

# ORAL HISTORY TRANSCRIPT

JOSEPH S. ALGRANTI  
INTERVIEWED BY ERIK CARLSON  
PHONE INTERVIEW (HOUSTON, TX/CHAPEL HILLS, NC) – 10 AUGUST 1998

[This oral history with Joseph S. Algranti was conducted via telephone from Houston, Texas to Chapel Hills, North Carolina on August 10, 1998. This oral history was conducted by Erik Carlson for the Johnson Space Center Oral History Project.]

CARLSON: ...Hi. This is Erik Carlson, Johnson Space Center. Are you ready for the tele-interview?

ALGRANTI: Yes, sir, I am.

CARLSON: Great. Well, I'd like to start off and just say that because of the system here I might have to repeat myself, but it seems clear so far. Let's start off with a couple basic questions here. What were your duties as chief of Aircraft Operations Division?

ALGRANTI: Well, I had, I guess, the technical responsibility for the scheduling, operations, and the maintenance contract, for at the time we only had about, under the Apollo Program, about thirty airplanes, and I was also the technical manager of the support contract that did all the maintenance and had a little staff of only about twenty pilots and about a like number of engineers and quality assurance personnel, and we just supported all the programs that were going on at the time at JSC [Johnson Space Center].

CARLSON: What were some of the problems that arose during your tenure as the director?

ALGRANTI: Well, I wasn't a director. I was a division chief.

CARLSON: Pardon me, sir.

ALGRANTI: Well, the things that are easy to recall are that we had some aircraft accidents and we lost some airplanes, but we also picked up some programs. Let me go through a couple of them.

CARLSON: Okay.

ALGRANTI: Tell you what. I think a better way to do it would be to just tell you the programs that we were supporting.

CARLSON: Okay. Great.

ALGRANTI: We were supporting the Apollo Program, the tail end of the Apollo Program, primarily with the lunar landing training vehicles, which is a very temperamental little Bell in-flight trainer for the lunar landing task, and we had about, probably, twenty-five, twenty-seven T-38s, and we supported all the astronaut high-performance aircraft training. We also were involved in what originally was called a ERAP, Earth Resources Aircraft Program. The science people down at E&D [the Engineering and Development directorate] were developing an array of sensors for the upcoming Skylab Program, and so we were putting them on airplanes. For that program we had a P-3, a Navy P-3, and a large Navy helo, an SH-3. In the early seventies the Air Force was supporting us with the WB-57F, which is a very

high altitude reconnaissance platform, but due to some technical problems, they phased the airplanes out and just gave them to us.

Then in 1973 we inherited another Air Force program, the Zero-G KC-135, which the Air Force had been running at Wright-Patterson [Air Force Base]. They were in the process of phasing out some of their R&D [Research & Development] programs, so they dumped that program on us. Then toward the middle of the seventies, of course, the Shuttle Program was coming down the pipes, and we picked up the responsibility for the Shuttle Training Aircraft Program, which was a highly modified Gulfstream II, and we had a competitive procurement, bought two airplanes, delivered them to Grumman, Bethpage, where they were modified, and got them in service in late 1976.

Just about concurrent with that, we bought the Shuttle Carrier Aircraft [SCA]. That was done through a competitive procurement through Rockwell through the Shuttle Program Office, and we picked that airplane up from American Airlines in 1974 and then delivered it to Boeing in 1976. They modified it, and then we supported the Approach and Landing Test, ALT Program out at Edwards [Air Force Base], which took place almost the entire year of 1977. So you can see it was a pretty busy time.

CARLSON: Yes. It certainly was. Before I go into some specific questions about some of the programs you mention, I was wondering if you had any thoughts about how NASA or JSC policy changed as you shifted from the Apollo Program to Skylab and then to the Space Shuttle Program. Was there any major policy shifts that affected your office?

ALGRANTI: Not really. At the level we were at, we were not really—we were kind of a "you call, we haul" outfit. Of course, toward the end of the Apollo Program there was—the Apollo program, everybody had more money than they really could spend intelligently, and during the Skylab and ASTP, I think the mode changed significantly when we got into, I'd

say, a more disciplined budgetary tracking period. I went through three bosses at the time, too. That made a big difference in how we operated. We were a part of Flight Crew Operations under Deke [Donald K.] Slayton from '70 to '74. Then he went into training for ASTP, and Kenny [Kenneth S.] Kleinknecht took over, and he was there about two years, and he got involved in some kind of a fracas between Grumman and Rockwell, and they transferred him out.

