.S.S. *MIDWAY*, CVB-41, ATLANTIC FLEET  
EXECUTIVE OFFICER  
January 1951 - December 1951



PS: You went from command of VC-6 to the U.S.S. *Midway* as Executive Officer, and it got you back into the shipboard arena. Can you talk about what you actually did while you were aboard, not just as a training phase for you, but for the operation of the ship? For example, how do you go about administering a community that's made up of so many small communities?

FLA: I almost have to answer that by, "I don't know." That assignment came about when I was visiting in the Bureau of Personnel to arrange for some new duty for some of the VC-6 pilots who were ready to be transferred to new duty. Captain Bud Needham, the detail officer, said, "Let's not talk about them. We need to get you to sea, and we are ordering you to the *Midway* as Executive Officer." Now, if we go back and look at my duty assignments up to that time in any kind of sea duty, you don't find much. First, I had two years as a fresh-caught Ensign aboard *West Virginia*, without ever qualifying for top watch on deck or engineering. Then a year aboard *Saratoga* as a nugget pilot in the Air Group in 1936. And now I

am to go to the *Midway* as Exec 15 years later. If you can ever imagine someone with little or no experience, that was me.

The ship was in the naval shipyard in Norfolk for a limited overhaul period, and almost six months passed before we got to sea. During this time I did those things that are done in managing the overhaul, which, of course, had been already planned before I arrived. Fortunately, I had some very well qualified heads of department who were completely familiar with the yard work to be done. For example the Chief Engineer was a Commander from the class of 1928 who had been passed over for Captain. So he was, in reality four years my senior, and I was pretty much a babe in the woods. So here I come aboard and don't know much about the business. It is a difficult position to find yourself in, and these people can make life pretty miserable for you if they want. But, as usual with me, I let them do their job, which they appreciated, and they helped me. So as Exec of the ship, I was not in a very good position to take the lead. The heads of department knew that I was depending on them to handle their jobs. Then, from the top, the Skipper, Nappy Kivette, and later Kenny Craig, said essentially, "You take care of the "downstairs" and the overhaul work and call me when you're in trouble". That describes quite well, I think, how we operated.

I was with Captain Kivette only a couple of months when he was relieved by Kenny Craig, a super individual. We finished the overhaul work in the naval shipyard and went to sea for post-repair trials and a quick shakedown. He let me be the Exec and run my part of the job as I saw fit. He always encouraged me to be on the bridge when I had the opportunity, to see what went on. I am sure that he recognized that I needed this experience. He frequently gave me the conn during both approaches to replenishment groups and while alongside. He let me anchor the ship a few times under his supervision. In reality, when you consider his past experience, he was not overly experienced in all this himself. As far as I know he had command of only one ship prior to *Midway* and that was *Wolverine* operating in the Great Lakes, qualifying new Naval Aviators for carrier landings. In this connection I cannot help but relate our experience the first time *Midway* put to sea for post-overhaul trials.

The approaches to the Norfolk Naval Shipyard are along a well marked channel passing through Hampton Roads. An ex-destroyer skipper was Officer of the Deck. The Navigator was a Naval Aviator experienced only in patrol plane duty. I was on the bridge, but as an observer and makee-learn. Things seemed to be progressing well as we proceeded up the channel toward the naval shipyard just off the operating base. It was about this time that the harbor pilot came aboard. He took a quick look around, asked the Captain if he would like for him to take over. When Captain Craig asked him to do so, his first order was to the engines, "All back emergency". When things settled down after that, he told the Captain that we had turned one buoy too soon and were headed for the mud off the naval base. Nearly another *Missouri* situation.

Captain Craig's only comment was to the Navigator, "Jack, please keep your head out of the cockpit when you are navigating." Of course, all this was great education for me when I assumed command of the U.S.S. *Franklin D. Roosevelt* a few years later.

One of the things that I wanted to do as Executive Officer was to try to spruce up the appearance of the ship's crew as well as the ship itself. There may have been some resentment from the crew, but I think that most appreciated what I was trying to do. When ship's work was

done at 4:00 o'clock and after the liberty parties had gone ashore, I ordered all the people in the duty section aboard to shift to the uniform of the day, hopefully taking showers and getting cleaned up. This seemed to me to be something that needed to be done, much as it was during the old more or less spit-and-polish days. I think that most of them respected me for that and most thrived on it. They didn't want to be crappy looking all the time. Of course this order didn't apply to the hands who were at duty stations or continuing dirty work after hours. Of course, I cleared this with the Captain and he was all for it.

PS: My guess is you didn't get much sleep in that job, because it's a big enough job anyway and you were learning, in addition.

FLA: Yes, for me it was a tough job. I can tell you how seriously I took it. I had just taken over about a week or so before my wife's birthday, and I was so strung up on trying to learn my job that I was living aboard. I was aboard doing my thing on her birthday. Birthdays are pretty important, and she's never forgiven me for that. It was something like when my first child was born and I went back to the PG school to take an examination. I had the feeling that the job came first. I suppose that had I more self-confidence in the job I would have done differently. Actually, it turned out that it wouldn't have made any difference to the job if I had gone ashore nights. But I was at least reading the books and orders and trying to learn what it was all about.

PS: Any more recollections on Captain Craig?

FLA: I remember when I returned from the Med cruise aboard the *Roosevelt* to her homeport at the time, Mayport, Florida, Captain Craig was there when the ship tied up. He was later to go aboard as the Carrier Division Commander. He told me that I was being ordered to the Naval Academy as Commandant of Midshipmen. I made the appropriate remarks about that and then offered the opinion that since I had completed a successful Mediterranean cruise aboard *Roosevelt*, I should have as good a chance as anyone else to be selected for flag rank on the next go round and the job at Annapolis is a Captain's billet. He agreed that I was in a pretty good position, but "If you are selected while in the Commandant's job we'll just leave you there. It's been done before." When the time comes I would be frocked in the job". This was a typical Kenny Craig performance.

He did come aboard *Roosevelt* for a short time before we took the ship to the New York Naval Shipyard for overhaul. I enjoyed the short time working for him and with him.

Then there is another experience which I think is typical. When I had command at the Naval Ordnance Test Station, as it was known then, at China Lake, the Experimental Officer was a fine naval aviator by the name of Bill Moran. One weekend while working on his trailer, pounding on something with a hammer, he got a sliver of steel in one of his eyes. At the recommendation of the medical officers on the station, we flew him to the Balboa Naval Hospital in San Diego. There they attempted to extract the thing from his eye by use of a strong magnet, but with no results and ultimately it was necessary to remove the lens in his eye. He was therefore essentially blind in one eye, and there was an annual physical exam coming up in a few

weeks. It was quite clear to me that he probably would be disqualified, not only for flying, but perhaps might be separated from the Navy for medical reasons.

At this time Admiral Craig was Deputy Chief of the Bureau of Naval Personnel. I had great respect for Moran and believed that we might lose this fine officer should there be no one running interference for him with the medical survey board. I flew to Washington, called on Admiral Craig, told him the story and asked if there wasn't some way that we might get a waiver and keep him in the service. I said that I knew that if the doctors got a hold of him he didn't have a chance, least of all to continue flying.

Admiral Craig went to bat for him, got the waiver, he was kept in the Navy, given a class-three flight status, safety pilot required, and progressed through the ranks to Vice Admiral as DCNO (Research and Development). That's the kind of person he was. And, I guess, the kind of a guy I was!

PS: Well, you can see that in your own case, that he brought you along deliberately. He could have taken a different approach and said, "Get me somebody who knows more about this."

FLA: No question about that. It is a perfect example of the kind of person that he was. He had every reason to believe that I couldn't do the job. I don't think that I let him down. But there are some people who would say, "I don't want this guy. Take a look at his record. He doesn't have any carrier experience." Of course, this comes around to my getting command of the *Roosevelt*. I don't know why they gave me command of that fine ship, but it turned out to be not a bad decision!

PS: You mentioned the one business with Artie Doyle (Rear Admiral Austin K. Doyle) heckling you a bit. What more do you remember about him as a Carrier Division Commander?

FLA: First, I have to say that I was in no position to watch him operate as a Carrier Division Commander. I was merely the Executive Officer of his flagship. There was one incident that may be of interest. It probably is not very fair to Admiral Doyle to tell this story, but it is the only one that I know that fits your question.

One night aboard *Midway* the Officer of the Deck, North, I think was his name, was finishing the evening watch around 11:30. While turning the watch over to his relief, he saw, out of the corner of his eye, someone in civilian clothes come aboard the quarterdeck and climb the "Admiral's ladder" to an upper deck. He quickly turned over his duties to the relief and started up the ladder in pursuit of the intruder. The door to the Admiral's cabin was open and here's this guy in civilian clothes sitting with his head on the mess table. He went into the cabin --- North was a big fellow --- grabbed the man by the scruff of the neck, lifted his head up, took one look and discovered it was Admiral Doyle. He carefully put his head back down on the table and beat a hasty retreat.

