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JOSEPH P. ALLEN
INTERVIEWED BY JENNIFER ROSS-NAZZAL
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ROSS-NAZZAL: Today is March 16th, 2004. This oral history with Joseph P. Allen is being conducted for the Johnson Space Center Oral History Project, in Washington, D.C. Jennifer Ross-Nazzal is the interviewer, and she is assisted by Rebecca Wright.

Thank you so much for joining us this morning. We appreciate you coming out on such a dreary and cold day.

ALLEN: It is.

ROSS-NAZZAL: It's very wintry like outside. What I'd like to begin with today is to ask you what your duties were as the Apollo Program ended and as the Space Shuttle Program began.

ALLEN: Jennifer, let me think. The Apollo Program did indeed come to kind of a quick end, partly because flights that could have followed Apollo 17, namely 18 and 19, had been cancelled. I'm a little uncertain as to when that was, but when that happened, individuals [who] had already been designated to be crew members, backup crew members, support crew members and so on, and individuals [who] were the operational engineers at (still) the Manned Spacecraft Center [MSC], teams of people, literally the next day laid down those responsibilities and moved on to other programs that were unfolding. Those other programs were Skylab, and because of the

commitment made by President [Richard M.] Nixon that we would be flying a mission with the "Evil Empire," the dreaded Soviet Union, the mission to be called Apollo-Soyuz Test Project.

Individuals, [who] were still assigned to Apollo, though, namely Apollos 15, 16, and 17, had very important assignments. A consequence of that was when Gene [Eugene A.] Cernan stepped off the Moon and then a few days later they safely landed, there were numbers of individuals that had been right at the leading edge of all the operations who were now without a job assignment. And the way NASA worked, you couldn't easily transfer onto, for example, Skylab, because it was now months away and you'd have been a Johnny-come-lately for sure, were you to have [done] that. Some individuals from the last Apollos did, [however], go onto Apollo-Soyuz Test [Project] mission [to be flown in 1975].

I was not one of them. I was a bit of an astronaut without portfolio, as "Deke" [Donald K.] Slayton had told us we were going to be, when we arrived in August of 1967. I was a physicist. There was cosmic ray physics being done at that Manned Spacecraft Center. There was a physics group there, with considerable funding, and I worked for a while there. The folks that ran it were very good research physicists [and] were my peers. They were my age, and they were quite gracious, bringing me into their groups. Nonetheless, I was not as able a physicist as I had been three years earlier, because I'd been away from it, and my interests were now elsewhere as well.

As the months and weeks went by, I was [eventually] given an assignment by the Astronaut Office to serve on a study group headed by Don [Donald P.] Hearth, who was the Deputy Director of [NASA Langley Research Center, Hampton, Virginia]. I don't know if it was called the Outlook for Space. Was it?

ROSS-NAZZAL: Yes.

ALLEN: Was that the Hearth group?

ROSS-NAZZAL: Yes, that was headed by him.

ALLEN: Okay, because, Jennifer, in the context, I, in the first few years of the seventies, I worked on two study groups. One was the Don Hearth committee that I believe took place in 1973, '74.

ROSS-NAZZAL: In that time frame, yes.

ALLEN: It was made up of people from NASA, but there was just a few from each of the Centers. And from MSC came Max [Maxime A.] Faget, Joe [Joseph P.] Kerwin, and myself. … Then there were like three and four from the other Centers. We met for a number of weeks in various places. We heard presentations, we had many, many discussions ourselves, and then we wrote a report, and again, as I recall, the framework for this was Apollo is finished and had been a resounding success. We were to presume that Skylab had flown, and I suspect that we did part of this during the Skylab missions. I don't really know. … Presume Skylab and Apollo-Soyuz had flown. The country was also committed to develop a reusable Space Transportation System, later to be known as STS, or the Space Shuttle. We were to presume that [STS] was operating successfully in the late 1970s.

With those as the arrows in the space quiver, what should the country undertake? What was the outlook for space? I would have to go into the history shelves and pull out [the report] and see what we said, but my recollection, again, was it was a good effort, and I think some of the things that came out of it were things like the Space Shuttle would enable laboratory-type things to be in space, including the Spacelabs [intended to] stay in space for some weeks, and scientists on the ground [with improved] communication links to their colleagues that were orbiting the Earth.

A consequence of [the report] was [a recommendation leading to the development of] a satellite system that enabled the Space Shuttle to talk to the ground all the time. That satellite's called TDRS [Tracking and Data Relay Satellite], and it's what enables the constant communication right now. So that was a recommendation made by that group to the NASA Administrator, and the Administrator thought that it was a good idea. There were other such recommendations made. Again, I won't embarrass myself by recalling exactly what they were.