Then George [W. S.] Abbey took over, who, I guess, is the current [center] director. Each one of those guys had their own, I'm going to say, management style. Mr. Slayton kind of left you alone as long as everything went all right. Mr. Kleinknecht was sort of a super program manager bean-counter type who reviewed everything to microscopic details, and Mr. Abbey was somewhere in between.

Now let me tell you about some of the machines that we lost. In my position, they were very traumatic events. With the LLTV [Lunar Landing Training Vehicle], of course, we supported Jim [James A.] Lovell [Jr.] and John [W.] Young and Al [Alan B.] Shepard [Jr.] in 1970 for the Apollo 13, 14, 15, 16, and 17 flights, but we lost LLTV Number 2 end of January '71. An electrical problem. The pilot, Stu Present, ejected okay, but it was a real worrisome problem, in that we just—well, two days after we lost that LLTV, Al Shepard's flight was launched, so we had to support Apollo 15 through 17 with one vehicle. It got a lot of people nervous, but it worked out okay. We were able to do all the training satisfactorily with just one machine.

Just about a year later, that pilot, Stu Present, was lost in a T-38 accident on January 20, '72, at Matagorda Island with a back-seater named Mark Heath, who was an LLTV flight director, actually, and they were just starting to—we were practicing, trying to figure how to use inertial systems to do energy management for space shuttle landings, and he got trapped by some weather that moved in. The weather really was right on the ground. He didn't

realize it, and he flew into the ground at Matagorda Air Force Station, which was one of our little operating areas.

And just four months later we lost NASA-957. Pete [Charles C.] Conrad [Jr.] was flying it back from a cross country, got in some pretty bad weather and had some bad handling by both Ellington approach and Houston approach, ended up diverting to Bergstrom, but he ended up running out of gas before he got there. He ejected. The airplane did have a technical problem. It was a new T-38. Some technical orders we were aware of had not really been accomplished. But he was uninjured, so it wasn't as bad as the other accident.

You know, we launched Apollo 17 December 6th of that year. That ended Apollo, but actually in the fall of that year we started our proposals on the Shuttle Training Aircraft [STA], which was a very lengthy procurement technical effort. And to complicate things, as I said, Air Force—they had been flying for our Earth Resources Program Office with the WB-57F, but they decided to phase that system out and just gave us two of the airplanes, which we picked up in about mid-1972, and that required a lot of training, which we got up at the 58th Weather Squadron in Albuquerque, but we also had to develop a pressure suit capability.

The STA, I was in the middle of that with Warren [J.] North and Colonel Joe [H.] Engle, but we went through a big competitive procurement technical evaluation with Grumman and Lockheed and decided to go with the Gulfstream II, being as it was a production airplane. Jet Star had been phased out. So we procured two of those airplanes in May and June of 1974, ferried them from Savannah, where they were being manufactured, to Bethpage, and then Grumman started their mod.

Of course, in that same time period we were supporting the Skylab Program. As you know, that took place, the whole program, four launches, took place in 1973. So there was a lot of T-38 activity and a lot of Gulfstream activity. Gulfstream I did a lot of support work.

If you remember the big parasol exercise because of the damage on the initial launch, that stretched the resources pretty tight throughout NASA, but it all worked out pretty well.

CARLSON: Great. What modifications did you do to the Gulfstream II aircraft?

ALGRANTI: Gulfstream II is a long-range, about ten-passenger jet upgrade from the Gulfstream I. Of course, we spent a lot of time in the wind tunnels trying to get its drag down so it could cruise efficiently at high altitude, so what we had to do was modify it so it could descend like the space shuttle, which has a very poor lift-to-drag ratio and also flies at a very high speed. So we had to develop three big modifications. We took the flaps off the plane and put direct-lift flaps on. A normal airplane has a Fowler Flap system. You know, they extend aft and then go down and increase your lift, and at the very end they increase the drag. But we put on a direct-lift Grumman design, a very good direct-lift system which ran the— instead of Fowler Flaps a plain split flap which went up thirty degrees and down twenty, and then we put on an in-flight engine reverse system so we could get a lot of drag from the engines so we could descend at the twenty-or-so degree glide slope.