This is not to say that Admiral Doyle was frequently in his cups --- he was just that kind of a guy, a real down-to-the-earth individual. There were other times during that tour that he gave me some friendly advice over the telephone, just friendly heckling. He probably recognized that I didn't know what I was doing and wanted to help.

PS: He had a playful rivalry with Cat Brown, too, I think.

FLA: I can't comment on any of that for it is entirely foreign to me. The only time I had the privilege of serving with him was during the *Midway* duty and the few-at sea operations we had during that time.

PS: You haven't mentioned those yet. Could you discuss those underway operations, please?

FLA: Well, here again, I was taking care of "downstairs". The at-sea operations while I was Exec were mostly the yard post-overhaul trials. I have mentioned the near grounding incident. There is one aspect of that which always bothered me and that was the fact that the Officer of the Deck was a Lieutenant Commander highly experienced in destroyer operations, Red Baldrige by name. He must have gone in and out of Norfolk hundreds of times, and I have always wondered how he ever let us get into that *extremis* situation.

PS: What do you remember about the administration of discipline in the ship?

FLA: Of course the Captain held mast; I was always there. He was certainly a man of compassion who could be fair when it was appropriate. He could also be tough when appropriate. The only specific case that I recall (remember, we are talking about things more than 40 years ago) was the case of a sailor appearing on the quarterdeck ready to go ashore with a Mohawk Indian-type haircut, shaved on the sides and with a scalp lock in the middle. He claimed to be some sort of Indian. I refused to let him go ashore, and the Captain agreed that he would not go ashore until he had grown an acceptable hair dress. I have often thought about that case in the light of today's problems with political correctness and so-called private rights and all the rest. The old way was better.

PS: When the ship is in the yard, that's a deadly period anyway, and that can dampen morale.

FLA: You are certainly correct, and a challenging period for the Executive Officer who is supposed to keep everybody happy!

I don't remember much about the yard work except for one of my personal projects. We were in the Norfolk Naval Shipyard and I enlisted an interior designer to come aboard and make recommendations about what to do with the wardroom mess. We had a fair amount of money in the overhaul pot to devote to the project, and I think that we ended up with an attractive and comfortable wardroom and mess room. We put a black-and-white checkered tile on the deck, procured some comfortable furniture and provided good lighting for reading throughout the space. In the mess room most of the overhead is a mass of pipes and cables and the like, and there isn't much you can do to hide it. We spray-painted the top two feet with a dark green paint so that one got the impression of a solid ceiling. I thought that, all in all, it was quite attractive and comfortable. I happened to be aboard *Midway* a couple of years later and the mess was much as I had left it.

PS: I was in the *Midway* wardroom in 1988. I wonder how many times it has been redone. You have said that you had very capable department heads. That was one of the top ships in the Navy. Did that kind of quality go throughout the crew?

FLA: I don't know how to answer that question. I have no measure of their quality either good or bad. There certainly were no major problems. The overhaul was finished on time and the trials proved to be excellent as I recall. I think that *Midway* was always recognized as a good and happy ship. It was a great experience for me from two points of view, one, I learned quite a lot about how a large ship could operate, and it was a good training time for me thanks to Captain Craig. He let me conn the ship on several opportunities, approaches to the replenishment group, alongside and anchoring, these kinds of opportunities.

PS: It speaks even more highly of Captain Craig what with these opportunities so limited, he was generous with you.

FLA: That's true for sure. I found later that his technique of making approaches to replenishment worked very well and served me well later when in command of *Roosevelt*. He would set up a collision course with the replenishment ship coming in from astern on a 15 degree bearing. You could follow the approach with an alidade, and as long as the bearing wasn't changing, things were OK. Then, change course to the base course, reverse the engines to kill the overtaking headway and assume the group speed. Simple, sometimes. It was particularly useful when doing the Cat Brown "zipping the fly" evolution with most of the Sixth Fleet ships in formation approaching the replenishment ships on an opposite course, speed 25 knots, simultaneous turn onto the base leg as we would call it in flying, then simultaneous turn into the base course about a 1,000 yards astern still at 25 knots, then the ships were released to make their own approaches to their designated replenishment ships, still at twenty five knots. Take up the collision bearing until abreast the stern and all engines back full to kill the speed and then all ahead at the base speed. This was particularly exciting at night with all ships darkened except for red truck lights. If the task force commander's navigation is good, there is little to be worried about.

PS: Admiral Brown thought that they were destroyers rather than carriers.

FLA: Yes, perhaps, but the reason is a very good one. A task force is the most vulnerable while replenishing. The shorter period that the force is exposed the better, and the "Zipping the Fly" maneuver is probably the quickest way to get alongside and away.

When I had command of *Corson*, the AVP, I made at-sea replenishments at every opportunity, mostly to practice the maneuver myself and train the Officers of the Deck in both approaches and conning alongside. The 15-degree approach worked just fine then, too.

PS: But the momentum is such that you have to judge pretty precisely when you're going to take the speed off.

FLA: That is true. I suppose that it is largely a question of how the ship responds to backing commands to the engines. Commander Aichel was the Chief Engineer of *Midway* when I was aboard. He had been Chief Engineer of the cruiser *Juneau*. He claimed that he could go from full ahead to backing in one ship's length and that he thought he could do the same with *Midway*. You are approaching this situation when you make these high-speed approaches to replenishment. I never forgot that and had fun with the idea later aboard *Roosevelt*.

Once when we were not doing anything with the air group, I tried the maneuver out. Cranked up to 25 knots, ordered all back full to see how soon I would be stopped before backing down. After three or four of these maneuvers, Admiral Dutch Duerfeldt, the Division Commander aboard, came up to the bridge and demanded to know what the hell was going on. I told him what I was experimenting with, to which he responded, "I think that you are getting a little severe going this speed and backing down so soon. I'd knock it off, if I were you."

I did, and I suppose he was right, for it is a little violent and really is not needed in the replenishment operation because you do not intend to stop or back. You just pick up the base speed of twelve knots or so.

Later, when I had command of a carrier division in the Pacific and had a squadron of destroyers with me, I would always "Zip The Fly" with the task group. The destroyers loved it; they had a great time. I had a good Navigator on the staff, good with the maneuvering board, so we could handle the operation very well.

PS: When you were trying this out aboard *Roosevelt* the person who might complain the loudest would be the Chief Engineer.

FLA: You bet! Of course, I cleared it with him ahead of time, and he was happy about it. It was good practice for his engine room crews and might be just what they needed someday in an emergency situation. The Chief was a Commander Hitchins.

PS: This knowledge is also useful for the skipper in emergency situations. Just as a comment on how highly the Navy thought of you, I would think that those Exec jobs were very coveted, because the three ships of the class were not even sent to Korea because their role in the Mediterranean was considered to be so valuable.

FLA: Yes, I suppose it was a compliment to me to get the *Midway* Exec job, and later the command of *Roosevelt*, and doubly so I guess, since as I have mentioned, in view of the little shipboard duty experience that I had. Back in those days aviators were given those jobs, as they are today. I suppose there was, and maybe there is now, some resentment among the surface types as to why an aviator, just because he wears aviator's wings, and didn't grow up in the ship duty world, should have command of the AVP *Corson* for a year, a small seaplane tender operating independently in the western Pacific. There it was possible to do a lot of experimenting with the maneuvers and the like that I saw aboard *Midway*. Ship handling, making landings and departures from dockside, picking up mooring buoys, anchoring and the like. But this is a far cry from actual operations aboard a 69,000 ton aircraft carrier. And then to

be dumped into that job in the middle of a Mediterranean deployment. However, though as a surface qualified officer, you may find it hard to rationalize, but I think that aviators had a lot going for them in handling ships. They understand relative motion; it is the key to formation flying. It is my view that this is not characteristic of many surface officers that I have operated with. I had command of an antisubmarine warfare carrier division that had a squadron of destroyers assigned. I must say that I was disappointed in what seemed to be an obvious timidity of many of the destroyer skippers. I kept saying to myself, and maybe it is good that I didn't have to prove it, "Gee, I'd love to get hold of one of those ships with all her power and maneuverability. I would really run it the way she was intended."

We had a couple of Captains who were very much exceptions to my view. One Captain was an ex-enlisted man who was absolutely the best skipper that we had in the squadron. There was nothing timid about him and he operated his ship in an outstanding fashion. A privilege to watch.

But back to the aviators. It's always been my opinion that they grew up continuously managing tight situations. I mean, you have to act fast in an airplane or you will kill yourself. I have always had the opinion that an aviator takes that attitude with him when he is in command and handling ships. In those early days you didn't have collisions among the carriers. I think that the only one that I recall was the case of the *Wasp* running down the destroyer *Hobson*.

PS: That was clearly the escort's fault, too.

FLA: That is the way I remember it. Then there was the case of the *Kennedy* and the *Belknap*.

PS: It was the case where the escort should have kept out of the carrier's way.

FLA: When I had command of *Roosevelt* I got the message to the destroyer escorts that I really didn't care where they operated in the formation, but "always be abaft my beam." I used to fool around with the stationing of the escorts and plane guards. For flight operations one night, I stationed the plane guard pretty much in the landing approach line. After flight operations were secured, I went down to the ready rooms and asked the pilots how they liked where we had stationed the plane guard. Their reply consistently, "Wasn't he in the usual place?" So you see it didn't make much difference. Therefore my instructions to the plane guards were, "just be at the scene of the crash when it occurs, but always abaft my beam." I think that the plane guard skippers appreciated this because they were not fixed in any particular position so that they could exercise their best judgment in handling their ships around the carrier. They were able to handle the job the way that they wanted and yet be close enough so that they could do the rescue job if they had to. It was another case of give the people the job to do and let them use their own judgment and experience to carry it out. They respond to that kind of treatment.

PS: How would you account for that timidity you saw in those destroyer skippers?

FLA: Well, I don't really know. Perhaps they had not grown up handling fast-moving situations the way aviators are required to do. I recognize that their whole existence involves

speeds of not much more than 30 knots or so, but when you have a ship traveling at 30 knots, you've got a problem on your hands. There is no need for a lot of speed, dash and accuracy so perhaps that situation breeds an attitude of "let's take it easy."



PS: I just wonder if that was typical, or maybe you got an atypical bunch.

FLA: I haven't all that much experience with this, so I am not sure. I recall when I had command of *Roosevelt*, I got tangled up with another destroyer, the *O'Hare*. He was trying to come alongside to make a transfer of either people or freight, I can't remember which, but it is immaterial since he never did come along side successfully to make the

transfer.

We were steaming at about 12 knots or so when he made his approach to our starboard side, coming in at much too sharp of an angle. I was sure that he could never straighten the thing out to parallel our course. As you know, in this situation the ship being approached must hold course and speed. We did, and sure enough he collided with us, scraped the side a bit, and bent some of his forward deck-edge stanchions. He backed away and tried another approach. This time the approach was not much different, and it was obvious that he would not be able to complete it any more successfully than before. When it was obvious that he would hit us again, I ordered right rudder in order to try to get my stern out of his way. I took the position that I was already in *extremis*<sup>1</sup> and action to avoid the collision was appropriate. He backed away and gave up the attempt. Later that day I saw that Admiral Brown, the Sixth Fleet Commander, was having him make practice approaches to his flagship under his watchful eye.

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<sup>1</sup> According to the Rules of the Nautical Road, when two vessels are in a crossing situation, the vessel on the starboard (right) hand of the other is "privileged". The other is the "burdened" vessel and must give way to the privileged vessel. The privileged vessel is required to hold course and speed. If the privileged vessel deems that he must maneuver to avoid a collision, he is then considered to be "*in extremis*" and is expected to take action to avoid the collision. In the case of a vessel being approached by another vessel to go along side for replenishment, the replenishing vessel is required to hold course and speed. However, should the replenishing vessel deem that he must maneuver to avoid collision, then he too is "*in extremis*" and maneuver is legal.

A couple of weeks later the Sixth Fleet Legal Officer came aboard and said that he was making an informal investigation of the *O'Hare* escapade. I gave him the complete story as I had seen it, and he seemed to go away happy. In about another two weeks I received what was just about a reprimand from Admiral Brown because I had changed course during the *O'Hare* approach. It was all my fault. I made an appeal to my boss, Admiral Duerfeldt, making the point that he had already hit me once and that the second time I was in *extremis* and properly maneuvered to avoid the collision. I wanted to make an official complaint to Admiral Brown. My admiral said forget it; he just has a thing for destroyer Captains.

Of course, to him the destroyer people could do no wrong, and I think that in his earlier days before he went into aviation he had been active in destroyers. Further, it was not always this way. There are always exceptions and, as I have mentioned, we had one in the destroyers that were with me in Carrier Division (CarDiv) Eighteen, the antisubmarine warfare division.

PS: Well, how does that compare with the experience you had in the attack carrier division and later as Sixth Fleet Commander?

FLA: In these cases I did not have the opportunity to operate in such close proximity with the destroyers as I did in the Antisubmarine Warfare (ASW) division. In that situation you were operating in closer cooperation with the destroyers as they carried out their jobs in ASW. They operated with direct control from the flagship and in close cooperation with the ASW aircraft of the carrier. In the case of the attack carrier division, the destroyers were involved in screening under command of the squadron commander and in plane guard duty when so assigned.

In connection with this latter group, we did get into close operation situations during replenishment at sea. They enjoyed the "zipping the fly" maneuver, which I tried to use at every opportunity. Incidentally, I did most of the tactical orders by flag hoist, believe it or not. It took a bit of doing to get the signalmen back into training using the flags, but they also seemed to like it. There was one problem that we had at the last minute when the ships were released to operate individually going alongside or taking screening stations. As I remember it, there was no signal which covered this effectively, so at the proper time we gave the command by voice radio, "Scatter". It worked just fine.

There is another example of how you can make the operations of a task group better understood and with happier Captains. After the deployment of CarDiv 1, the attack carrier division, and we had completed our 30 day stand down, we went to sea for task group operations. My past experience on the receiving end of the voluminous operation orders for a simple ten day or two week operation suggested to me that there must be a better way. It seemed to me that much that went into the usual op orders was covered in the many publications that had been issued to the ships, Naval Warfare Information Publications (NWIP) for example.

My operation orders consisted of not more than ten pages and included such things as cruising instructions and definition of the operational area, a communication plan and an electronic radiation plan. This plan consisted of not more than a couple of lines. "Everything off. If you need to use the radar or radio in a questionable situation or to avoid a dangerous situation as determined by the Captain, use it. Then turn it off".

Further these operations gave the security groups an opportunity to check out the magnetic radiation experience of the ships during the operations. When we returned, we were told that our task group was never detected during the entire operation. This was strange since the flagship, U.S.S. *Oriskany*, was the first carrier fitted with the Naval Tactical Data System (NTDS) whose link to other ships was by way of medium-frequency radio circuits. It would seem that the security groups must have detected that. What they were telling us was that our radar and inter-ship radio traffic was never intercepted. The skippers all loved it. They said, "Finally, someone has given us some responsibility." When you treat people like that, they really respond.

PS: You were going back to the way of operating that you had known in the *West Virginia*.

FLA: In a way, yes. When I was operating with the CarDiv 1 I made the ships break out and dust off the signal flags. They found out that the flag bags were to be used for something besides resting places for sun baths. I wanted to do as much maneuvering as possible using the flag signals where appropriate. When the ships were too spread out, of course, it didn't work, but the object was to eliminate as much voice inter-ship radio as possible. Things were a little rusty at the start, but we improved every day. If you anticipated what you want to do, it worked quite nicely. I think everyone was glad to get back to the basics.

PS: Anything else about the duty aboard *Midway*?

FLA: No, I think that about covers it and a lot more.

## CHAPTER SEVENTEEN

### ATOMIC ENERGY COMMISSION STAFF, DIVISION OF MILITARY APPLICATIONS January 1952 - May 1954

PS: So you were detached from the *Midway* and ordered to Washington, D.C. for duty in the Atomic Energy Commission (AEC).

FLA: Yes. That was in January 1952. I was assigned to the Division of Military Applications in the commission. The division was involved in keeping close relationship with Los Alamos in connection with the laboratory's weapon development responsibility and in managing the stockpile of weapons. There isn't much to talk about here, typical staff work.

It is interesting to note that Jim Russell<sup>1</sup> was assigned to the division at the same time and was the number two below the Director, an Air Force Brigadier General. The Armed Forces Special Weapons Project was in the picture at that time as well, since that organization was responsible for the direction of the atom program in the military services. Admiral Rickover, then Captain Rickover, was in the wings at that time. He was plotting then, I suspect, for the time when he would move into the atomic power field.

In that connection, I recall a trip that I made out to Eniwetok to see a shot fired, Sandstone<sup>2</sup>, I think it was, and I was billeted with the Captain. I think that I mentioned this briefly in my memoirs that you have, but for this record it might be important to mention it briefly.

PS: Yes, you did, but it would be appropriate to go over it again.

FLA: I don't think that Captain Rickover left his quarters the entire time that I was there. He was studying the books that he had brought with him that I learned had to do with the economics and future of power, as it was at that time. Clearly, he had his mind set on the possibilities of atomic power and that he was going to move into the field particularly for submarines. I suspect that he also had numerous conversations with Deak Parsons about his views on the subject. As we know now, he did move into the atomic power program in a big way.

Having the stockpile information was to plague me for many years. As you know, these figures were closely held, and only a handful of people had any information as to the extent and rate of growth of our stock of bombs. I found out that my exposure to this information was to seriously limit the places that I might be authorized to travel.

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<sup>1</sup> Jim Russell, Admiral James S. Russell, an aviator, served in the Bureau of the Aeronautics just prior to World War II. It was during his tour there that the aircraft carriers of the *Essex* class were designed and developed. They were produced in such numbers to become the backbone of the carrier war in the Pacific. Russell's last duty was as Vice Chief of Naval Operations.