Then the complicated part was we put in a digital autopilot system. At that time it was kind of state of the art. It was a DC-10 system, and it was developed by the Honeywell people along with Grumman. We had a model of the orbiter stored in it, and it would sense what the airplane was doing, would figure out what the orbiter would be doing, and then it would develop an error signal to run the flaps and the rudder and the in-flight reverse so you can exactly duplicate the flight path of the space shuttle. It was a very complicated program. We ran a little bit behind. We barely finished it up in time to support training for the ALT [Approach and Landing Test] program, but it did a good job, and as you're probably aware, we modified two more airplanes later on and have an insurance G II flying. I think it's Number 948 right now. It's a management airplane. Those airplanes are like Number 944

through 948 in the fleet. Each one of the shuttle pilots gets about 500 to 700 landings, landing approaches, in those airplanes before he flies the shuttle itself. It's a complex mod.

Charlie Haines was the engineer primarily on there and did a great job. We had Dave Griggs and Al Manson, two pilots that worked along with a Grumman pilot named Ernie Vonderheyden. We did have a management brief on April 1 of 1976, which I'll never forget, in which the Grumman vice presidents came in and told Dr. [Christopher C.] Kraft [Jr.] that we were going to be about six months late in delivering and about a 50 percent cost overrun. He really got upset.

CARLSON: I can imagine.

ALGRANTI: Threw everybody out of the office. [He said he would never give] Grumman another contract if he had anything to do with it, and we had some really high-powered people. It all worked out okay, because, as you know, the approach and landing test, which was managed by Deke Slayton, took place through the whole calendar year 1977, and we got the airplanes delivered October '76. I ferried both of the delivery flights, so I can remember the dates when I left. It was a big, I guess, boost to the program to be able to have the pilots train in the in-flight simulator. Of course, we had to do a lot of chase in the ALT program, too.

We had to modify the T-38 so they could chase the orbiter, which required a larger speed brake and some beefed up landing gear doors so we could fly it well in excess of the gear-down limits of the T-38. The T-38s gear-down limit is 240. We were flying about 310, so it took a little structural rework, but that was all kind of invisible to the outside world.

Another problem for our contractor, we had just changed maintenance contractors in '76. When we started that ALT program, Mr. Slayton told us that he needed like about twelve T-38s out at Edwards. I think about every two or three weeks for the whole year, and

we only had at that time probably twenty airplanes. My contractor, I thought he was going to walk out and say, "Give this job to somebody else." We managed to make it all right.

CARLSON: I have a question about the STA [Shuttle Training Aircraft] aircraft. How realistic was the training and were there any limitations or problems with the aircraft itself?

ALGRANTI: It's very realistic. We mask out the windows. We have an orbiter crew station in the left side of the cockpit that flies the exact trajectory, and after several years' training, we see what the airplane does. We have a little software development capability. I'm not sure what contractor's doing it now. It was Ford, Philco, and Loral when I was there, and they keep matching the airplane. So it does exactly what the [orbiter] does, so the astronauts all consider it the best trainer for the Shuttle landing task. And we've got a crew station up [front]—that was another big mod. I didn't even mention that, but that was mostly mechanical. They had to put, you know, an orbiter crew station, all the controls and displays on the left side and then move the captain's station on the right side of the airplane. The normal captain sits on the left, so we had to move a lot of things to the right side of the—Grumman did a good job on that.

Where are you located physically at JSC?

CARLSON: I'm in Building 12 right now, sir.

ALGRANTI: Well, some time—probably thirty minutes, go up and see John Young. I think he's still working up there at the director's staff level. He can tell you all about the STA. He's very familiar with it.

CARLSON: Okay. Thank you for that reference.



ALGRANTI: He spent a lot of time, and he helped us technically. As you know, he was involved in the Shuttle Program from start to finish, from start to now.

CARLSON: What was the exact purpose of the T-38 chase aircraft? What happened with that?