<sup>2</sup> Sandstone was one of a series of tests of nuclear weapons that took place at the proving grounds of the AEC on the atoll of Eniwetok in the Pacific. It was there that the first hydrogen bombs were tested.

PS: That's intriguing. Where couldn't you go?

FLA: Well, for example, later when I was in Europe assigned to the U.S. European Command in Paris, I was forbidden to go into East Berlin. There were certain other countries that I could not visit. Shortly after I was retired I planned to go to Europe and hoped to travel in Yugoslavia. Anyone who had been exposed to information such as stockpile figures was required to tell the intelligence people of their plans and to ask clearance to make the visit. The answer was, "No, you can't go."

PS: Was there a concern that you'd be captured?

FLA: That is the reasoning behind it.

PS: Even though it wasn't particularly up to date at that point?

FLA: That's correct. Of course it runs out completely so you don't have that concern about it.

But back to the duty there in the Atomic Energy Commission. It was still another old Washington drudge really. It's 8:00 o'clock in the morning until 5:00 o'clock in the afternoon and, more often than not, it was to the office on Saturdays for at least until noon.

PS: How much contact did you have with the Navy in that job?

FLA: Actually there was very little.

PS: Your memoirs referred briefly to your contacts with Admiral Strauss. Would you expand on that some?

FLA: He was the Chairman of the Atomic Energy Commission. He was also a reserve naval officer and he cherished his title of Admiral. When I received my orders detaching me from the Commission, I paid my courtesy call on the Chairman in his office. We talked for a while about Navy things; then he asked me if I had read the congressional report on the hearings in regard to the security clearance for Dr. Oppenheimer. I said that I had not, but I went on, "I am sorry that I have to take this position, having known Oppenheimer a bit at Los Alamos and having a pretty good idea as to what he did there, what he accomplished there and how he administered the laboratory. I think that what is going on is a travesty of justice." I asked him, "What does a person have to do to prove his loyalty?"

Strauss then said that since I had not read the transcript of the hearings, I should. He pointed to a whole stack of them in the corner of his office. "Take one home and read it; you will change your mind," I did, but I didn't change my mind. Oppenheimer said some rather naive things in his testimony, which I think he recognized as naive, but I think that he reached the point where he was fed up with the questioning and began to take a belligerent stand. As a result, I think that he said some things that might better have not been said, and they caused him a lot of trouble. He had been having some contact with known communists while at the

University of California, Berkeley. As a matter of fact, it was known that his wife was a communist. He abandoned all that, but he was curious, very young, and was so politically naive that he took a flyer into the communist organization, more through association with communists than as a full-fledged member of the party.

The only reason that I bring this up is that this is the way I felt about the hearings. I think that my position was vindicated, because several years later they restored his security clearance, but much later and after the fact. And he was, I think, to a certain degree a broken man after that. He went to Princeton to join the institute there for advanced study and backed away from any relationship with the government.

PS: Well, that's some of the damage that resulted from the McCarthy era and that witch hunt mentality.

FLA: Sure, I think that there is some of that in this case. Of course, I am reasonably certain that this was sort of the culmination of the vendetta between Edward Teller and Oppenheimer over the development of the hydrogen bomb. General Groves was completely aware of Oppenheimer's background, but he said, "He's my man, because I know of his capabilities and I'll live with that." But he did always put a tail on him when he traveled to be sure that he knew where he went and to whom he talked.

PS: Any other observations on Strauss?

FLA: Not particularly. I am not able to judge whether he was a good chairman of the Commission or not. Incidentally the pronunciation is "Straws".

PS: Did you have any contacts with David Lillienthal?

FLA: Only indirectly. He was Chairman when I was secretary of the Military Liaison Committee to the Atomic Energy Commission. We had joint meetings frequently and he usually presided.

I did have a short association with Gene Zuckert, one of the commissioners. There was a time around then that I was fooling around with the possibility of getting out of the Navy early, retiring. I'd been prospected for a job as president of an atomic energy corporation that belonged to American Machine and Foundry. I had worked briefly with a naval reserve officer doing a study on antisubmarine warfare organization in the Navy Department who had official connections with AMF. He was prospecting me for the job.

I was a little bit leery about the job, but I went to see Mr. Zuckert for some thoughts on the matter, because he was there and one whom I thought I could understand since he had been at one time Assistant Secretary of the Air Force. I started to ask him about the company, what about it and was it something that I should be romancing. His first comment was, "Well, you haven't done your homework very well, have you?" I said, "Oh?" He said, "Don't you know that I am a director in that company?" I said, "No, but why?" He said, "If you get into that company you've got lots of problems. They have made a lot of contracts that they're beginning

to discover they couldn't fulfill." So all of a sudden I discovered that I didn't have any business background, nor had I ever been exposed to the real live business world. I quickly gave up the idea. So, he was the only commissioner that I ever had any direct contact with, and it was only personal in nature, anyway.

PS: You have mentioned that you had made Captain very briefly back in 1946. Did you make it for real during this job?

FLA: Here again my memory fails me as to specifics. I guess that I did get promoted to Captain while in the commission since I was ordered to command the U.S.S. *Corson*, AVP-37 after my time in the commission.

PS: Did the advent of the new thermonuclear bomb have an impact on your work as far as the stockpiles of fissionable material?

FLA: If my memory serves me right, the development of the thermonuclear had not progressed far enough by then to have any significant effect on my job.

PS: Did you get involved in targeting weapons at all in that job?

FLA: No, not at all.

PS: That, I guess, was a Strategic Air Command function at that point.

FLA: Yes, it was all done in Omaha, the headquarters of the Strategic Air Command. The Deputy Commander has always been a naval officer. This was a job that Jerry Miller once held.

PS: That didn't come along until much later, 1960 though.

FLA: Yes, it was much later. I can't recall whether the SIOP had been developed by that time. We didn't have anything to do with it in the Division of Military Applications.

PS: What I am trying to get at is, what did you do in the commission?

FLA: That's a good question. It couldn't have been all that important because I have only a vague recollection of any of the details of the job. However, as I mentioned earlier, we had a lot of contact with Los Alamos about bomb development, particularly getting into the reduction of bomb physical sizes. I was particularly interested in that since the Navy was working hard to get some bomb capability with carrier aircraft. The Air Force was not of that mind particularly, because atom bombs were to be the major armament for the big bombers. We were directly involved with Hanford and Oak Ridge in setting production goals and monitoring performance for fissionable materials. As far as the division is concerned, there were Army, Navy, and Air Force Officers assigned. We were not considered to be looking out specifically for our parent

services. Rather we were all assigned to the division and performing the staff work. Captain Jim Russell was the deputy director of the division under an Air Force Colonel, James McCormick, later promoted to Brigadier General in the job. Chick Hayward was also assigned to the division at the same time.

PS: Anybody who was involved with Russell apparently has the highest admiration for him.

FLA: Very much so. He was a real gentleman. He lived in Tacoma when I went to Seattle after retirement. The only thing that I wondered about was the fact that he was on Boeing's payroll as a consultant. I am sure that he had to be of great help to them because no one had the inside track to the Navy Department that he had. My problem is that I have always been leery of the "consultants".

I remember one time he called me on the telephone and said, "Dick, the Navy's in real trouble and we are going to have to do something about it." I replied, "What's this?" I've forgotten now what the problem was, but he said that he thought that we could contribute something to help. My reply was essentially, "There is such a guy as the Chief of Naval Operations. Don't you think that he is capable of handling his own problems?" This turned out to be sort of the end of my close relationship with Russell. Frankly, it was my feeling that he just couldn't let himself be retired from the Navy. He seemed to want his fingers in the pie back in Washington.

I suppose that my feeling in regard to this sort of thing, particularly consultants, goes back to my experiences in duty in Washington when I had too many consultants, usually retired officers, who came by the office to tell how we should be doing our jobs. I've argued this with Dr. Norris Bradbury, a past Los Alamos Technical Director, now a consultant for the laboratory after he retired. He said, "You're probably right, but when you have been there, you know where a lot of the old bones are buried, which people following on probably do not know." "OK, I said, that's fine for you, but as far as I am concerned, I don't like to be in a position to try to tell people who are responsible for the job, the way that they ought to be doing it." I think that, to large degree, Jim Russell had no inhibitions about putting his nickel's worth in how things ought to operate and continue to operate in the Navy now.

PS: He chaired a board or a committee when there were carrier fires in the *Oriskany* and *Forrestal* in the mid-60s, so perhaps he relished that kind of role and was considered useful.

FLA: Well, of course he was eminently qualified to do that because he's really the father of the *Essex*-class carriers.

PS: And he was in the *Franklin*.