ALGRANTI: Initial flights, everybody was quite worried about how the astronauts could handle the [landing] task, you know, their height and stuff like that. So on the original ALT flights, we chased the orbiter with [Karol J.] Bobko, Gordon [Charles G.] Fullerton, and some of the other guys, and they'd call out the altitude, basically, at the very end and look over the vehicle. Then, when we actually started flying, we chased a few of the initial STS [Space Transportation System] flights because everybody was worried about the tiles falling off, structural problems. So we had chase. Actually, in the Edwards operation on the approach and landing test, the pilots are so busy with their tasks and instrument tasks, you really hate to say this because nobody's looking out the window. You really need somebody else to just be sure there's no other traffic in the area. And we had a big chase operation all during ALT.

CARLSON: Thank you. I'm interested, on the experiences with the shuttle carrier aircraft, if you could tell me—

ALGRANTI: I went through that with the fellows involved in that from Day One. We started worrying about how we were going to carry the Orbiter in the early seventies, and we went through some proposals in headquarters with Dale [D.] Myers, Johnny [John F.] Yardley, and the bosses at the time. The competition was between the C-5 and the Boeing 747, and an

engineer, he's still in the area, I guess retired. I think he works for Rockwell, a guy named John Kiker came up with carrying the orbiter on the back. There were some other schemes with specially built transports, but the Air Force was interested in supporting us, but they said once you modified a C-5, if we went to war or something, they'd have to pull the airplane back, so that kind of convinced the managers that we needed a commercial airplane. So we went with the 747, and really early in '74 we got turned on to procuring airplanes because of, I think, probably some Skylab underruns.

There was some Shuttle Program money floating around, so we actually went through a competitive procurement selecting airplanes through a Rockwell selection team, and they subcontracted the United Airlines and Pan American and some other 747 operators. It was a good time for us, because that was about the second fuel crunch--you remember the fuel crunches of the 1970s. The airline business took a big downturn, the economy was pretty sour, and there were lots of 747s in storage just sitting around. So we bought a very good-shape American Airlines airplane and actually accepted it in June of 1974. I can tell you, that whole exercise of buying an airplane probably didn't take ninety days. Amazingly fast. We paid about \$15 million for it.

We bought another airplane in 1988, many years later, and at that time we did our own procurement, and fourteen years later we paid another \$15 million for the same basic airplane. ...The [project] engineer for that, was a gent named Carl Peterson, who worked in the Shuttle Program office for Bob [Robert F.] Thompson. We delivered the airplane up to Boeing, and we flew it a little bit out at Edwards, keeping the airplane in a wake-vortex program where other airplanes were flying behind a 747, and Boeing started their modification, the drawings, and design, I guess, in most of 1975. Mr. Slayton, again, was in charge of the ALT Program. So he and Owen [E.] Maynard from the program office were the primary decision-makers, but Boeing did a good job.

The airplane came out in December of '76, started the...flight test after modification. We delivered to Edwards, I think, in January [1977] and then started the ALT Program in February with [Fred W.] Haise [Jr.] and Fullerton and Engle and [Richard H. "Dick"] Truly. You'll remember there was a period where the orbiter was inert and inactive, and then later on we put astronauts in it, and it was called "captive active," then it was topped off with five free flights, the last one being a runway landing with none other than Prince Charles [Charles Philip Arthur George Windsor, Prince of Wales] in attendance. We went through some political squabbles with—I guess Dave [David R.] Scott was the director of Edwards at the time, and Mr. Manke was his [flight operations] boss, and I think they got crossed wires a couple of times with Mr. Slayton, who was running things. I was down low enough where it didn't bother me, but I'm telling you, it was a little trauma time period there.

CARLSON: What were some of the problems or obstacles with the carrier program?

ALGRANTI: Well, the program itself went amazingly well. Boeing did a great job. The airplane, as far as I know, has been flying [continuously], and we never really had any technical problems with it, and we're carrying a 200,000-pound airplane on top of a 300,000-pound airplane, and we only added about 10,000 pounds to the basic 747. So it was a very nice program, but when we ferried the airplane, some of the problems we had, we ferried the airplane out to Edwards in--I'm sure it was about June or July of '74, and we'd been planning this for at least a month, and when we were ready to go, the Edwards people said they didn't have room on the ramp for us. That was, again, a Dave Scott/Chris Kraft kind of butting heads, but fortunately I knew General Rushworth, who was running the [U.S. Air Force] flight test center at the time and so did Slayton, and he said bring it and we can park it on their ramp. Of course, that embarrassed the Flight Research Center, and everything kind of fell into place after that.

We initially operated at Edwards with an American Airlines crew out of Los Angeles and eventually got a little field team on our Houston maintenance contract. The management problems, initially I think the Edwards people very much wanted to operate and maintain the airplane, put it in their inventory, and Bob Thompson and the JSC people wanted to keep it in JSC's hands so we could control the costs and scheduling. Eventually, of course, JSC prevailed in that, but it was a little uncomfortable at my level when some of these management storms were taking place overhead.

CARLSON: I was wondering if you could tell me a little bit about the Super Cargo Aircraft Program.

ALGRANTI: I can tell you all about that. That's the Super Guppy. We inherited that airplane in 1979. Primarily, the people operating it wanted to get out of the ops business, so they, I think, threatened to sell it to the Germans. A guy named Kirk Irwin, who actually was an ex-NASA engineer from Edwards, was their manager. He went to headquarters, and Mr. Yardley felt we needed to retain that to support the upcoming—some of the shuttle payloads and eventually the space station. So we went ahead, and they just gave that airplane to us because we had a big airplane fleet, a big maintenance capability. So we picked the airplane up in '79, got a lot of technical help from the Air Force up at Tinker Air Force Base, ran it through an acceptance program, bought it, and put it in operation. We flew a lot of classified DOD [Department of Defense] payloads, a lot of NASA payloads, Agena stages—pressurized upper stages, General Dynamics built—and lot of DOD airplanes, F-14s and A-7s, but eventually we couldn't support the propeller system on airplanes, so the original Super Guppy went to storage, I'd say probably, in about 1992 or '93, and as you probably know, the French, in part of the Airbus [program], had bought two of what they called Guppy 201s, basically the same airplane but with different engines, and they eventually built two more in

France and were flying four of them, but Airbus, knowing they couldn't maintain those old—they were basically old Boeing 377 or C-97 airplanes, they built a jet-powered air bus, a Super Guppy type airplane, and they phased their operation out in some kind of support deal between us and the French regarding, I guess, the space station we inherited the Number 4 French Super Guppy, which, as far as I know, is at Ellington right now.

CARLSON: I believe so. What were some of the flight characteristics of the Super Guppy aircraft?

ALGRANTI: Even though it looks strange, it flies basically just about like a C-97, a Boeing 377. I think the only thing strange about it is that at [forward] CGs it takes off, and the main wheels come up before the nose gear, and when you land, it kind of lands on the nose gear. But the C-97 does the same thing. It's got a lot of side area that you have to be a little more careful in a cross wind, but it's basically not really a very different airplane than, I'd say, the C-97.

CARLSON: I'm also interested in the zero-gravity aircraft. I was wondering if you could tell me a little bit about that, please.

ALGRANTI: Okay. The zero gravity was a program run by the Air Force at Wright-Patterson that started in 1960 with the KC-135. Originally it was run with Convair, I think, 340 airplanes and T-29s, the Air Force called them. In 1973, as part of their reducing their R&D fleet—NASA was the main customer for the Air Force. They just said take the airplane. They wanted to give it to us in '72, but we were picking up B-57s then.

Actually, Tom McElmurry, who, I think, is retired but still teaching up at A&M, he hadn't been out of the Air Force too long. He was sort of Deke's deputy. We went up and

talked to General Greenleaf and asked him to keep the airplane for another year, and he agreed to do that. We picked up our airplane in 1973, and it was the fourth airplane. Previous airplanes had been phased out after they accumulated about 12,000 of these zero-G maneuvers. They were [Strategic Air Command] tankers. When they phased them out, they just went back in the tanker fleet and the cargo fleet, wherever the Air Force had them, and we started operating the airplane with our pilots and supportive program at Ellington, really picked the airplane up in '73, and we got an old FAA flight check airplane, which had been neglected, a lot of parts robbed off of it.