FLA: Yes, and he is an aeronautical engineer, been in aviation all his life. I think that it is quite logical for somebody with his qualifications to be appointed for a job like that. This is not to say, in my opinion, that there weren't people in the active Navy who could have chaired that kind of board and probably come out with some good and valid recommendations. The problem with

that, of course, is that there is a tendency to feel that those people are biased, being active and possibly responsible. I think that there is room for that, but I'm thinking, for example, when I had the Atomic Energy Office in Op Nav, Admiral Fechteler came into my office. I invited him to sit down. He told me that he was a consultant for General Electric. Now, he had been the Chief of Naval Operations and I was just a fresh-caught Rear Admiral. He would make suggestions about the programs we were doing and should be doing. It has always been my opinion that this is fine; it's easy to talk when you don't have the responsibility for it.

I have had other experiences with consultants. I remember once when I had command of *Corson*, an AVP (seaplane tender). I was alongside the pier in Alameda, in my cabin, and the Officer of the Deck's messenger brought me a calling card; a regular personal calling card of a Vice Admiral Somebody-or-other, whose name I have forgotten, was on the quarterdeck and wanted to see me. So I pulled up my necktie and ran down to the quarterdeck to welcome this guy aboard. I brought him up to the cabin, we sat and talked of nothing in particular, had coffee, generalities, for about 20 minutes. Finally, I said, "Admiral, what can I do for you?" He said, "Oh yes, I represent the So-and-so insurance company and I would like to have open gangway for my people to come aboard and sell insurance to your sailors." I said, "Admiral, I'm sorry, but no way. If my sailors want to buy insurance from you, if you will tell me where the office is ashore, and if anybody asks me, I'll say that you are a possibility if they'd like to discuss insurance with you. But not aboard my ship." And he said, "Thank you very much for the coffee and the chat." Well, that to me, rightly or wrongly, typified consultants, and I wasn't about to get into that operation.

PS: He must have been welcomed in some ships or he wouldn't do it.

FLA: I suppose so. And he wouldn't be being paid by the insurance company if what he was doing wasn't effective.

The other way that I felt about was that so many of these consultants are hired for the people they know and the contacts within the service that they have. However, after a while that disappears. Of course, in Jim Russell's case, as far as Boeing is concerned, he had to be a gold mine for them because he had the prestige to maintain his contacts. And not only that, I think that, in a sense, he felt obliged to do this, that he had a continuing responsibility to see that the Navy was headed in the right direction. Hopefully, those with whom he came in contact would take or leave his advice as they saw fit in their job.

OK, an ex-Chief or Vice Chief of Naval Operations perhaps can do this, but for me no way. I guess that it's some more of my.....

PS: Yankee upbringing?

FLA: Yankee upbringing, perhaps, and a bit of self-effacement that I am not good enough to tell somebody else how to do his job, I guess is the way I feel about it.

I've always had the feeling, I suppose, that I could have gotten a job with Boeing, having stood up in Congress, trying to make the case for Boeing as the contractor for the TFX aircraft. But I never approached them with the idea of being a consultant for them or getting on their

payroll, because I always felt that it would be fairly obvious that they were paying me off, and I wasn't about to get into that. Maybe they wouldn't have touched me with a ten-foot pole; I don't know. I never even explored it.

PS: But you've got the clear conscience as a result.

FLA: Yes, I feel that way about it. Maybe I could have made a contribution; I don't know.

I did do some sort of consulting once after I retired. There was established a new office in the Navy Department as the Director of Navy Laboratories, and they brought in a civilian Ph.D. to be the overall head. He had working for him a Navy Captain who once worked for me when I was Assistant Chief of the Bureau of Naval Weapons for Research and Development who convinced him that I should go on his payroll as a one-time consultant to study and make recommendations as to the operations of the Navy research and development labs.

Well, this was kind of a fun operation. I visited all of the labs, talked with the commanders, investigated how they were being managed and tried to come up with some recommendations. I wrote a 10 or 12-page, closely typed, report on what I thought, with suggested changes and as well endorsements of what the labs were doing. I suspect that it was biased because I felt that the Bureau of Aeronautics-sponsored laboratories were not doing their jobs as well as could be done. They should be managed the way the BuOrd's labs were, because I was raised both in the Bureau of Ordnance and had commanded a Bureau of Ordnance laboratory at China Lake.

As far as I know not much ever came of this report. I did learn that the person who relieved the director read my report and used many of the recommendations that it contained. So that's the closest that I have come to a consulting job. Not exactly the same thing, but I did serve on the Surface Warfare Committee of the NRAC, the Naval Research Advisory Committee. Are you familiar with that? It's a statutory group.

PS: I've heard the name.

FLA: The committee went around to the various laboratories to listen to what they were doing and why, and to give the commanders and staffs some sage advice on how they ought to be running their labs. At the conclusion of each visit and briefing, the chairman asked each member to comment on what he had heard and what he thought ought to be done to improve the operations. I had had experience with an advisory board while in command at the Naval Ordnance Test Station, China Lake and thought that they were essentially useless. Finally, after several of these visits, I got fed up with this which I thought again was really useless, so I turned in my paper with the recommendation, simply, "Fire Ashworth". The chairman asked me what that was all about, and I told him that I thought that the whole operation was useless and a waste of time and money. Interestingly enough, he said that he understood what I was saying and inferred that he felt much the same way. Needless to say, I was not reappointed to the committee.

It goes back to my time in China Lake. We had an advisory board. There were some very good people on the board, if for no other reason than that we appointed them. Ed

Heinemann<sup>3</sup> was one. Another was Henry Dreyfus, a highly regarded human engineer I think they were called. Also Norris Bradbury, retired as Director of the Los Alamos Laboratory. The Board would meet at the station twice a year. We would go through the whole exercise of trying to tell them about the most important research and development projects that were under way. Over cocktails at the officer's club some of the members, Norris Bradbury and Ed Heinemann, for example, would ask me, "What do you want us to say?"

What would really make good sense would be to ask them to try and influence our parent bureau, BuOrd, to give us support for the programs that we thought had the best chances of success and would be useful. Unfortunately, none of the members were in a position to throw much weight around in the bureau. So what did they do for us? Let me give you an example. Henry Dreyfuss, the human engineer in the group, had made a special effort to look around the station where he found all the living quarters painted a drab green. He said, "You have all these people living in the community, and you have a bunch of dirty-looking buildings. Why don't you paint them in pastel colors and brighten the place up. It will give the residents a real boost in morale." Well, that was one recommendation that we adopted and the reaction was much as he had predicted. That is the only advisory board recommendation that I recall that amounted to anything during the two and a half years that I had command.

PS: Anything else on Heinemann that you recall?

FLA: Ed Heinemann was one of the most wonderful people that I have ever known. He was genuine and so down to earth.

PS: And so talented.

FLA: Talented, yes --- and just --- I don't know. I have been fortunate to have dealt with many people like him. Oppenheimer was one. Another member of our advisory board was a Mr. Bob Biggers. He was president of the Fargo Division of Chrysler Corporation. They made trucks as a regular product and were the leading source of tanks for the Army. I have found that the more you run into people like this, with the magnitude of the work that they were doing or had done, you discover that they are the most genuine, the most down to earth, the most cooperative and most friendly people that you encounter. At least that has been my experience. Ed Heinemann was a classic example of that.

PS: Then Rickover must be the exception to the rule.

FLA: Yes, Rickover was an exception. To some degree, General Groves was sort of in that category.

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<sup>3</sup> Ed Heinemann was the Chief Engineer at the Douglas Aircraft Company at this time. He was responsible for the design of several Navy carrier aircraft over the years. The most successful was the SBD dive bomber. It was employed from the carriers throughout the Pacific in World War II and became the backbone of the naval attacks on the Japanese carriers throughout the War.

PS: In which category, the nice or the nasty?

FLA: The nasty. Super egotistical. There wasn't an egotistical ounce in Heinemann's makeup, or Oppenheimer's, or Biggers's, or any of these people. It just seems that the bigger they are, the more capable they are, the more down-to-earth they are and easy to operate with and friendly.

I am sorry that I missed the induction of Ed Heinemann into the Hall of Fame at the Naval Aviation Museum in Pensacola. I used to try to get together with him when I was in Los Angeles. We'd go to lunch and talk.

PS: Another guy who apparently had those genuine human qualities and very creative was Stark Draper, who was involved in the Polaris missile guidance program.

FLA: I never had the opportunity to be with him. Of course, he's another favorite, I'm sure, of Chick Hayward's.

PS: Yes, he is. Did you see much inter-service rivalry when you were in that AEC job?

FLA: Not that I recall particularly. I was more in AEC business as opposed to an aspect of it that interfaced with the services.

PS: Were you strictly dealing in weapons, or did you have anything to do with nuclear power developments?

FLA: If you are referring to shipboard nuclear propulsion, no. This came into being much later, I believe. I know that Los Alamos had the "Rover" program in which they were trying to come up with a nuclear power system for aircraft. It finally died a natural death.

PS: The revelations were coming out then about the espionage, the Soviets getting information of some of this, did you try any counter-espionage techniques?