We went through the zero-G mod at Tinker, and we actually hired Don Griggs, who had been the manager at Wright-Patterson. He came to Ellington and flew with us probably five or six years before he retired. And we flew that airplane after studying it with the engineers up at Oklahoma City. Between Boeing and the Air Force engineers, they said if we would reduce the entry and exit G-level just a small amount, we could extend the life of the airplane quite a bit. So we did that. We went from a 2-G pull-up and exit to 1.8 Gs, and that airplane, which was NASA 930, I think, we retired it in probably '94 and got another KC from the Air Force. That's NASA 931. I think we did pretty well, because I think we flew almost 60,000 parabolas on NASA 930. As far as I know, it's still sitting at Ellington. I think they're going to make it a gate guard or an exhibit out there. That airplane flying now is the Weightless Wonder Number Five.

CARLSON: Thank you. I'm also interested in the Airborne Instrumentation Program. What was your involvement with that?

ALGRANTI: Well, we've managed that completely with the technical help of the E&D people, but, like I said, we had all the prototype instruments that were used initially in the Skylab. Eventually they went in the LANDSAT, and we used a P-3 and a C-130 for intermediate

altitudes, a helicopter for low altitudes, and a WB-57 for very high altitudes, and these were just platforms with infrared photographic sensors, and we just installed and did the modifications to the airplanes, gathered the data. We didn't really do any of the data reduction. It was all done by support contractors to the E&D [Engineering and Development] organization there. Eventually, those instruments developed from those airplane programs went into the LANDSAT satellite system, which I guess they're still being launched. They've been refined quite a bit.

The program itself was taken over by Ames [Research Center], I'm going to say, very early in the eighties. I think Ames didn't really have a mission that they could hang their hat on, and headquarters decided to take over, I guess, operating funds and give it to the Ames Research Center and do the rest for the ongoing operation in the U-2s. They phased the U-2s out and went to the ER-2s, and that operation, I'm sure, is still ongoing, but the original, I guess, instrumentation development was done at JSC, and the contractor at the time was Lockheed, and the primary engineer was a guy named Dean Grimm. I'm sure these people are all retired. There's probably not many people around that recall after they went into that. We delivered the P-3 to Wallops Station when we phased our program out. We delivered the C-130 to Ames, and that airplane is still in operation. [The P-3's] been retired, and it's in a [naval aviation] museum down in Pensacola now.

The other mission we picked up was the Airstream mission, which was a high altitude tropopause air-sampling mission that the Air Force phased out. In 1974 they gave us an air-sampling airplane. The tail number is 928, and, as far as I know, it's still operating it. We picked it up, and we were doing it for the Atomic Energy Commission. The Cold War was still on, and they were sampling tropopause and getting the results from atmospheric nuclear tests, and the people at Los Alamos could take the air samples to determine the yield and materials and everything else. Again, we were just operating the airplanes. All the handling

of the data was done by—it's the Department of Energy now, but at that time was the Atomic Energy Commission.

CARLSON: What about your involvement with the Earth Resources Aircraft Program?

ALGRANTI: We were managing the operation and did the airplane mods, the P-3, the C-130. We started with a Convair-240 and a Bell-206 helicopter and two WB-57s. Again, we did the insulation of the equipment, which primarily came from people over in the Engineering Directorate, operated the airplanes, collected the data, and then delivered the data back to them. We didn't really get too involved in the science part of it. We just operated the airplanes.

CARLSON: I'm interested in your transition and your shift from your job that we've been talking about to the assistant director of flight crew operations. Can you tell me a little bit about that, please?

ALGRANTI: You mean me personally?

CARLSON: Yes, sir.

ALGRANTI: Well, I was just actively flying until about 1990. By that time I had reached an advanced age as far as the medical people, I guess, went to sixty-five, and they started, I guess, leaning on me to quit flying. So they made life difficult enough putting me on dual flying status and finally said, "You ought not to be flying. Why don't you get in management?" So I just phased out, and I retired in '92. Basically I quit flying in 1990.



CARLSON: What were your duties as assistant director for flight crew operations?

ALGRANTI: I was working for Don Puddy then, and, of course, what he did is he put me kind of on top of the ongoing programs at aircraft ops. I got involved in about three big procurement efforts. We bought the back-up Shuttle Carrier Aircraft, NASA-911. We bought an airplane and modified it. I kind of followed that from start to finish. We bought that airplane from Japan Airlines, did the mod in Wichita this time instead of in Everett, and then we also bought—we took NASA-[650]—I can't be sure of the number, but it was a Lewis Research Center prop fan test assessment airplane. The Grumman serial number was 118, and we made an STA-4 out of it. We took a wing that had been residual from the G-2B program. For a while, they used to take G-3 wings and put them on G-2s so there were some low time wings available. So we went through another competitive procurement. This time we had the airplane modified by Midcoast in St. Louis. So I kind of followed that program through.