FLA: Not to my knowledge. This would have been an activity sponsored by the commission itself.

PS: It would have been a legitimate concern at that point.

FLA: Certainly. There is no question that Klaus Fuchs, the British scientist at Los Alamos, had given away the farm to the Soviets. I'm sure that General Groves was of the opinion that the Soviets didn't have either the industrial potential to produce the material for a bomb and probably not the scientific capability to come up with a working design of a bomb. But when you feed them information, together with the fact that there had already been demonstrated that a bomb was a technical reality, I am sure that their job became relatively easier.

PS: There were reports that the Germans were working on some programs during the war and the ALSOS<sup>4</sup> mission went over there. Did you get any information on how far along they had gotten?

FLA: For the record, the ALSOS mission was set up while the war was still on, but in the later stages to try to ferret out what information they could that would reveal how far along the Germans had progressed toward the development of a bomb. They particularly wanted to try to recover some fissionable material to analyze for quality. I have read the book about it and found it quite interesting as a scientific sleuthing operation. I had also heard that Goering was in jail in England when we used the bombs on Japan. When he was told about it he refused to believe it. He said, "I don't believe it. We tried it and found that it couldn't be done."

Of course, what I think actually happened, as far as nuclear energy is concerned, is that Hitler was far more enamored with missiles, the V-1 and V-2 missiles, than he was over the possibility of an atomic bomb. Also involved in this misplacement of vision was the fact that most of the German atomic physicists had already defected to the West, so they lost most of their talent. I am sure that there were some left, but most of these defectors ended up either directly or indirectly involved in the bomb development work at Los Alamos.

PS: You talked about how scarce the nuclear material was back in 1945. What steps did you take to improve the situation?

FLA: First, I was not involved in any of this in 1945. It was in 1946 that I was the secretary of the Military Liaison Committee and the Atomic Energy Committee of the Research and Development Board and was witness to the decisions to keep the piles at Hanford producing Plutonium and the cascades at Oak Ridge continuing to enrich U<sup>235</sup>. It was considered mandatory by these two committees that the nuclear bomb stockpile be built up as quickly as possible. Recall, at this point there might have been two, three bombs at the most available.

Since U<sup>235</sup> at this time was more plentiful, if I may use the word, than Plutonium, the bomb designers wondered whether the U<sup>235</sup> could be used in an implosion type-system, known to be a more efficient way to create the critical mass. Indeed one of the early shots at Eniwetok was just such a system, and it worked very well. So this gave them an alternative to the Little Boy and its inefficient use of the Uranium. This would have a major impact on the size of the bomb stockpile. For example, an implosion system used around 14 or 15 kilograms of Plutonium while the Little Boy gun type used somewhere around 25 kilograms of Uranium. I don't recall the exact numbers, but these are in the ballpark. The ball of Plutonium in the Fat Man was about the size of a softball. When squeezed by the implosion system of explosive it ended up about the size of a billiard ball. The implosion system using the Uranium had about equal amounts of material as with the Plutonium system. You might ask, why did they not go ahead during the war

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<sup>4</sup> ALSOS is another code word used to be sure that the title of the mission in no way revealed its purpose. It was a joint activity supported by G-2 (Army Intelligence), the Navy, and by the Manhattan Project to obtain technical intelligence from an active theater of the war overseas. ALSOS is a Greek word for "Groves". He says that he was violently opposed to what appeared to be his name on the project, but believed the project was too far advanced to be changed. The mission operated in Italy as well as in Germany.

with the Uranium implosion system if it used so much less Uranium. The answer, of course, is that they had no idea that the Uranium would operate in such a system, and it was not until after the war that the laboratory had time to experiment with these new ideas. So, it was wise to keep both production plants operating.

PS: Did you have any dealings with Congress in that job?

FLA: Not in that job. I did have a session with the Congress when I was secretary of the MLC. We were trying to set up the staff while not having much idea as to the extent of the operation. I appeared before the congressional Appropriations Committee and asked for \$140,000 to get the committee staff operating. I was asked the question, "How do you know that you need \$140,000. What are your plans for it?" And I said, "Frankly, Congressman, I don't know exactly yet, it is just a guess, because it is to be a new staff with no past experience to work with." He said, "Well, I think that we can give you your \$140,000. That's one of the first honest answers that we've heard in this committee for a long time." I thought that was pretty good!

PS: Did you have any concern in that job that you were getting too far afield from the Navy?

FLA: Yes, to some degree. One of the things that bothered me was that I was being deprived of carrier operations right when I should have been heavily involved. On the other hand, I was in the forefront of a whole new science in warfare. I suppose that since I had this early-on experience in nuclear matters, it never hurt me in the long run.

PS: Well, the fact that you were sent to the *Midway* and given command of *Corson* indicates that somebody in BuPers thought that you were worth continuing to promote.

FLA: Yes, that's right. Furthermore after the hearings on the TFX aircraft source selection, and being thrown out of Washington by Mr. McNamara, I guess we will talk about that later, the Navy didn't throw me to the wolves; they didn't send me to Siberia. They gave me some very good jobs after that. So I think that it all probably goes back to the Ordnance PG number after my name and having been participating in the nuclear program while it was still new.

I suspect that there were a lot of people in the Navy who thought that I did not continue as long as I should have in the nuclear program, and I must admit that I was rather anxious to get out and get operational. I really backed out of the program completely.

PS: Was that by choice?

FLA: Sure, pretty much, as far as one can call his own duty assignments. I was perfectly happy not to be required to continue to the point that it became a specialty.

PS: You probably would have run the risk of getting out of the line community and into a specialist role.

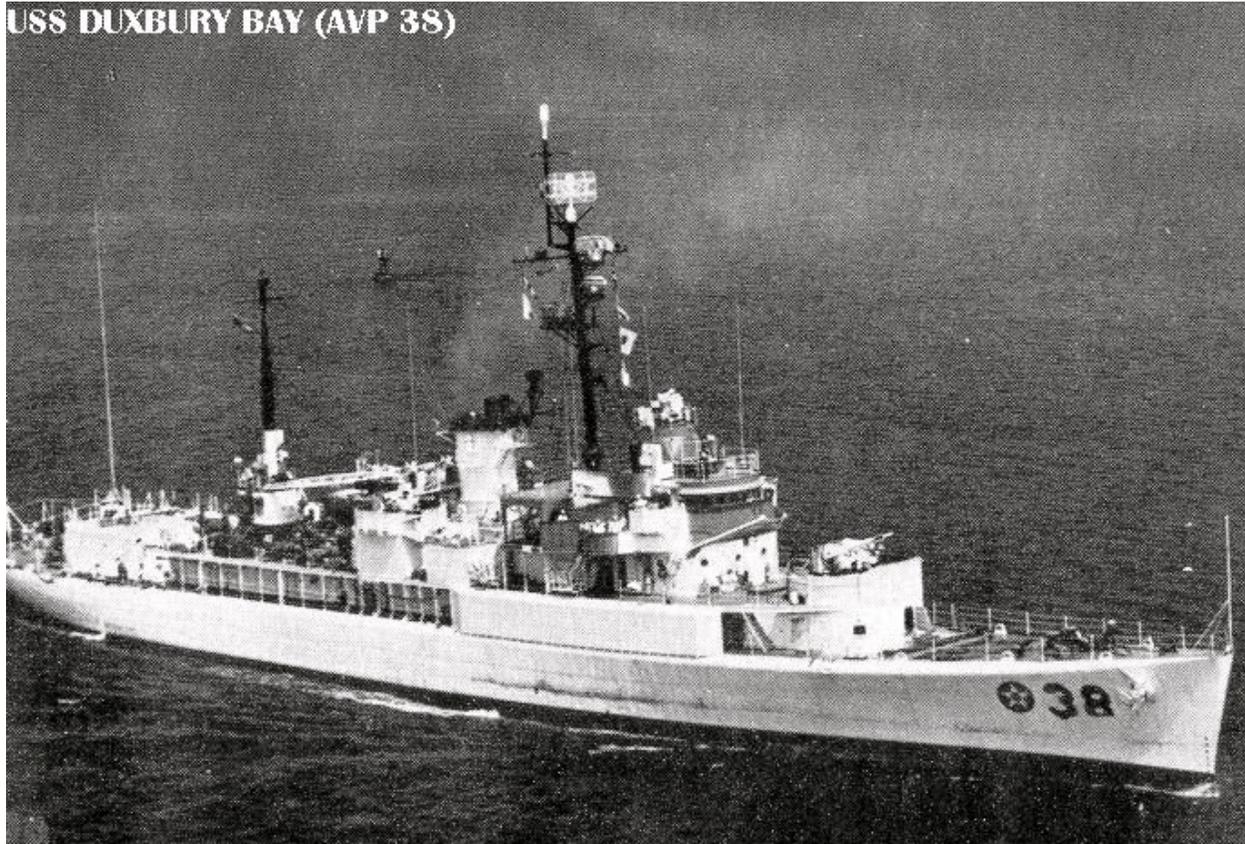
FLA: Sure. That wasn't for me, particularly when I discovered that I didn't want to go to work in the business world.

PS: Anything else on that tour of duty?

FLA: That covers it pretty well. We rambled a bit far afield from the Atomic Energy Commission, but I guess it is all related in some way.

CHAPTER EIGHTEEN

U.S.S. *CORSON*, AVP-37, PACIFIC FLEET  
IN COMMAND  
June 1954 - June 1955



This is a photo of the seaplane tender U.S.S. *Duxbury Bay*, AVP-38, the sister ship to the U.S.S. *Corson*, AVP-37.

PS: So you took command of *Corson*, a small seaplane tender, to get you ready for carrier command, and that was as the seaplanes were phasing out. Did you work at all with seaplanes?

FLA: I presume that BuPers considered this to be my minor sea command which in those days was required before one would be assigned to a major sea command, in my case probably, and hopefully, a carrier. It turned out that we did not operate as a tender for any seaplanes. They were few and far between by then. Command of this ship was probably more for the purpose of fulfilling the requirement for a minor command billet. In my case it was fortuitous, because I ended up operating independently throughout the entire cruise of about a year.

The nearest that we came to a real-life seaplane operation was during our operational readiness inspection. We took on the inspectors from the training command in San Diego and laid out a seadrome in lower San Francisco Bay.

PS: What did that involve?

FLA: We were required to establish a seadrome including buoy-marked runways. It was necessary to determine the prevailing wind direction to establish the runways for appropriate landings and takeoffs. We were required to demonstrate that we were prepared to support up to six seaplanes with fuel, bomb, and ammunition loads. This isn't much of an operation for these small seaplane tenders when compared to that required of the large seaplane tenders such as *Curtiss* and *Albermarle*.

PS: And the *Currituck*, I believe.

FLA: I am not sure that she was in commission at that time, but if so, yes.

PS: Was the seadrome a daylight capability, and did it have lighted marking buoys as well?

FLA: The runway marking buoys had a lighting capability so that they could be used at night. I have forgotten how they were powered.

PS: I assume then that the small tenders like *Corson* were used more for isolated locations when you would be serving just a few planes.

FLA: Yes, they were used for advance base operations for not more than six aircraft.

PS: What kind of facilities did you have on board to tend the seaplanes?

FLA: First, it was not possible to hoist a plane on board as could the large tenders. We carried aviation fuel aboard and could reload armament to some extent, small bombs and gun ammunition. We had aboard shops for minor maintenance and had the ability to change an engine. I can't recall how many engines we carried for this purpose.

PS: Did you have any aviation ratings in your crew?

FLA: Certainly. I am not prepared to give you actual ratings and numbers. We were, I am sure, manned to do our job if we were ordered to do so. I think that the results of the operational readiness inspection (ORI) indicated that we could, even though I felt grudgingly given. The grade was "Satisfactory". I thought that was a bit understated, particularly in view of the circumstances under which we carried out the exercise.

When we arrived off San Francisco there was a thick fog, pretty much as usual, from the entrance well out to the sea buoy. Since this was the ORI, I believed that we had no choice but

to carry out the operation regardless of the weather. The Navigator and I took station on the small catwalk that went around outside the pilothouse and proceeded to navigate into the Bay. I should point out that *Corson* had only a rather primitive radar set that used a plan position indicator (PPI), but was required to stop the sweep while a range and bearing were being taken. Then it was necessary to pick up the changes that might have occurred during the range and bearing observations.

Locating the sea buoy and finding our way to the entrance buoys over the bar was relatively easy, and we proceeded down the channel. This was about 6:00 in the morning and we found that the outgoing traffic had already started and that there were ships ahead and behind proceeding up the channel. From then on it was holding the dead reckoning courses and paying close attention to the fog sound signals as we continued on, passing under the Golden Gate Bridge OK. I recall looking aft and seeing a huge, it appeared to be, merchantman directly and close astern. At the same time the channel was full of early morning fishing boats going out for the day's catch. Finally we could see Coit Tower, the first thing that we could identify visually. From then on into the operating area in south bay was easy. At that point I wondered why they pay only aviators extra!

After it was all over we were graded "Satisfactory" for navigating in reduced visibility. Perhaps I should have waited for a harbor pilot, but this being an operational evaluation I thought that there was no other course to take but to proceed without benefit of a pilot. Actually we had entered the bay earlier that week in the fog and with a pilot. This helped us later in identifying horn signals.

PS: What are the satisfactions of ship command?

FLA: I suppose that for me personally having command of this small ship gave me the opportunity to learn what it was all about. This was possible since all of our operations were independent. I guess more important is the pure and simple aspect of command. This is your bailiwick to run. How you run it depends exactly on what you've got upstairs and whether your shoulders are broad enough to take on the trials, tribulations and successes of the job.

One of the most challenging and interesting things involved in command is to keep your officers, particularly, interested, enthusiastic and creative. This ship had a previous history of long periods of sea duty that resulted, I was told, in some divorces and family problems in the crew. There had to be quite a change in the command environment when I came aboard. I relieved Joe Toth, and he had relieved Joe Clifton. If you have known both or either of them you can understand what that means. This is not to say that the ship was an unhappy ship; it was just "different" after I took command. There was a shift in how things were done aboard, because I let the people do their jobs and try to get the most out of the operation. I tried to the utmost to communicate with the crew. We had periodic "All Hands Up-and-Aft"s when I informed the crew of our anticipated operations and schedules. I felt that they had the right to know where they would be and when. They responded enthusiastically.

From my personal point of view it was a remarkable experience, since I had so little previous sea experience and it gave me the opportunity to command a small ship nearly always on independent duty. I had the opportunity to learn ship handling. My bible was Crenshaw's

ship handling book, which I thought was very good and gave me a lot of clues on what I needed to do to learn the business. I had a whole new world to learn. Having the opportunity to do it, at my own pace and the way I wanted to do it, was certainly one of the rewards for me of this my first sea command.

PS: You also are absolutely forced to delegate, as far as the bridge is concerned, because you can't be up there 24 hours a day.

FLA: That's absolutely right. Then you have a training problem here, particularly when you're.....we were shorthanded. We had four qualified, at least I thought that they were qualified, Officers of the Deck. It turned out that one was not qualified, which very nearly resulted in a collision at sea. In that case I was just plain lucky.

The Chief Engineer was a junior Lieutenant, a graduate of Kings Point, who had a commercial engineer's license in diesel engines. Handy since we were equipped with main drive diesels. I had some problems with him, because he had inherited a lot of the merchant marine psychology, where there are two heads on a merchant ship, one the Master, and the other the Chief Engineer, and these two domains don't usually merge. It was necessary to inform him as to who was in charge. You got the feeling that he couldn't get it out of his mind that he had a domain below that belonged to him just as they do in the merchant marine. We had no real problems in this regard when he realized that he was in the real Navy.

I discovered that he wasn't totally conversant with all the aspects of the engineering department, for when the evaporators broke down we ran out of fresh water between Alameda, our home port, and Honolulu. I spent many hours below with the book in my hand trying to figure out what was wrong, and not surprisingly, I couldn't come up with the solution to the problem. It turned out that the trouble probably came about since we had some old-timers on the ship who had managed the evaporators and were the only ones who knew all their idiosyncrasies. Then two of the lead sailors were detached just before we deployed to the Western Pacific and a Third Class Petty Officer "makee-learn" was in charge. The Chief Engineer was at least smart enough to preserve sufficient fresh water for the cooling system of the diesels. The rest of the ship went without for the last couple of days before our arrival in Honolulu. We went into the Navy Yard for repairs and were told that the system was so screwed up it was a marvel that it ever worked. However, we left the yard in good shape and had no more problems.

PS: What you are suggesting is that the AVP was well down in the pecking order when it came to the distribution of talent.

FLA: Yes, indeed, and in numbers as well. For example, we had only one radar operator aboard. He was good, but he could work only so long, and that was one of the contributing causes of my near collision.

PS: Well, in a sense, that's more of a leadership challenge than you had aboard *Midway*, where you had all sorts of talent.

FLA: That's probably a correct statement. You have to do the best you can with what you have. I guess, like in most of my naval career, luck played a big part in my success. We had a good cruise for almost a year, which turned out to be the longest sea cruise I had in all my time.

PS: What kind of devices do you use to build morale in a situation like that?

FLA: I think that the thing that the crew was most responsive to, except for my regular practice of letting everyone do his own job, taking the responsibility for doing it well, and then my backing them up if there are slips along the way, was my practice of keeping all hands informed of the ship's future operations. Perhaps I shouldn't have, but I went back to my old battleship days when the skipper called "All hands up-and-aft". I would gather the crew on the fantail and say to them, "Now, this is for your personal information only, so that you and your families will know what is happening aboard your ship and what will be happening in the future. I want you to keep in mind that much of what I tell you is at least of 'restricted security' or higher".