Then we bought another airplane for insurance. Well, basically what Mr. Puddy had me do was to do some technical and budgetary management of what I'd consider the major aircraft operations procurement efforts that were going on at the time.

CARLSON: Last question here. I was wondering how JSC was with the financial end of the game here as far as your budget as aircraft chief. Were they generous, or did you have to operate on shoestrings many times? How did that work?

ALGRANTI: It varied. At the beginning of the fiscal year, we generally were well off, and as we got toward the end of the year, sometimes we got squeezed, but we never really had any kind of a big problem, because Mr. Abbey was our boss, and he was a ex-Air Force pilot and was pretty sympathetic to our requirements. So I think he used to fight the budget battles.

We didn't see it. At the division level, you know, you don't really get too involved in the budget battles. We were basically operating for many years off of the Apollo Program, the Skylab Program, the Shuttle Program.

ALGRANTI: We were just draining, from the overall standpoint, very small percentages of some of the program budgets. AIRP was kind of the bigger program from an overall standpoint, because it was a small program to start with, but everybody got busy with the shuttle. I guess our headquarters management just gave the whole thing to Ames, a little bit to Wallops just to give them something to do, and we were busy enough with supporting the Shuttle, T-38, STA's, and the SCA that it didn't really bother us very much.

CARLSON: I had a couple of quick biographical questions. Could you give me a thumbnail sketch of your military and flight training, please?

ALGRANTI: Well, I entered the Navy when I was seventeen years old, in the middle of World War II, went through the V-12 Program, then the V-5 Program. Those were the aviation cadet programs. I went through Navy flight training, and I really didn't finish the Navy flight training until the end of 1945, and by that time the war was over. So I was a reserve aviator had had a choice of getting out or signing up for a two-year tour, and after all the struggle of getting through the program, I signed up and went onto a torpedo attack squadron for two years, VT-20. So I did five years active duty with the Navy, two years on an aircraft carrier, the USS *Philippine Sea*.

When I got...out, I went back to school and finished school at the University of North Carolina where I'd started in '42 and graduated in '49. I actually had applied for work at Langley, but at that time there weren't any openings. I was in graduate school, and there was kind of a big shuffle of NACA pilots. Joe Walker went out to Edwards to replace Scott [A.]

Crossfield, who went to Rockwell and the X-15 Program. I went up to work at Lewis in 1951 early, and I worked there for nine years, and I worked at Langley Research Center for three years and then got recruited in spring of 1962 by Warren North and Walt [Walter C.] Williams, set up the JSC Aircraft Operations.

CARLSON: Thank you. Could you, for biographical purposes, I need to get your parents' full names.

ALGRANTI: My dad's name was Samuel J. Algranti. He worked for the American Tobacco Company in Durham, North Carolina. My mother's name was Beatrice.

CARLSON: And her maiden name was?

ALGRANTI: Carol.

CARLSON: Thank you. And I need to get your wife's name and the date you were married, please.

ALGRANTI: Annabelle. We were married in November 1952. She was an employee of NACA [National Advisory Committee for Aeronautics] at Lewis Lab, where I was working.

CARLSON: Thank you. And finally, your children's names, please.

ALGRANTI: I have a stepson named Donald Cope. My son is Samuel Algranti. He still lives in Houston. He works for a Norwegian oil company [Statoil], lives in Clear Lake City. My daughter is a physician. Her name is Deborah Simmons. She lives in LaGrange, Georgia.

CARLSON: Thank you very much. Mr. Algranti, I've really enjoyed this interview, and it's been a fascinating time, and I appreciate your time. Thank you very much.

ALGRANTI: Get five minutes with John Young, because he was there, one of the early Gemini guys. He can tell you a lot about aircraft ops from the user's standpoint.

CARLSON: Okay. Thank you very much. Have a pleasant day. Thank you.

[End of Interview]