I am sure that the crew appreciated this tremendously, because it had never happened to them before. After all, they are human beings, too, and they appreciated being taken into my confidence. I suppose that the word got to where it should not have, but after all, we were in peacetime operations. It really didn't make all that much difference, but it made a big difference to them.

PS: Why do you second guess yourself on that? You said maybe you shouldn't have done that.

FLA: Well, because it is standard practice that you do not reveal ship movements. How does it go --- "loose tongues bring bullets" or something like that? I've forgotten.

PS: "Loose lips sink ships."

FLA: Okay, I was close. Of course, it was a hangover from the wartime days. It's certainly not usual practice to advertise out loud to the crew the ship's operations. However, I don't know of anyone who deserves more to know what's going on than the people themselves, and I think that this was a special contribution to --- I think that we had a happier ship for doing it.

PS: Another advantage that you wouldn't have in a large carrier is that the *Corson* was small enough that everybody knew everybody.

FLA: That is certainly a fact. I had some pretty good officers on the ship. The Navigator, a young Lieutenant, was excellent at his job. The Operations Officer was a patrol plane pilot and knew the seaplane business. You have asked me some detailed questions about the seaplane tending business. Here again, rightly or wrongly, I turned the job of running that department over to him. It's always my feeling, to let the expert do his assigned job. I know my own limitations and certainly didn't have the time to know his job as well as my own big job. So I left the details as to exactly what we had to do aboard and how we operated to him. Oh, I'm sure

that if we were required actually to tend seaplanes, I would quickly learn what I needed to know. But we never had this requirement, so I never paid much attention to it, frankly.

PS: Since you didn't, he was evidently underemployed.

FLA: Well, yes, I suppose so. As far as all the other duties of the ship's Operations Officer he carried them out admirably. I was fortunate to have him. Incidentally his name was Jim Savacool, a Lieutenant Commander.

PS: But you didn't need a patrol plane specialist to do what he did.

FLA: I can't quite buy that for it is a fact that we were required to have the capability to tend seaplanes at an advanced base as evidenced by our Operational Readiness Inspection. Maybe, my obvious, I suppose, attitude accounted for the fact that we were graded only "Satisfactory".

PS: You said in your memoir that you were essentially a janitor in Hong Kong, and I can think of a lot worse places to be a janitor.

FLA: What I intended by that was that in the capacity of station ship, which we held for about three months, we were sort of providing the janitorial services for the ships coming to Hong Kong for rest and recreational (R&R) visits. I called on the Captains on their arrival to give them the latest information on shore patrol requirements, out of bounds activities and areas, any special disciplinary requirements established by the local authorities, any special medical information required and items of these sorts. The station ship furnished the permanent shore patrol, which would be augmented from the ships' companies. Our people regularly inspected the bars and "happy clubs" around town and made recommendations for any to be ordered off limits to the crews of the visiting ships. We also kept fairly good knowledge of the practices of many of the vendors in town and provided that information to the visiting ships' Captains as appropriate. But even with all this it was not a full-time job, so for three months we thoroughly enjoyed the stay in Hong Kong.

PS: Of course, the frustration is that the people go in there usually for a short time and spend their money quickly. If you're in there for a long time, you don't have that much money to spend.

FLA: That's so, I am sure. It is my recollection that fleet visits were not for much longer than a week. So from our point of view it was a continuous turnover of our responsibilities.

One of the more interesting experiences we had while there was getting acquainted with Mary Soo, the Chinese woman who provided the side-painting services for the ships, for the privilege of collecting the ships' garbage. Mary Soo had become a very wealthy woman by sorting out the garbage and selling it for food ashore.

All the side painting was done by her women painters operating from tiny sampans and using rollers for applying the paint. It was remarkable how they could cut in an accurate water-

line all the while bouncing up and down in their small boats. It seems as if it could not be done better with a survey instrument. Of course, the ship's crew was happy, for it was a job that they didn't have to do while on R&R in Hong Kong. The girls were expert and did a job hard to comprehend and the ships left port with a fresh paint job on their sides.

PS: Practice. She and her people were still around when I went in there a dozen years later. Do you have any memories of things that you saw or did ashore there?

FLA: Well, yes a few. I went the route of trying to buy some clothes. I remember one suit I tried to have tailored. I had a suit that I particularly liked and asked a tailor to try to copy it. About three weeks later he was still struggling with it trying to satisfy me. I finally paid him off for about \$15.00 or \$20.00 and never wore the suit after that. It was just hopeless. I suppose that the tailors like to do it their own way, but a suit is a suit, and I thought that it would be easy for them to copy one. Chinese are supposed to be good at that. They did a great job on shoes, for example.

There was a tailor there named Willie Magee. If you could believe all the endorsements and congratulatory letters that he had posted on his wall from numerous Admirals and other officers, you had to conclude that he was the greatest. Willie was a very small, slight Chinese, who had a small shop, the walls of which, as I have mentioned, were covered with letters and pictures of famous naval officers. I needed a set of blues, so I figured that if he had satisfied all of these senior officers I would be doing all right. I recall during the fittings, I would fidget around a little and kibitz on how the suit was fitting. Finally Willie said in his little high-pitch voice, "Willie no tell you how drive your ship, you not tell Willie how make clothes." That uniform was OK as long as I didn't move around much in it.

While there I became acquainted with the wife of a Pan Am pilot who was active as a hostess at the fleet landing. She was very good at her job and became somewhat of a legend around there. On one occasion she invited me to go swimming with her over to Repulse Bay on the other side of the island from Hong Kong. As we were returning to Hong Kong there was a long hill on the way and it was obvious that something interesting was going on further on down the hill. I was driving the lady's car. I suppose I should have been aware that it was a drivers' license check, but we did not exchange drivers.

Sure enough, it was a check for drivers' licenses. It is a tough job to get a license in Hong Kong for one is in a learner's status for as long as a year, and your vehicle always carries an "L" for learner on it. Hong Kong police are a pretty vigorous outfit and as I expected they asked to see my driver's license which of course I didn't have. So I was summoned to appear in court.

Before the court appearance I went to see the Chief of Police for a little personal and private, I hoped, solution to the problem. I told him that it was perfectly obvious that I could have changed places with the licensed driver who was with me before we arrived at the road block, but I didn't and I accept that I am guilty. If there is to be a fine in the case I'm perfectly prepared to pay it, but I would rather prefer this not to be made a public episode under the circumstances of my being the commanding officer of the U.S. Navy station ship. Without hesitation he told me, "no way", I would be required to appear in court for trial.

At the scheduled time I appeared in court along with all the drunks and the other characters swept up the night before around the city by the Hong Kong police network. So, there I was in my good civilian clothes; I didn't think it appropriate to wear my uniform. My name was called to stand before the judge. He said, "Are you Captain Ashworth?" I replied, "Yes, sir." And he said, "case dismissed." So my plea to the police chief --- he wasn't about to let me up from appearing in court, but he had recommended to the judge that the charges be dismissed, under the circumstances, I suppose, which I thought was very generous, for they had caught me red-handed.

Offhand I can't think of any other particular incidents of that nature and that is just as well.

My Executive Officer and I we were granted the privileges of the Hong Kong Club, which probably was the top club in town. It is located fairly close to the fleet landing. We were permitted access to their bar. A "brandy dry" was a common drink and one which we learned to appreciate. It was brandy and ginger ale.

In the basement of the club building was located a bowling alley, but not much like any that we had seen before. That's not quite accurate because the alley was essentially as we knew them at home, but the bowling ball was made of stone, about 14 or 15 inches in diameter and weighing at least 35 pounds. This is the thing that we were supposed to hurl down the alleyway. I can't remember the type of pins, but they probably were like candle pins in our bowling alleys. It was a colossal job to hang unto that ball and make any decent attempt to roll it down the alley. My Exec and I went in there frequently to bowl, but without much luck at mastering the game. We would bowl with locals frequently. They handled the balls easily after, I suppose, many years at it.

The only other episode that happened aboard *Corson* had to do with my firing the Executive Officer that I had inherited from Joe Toth. Have I mentioned this before?

PS: No.

FLA: He was a Commander. I don't see any sense in identifying him --- well his name was Skorcz. I'm sure that he is out by now. I never knew what was wrong with this guy. He didn't participate in any activities of the ship. He was aloof to the whole operation beyond his immediate duties, which he took very seriously, too seriously I might say. I had the feeling that although he was going through the motions, not much seemed to happen. He used to come up to the cabin, usually when I was having supper, and give me long lectures about what was going on aboard the ship, most of which I either already knew or were of such detail that I had no need nor did I want to know. He was simply ineffective as far as I was concerned. How my predecessor put up with him I'll never know. He did tell me when I relieved him that he had not been too happy with him.

I took over the ship in Iwakuni, Japan, and immediately departed to return to Alameda, our home port. When I arrived I sent a dispatch to BuPers outlining the situation and asked if I could have a relief for him. Within 24 hours I had orders for a new Exec and he arrived in Alameda a few days later.