Both the assignment was interesting and the timing of it was interesting, from my point of view. The assignment was interesting, because suddenly I was in contact with people from all around the agency, [an opportunity] very educational to me. I came away with an understanding of why we have research facilities in California, in Cleveland, in Virginia. And I came away with a much better understanding of why we, [NASA], have a Goddard Space Flight Center [Greenbelt, Maryland] and what its roles were, etc., etc. And I had a real appreciation for colleagues at NASA whom I'd not known before. It was fun.

Again, my opinion is that this was a time when the administration, which had been so interested in space, really beginning with President [Dwight D.] Eisenhower and certainly

continuing with JFK, [John F. Kennedy, was] now was bordering on being unaware what NASA was doing. …

The Congress, on the other hand, still had an interest in space, and the way this country works, or doesn't work; we can read [in] the Constitution, then see it in action. … [Simplistically], it's a give and take between the administration and the Congress, with the administration leading the way, presumably, and the Congress then enabling, giving suggestions, but then enabling.

With regard to space, the administration was not leading the way. It was giving no direction that I can remember. The Congress was beginning to state what it wanted done in space, and I'll come back to this in a bit. In addition, groups like the Outlook for Space gave the NASA leader a guidebook that he could follow to lead an otherwise undirected agency. …

In the course of our presentations to the Administrator and the Deputy Administrator, namely, Jim [James C.] Fletcher and George [M.] Low, I now realize they got to know me as well. [In general, they of course knew of the] astronauts, but didn't know any of us very well. George Low knew the first astronauts very well, because he had served at the Manned Spacecraft Center. But I had arrived after he had left, and he was now back in NASA Headquarters [Washington, D.C.]. …

I also, interestingly, got to know Max Faget very well, and he's a man I admired then and still do. He's just quite a remarkable individual. Not the least of which, he reminded me every day, and still does, of my grandfather, whom I adored. He wasn't that much older than I, but he just had characteristics of my grandfather.

Now I'm going to stop and think out loud a little bit. I later served on the Augustine Committee. When did that [occur]?

ROSS-NAZZAL: In ’9[0].

ALLEN: I somehow thought it was sooner. So let’s just say, ’74, so [fifteen] years later I sat on a very similar committee that’s called the Augustine Report, and there were some great similarities between the two reports; the Augustine Report considerably more professional in a way, because it drew on experts that were outside the agency, and Norm [Norman R.] Augustine himself is a genius, just a genius. He is just one of the greatest intellects of our time, particularly in engineering and science. Plus, he was—is—an extraordinarily successful businessperson, so he understood the economic engine of this nation as well as any human.

Let’s go back to the middle 1970s. Some weeks, maybe a couple of months, after our last report to the Administrators, a secretary in the Astronaut Office said, “Dr. Allen, there’s a Dr. Fletcher on the telephone line for you.” She didn’t have any idea who this was. I kept thinking through my list of physicists whom I knew to think of a Dr. Fletcher, and I didn’t know a physicist by the name of Fletcher. I didn’t know who it was either.

I took the phone call, and a voice said, “Joe, this is Jim Fletcher at NASA Headquarters. I would like to talk to you about a job. It is the worst headache in the world, but I think you would be good at it, and George Low thinks you would be very good at it, and we want you to consider doing it. We would like you to do the job. The job is to be an Assistant Administrator [AA] of NASA. The responsibility is for Legislative Affairs.”

Well, this was a sobering phone call for several reasons. One is, I had been in the Astronaut Office by then seven years, [but] had not gotten close to a spaceflight, even on a backup crew. My age was such and I was convinced that my abilities were such, I would be able

to fly aboard the Space Shuttle, when it worked, without any question in my mind. It's something that I really wanted to do. I was also aware that any individual who had left the astronaut program had never been permitted to come back, for whatever reason. So I was on the horns of a dilemma.

Nonetheless, the Administrator—I talked to George Low and to Chris [Christopher C.] Kraft [Jr.], both, and I think Chris was then the Director of the Center. If not, he was awfully close to it. This, again, would have been in '74. He certainly had responsibility for all of the operations, and the astronauts were under his wing. There was a letter written, I think by Dr. Kraft, to me, saying, "Joe, we understand you will be [serving for a while at] NASA Headquarters. It is our intent for you to come back into the Astronaut Office." Of course, a letter, if he were no longer there [at JSC even though] signed by him may or may not [be honored]. … So I was nervous about it. Plus, I had young children, and to uproot them and move to Washington, D.C., was not without its difficulties.

That said, I decided to do it. Now, the person in the job [I was to take] was Gerry [Gerald D.] Griffin, and Gerry and I had worked together very closely in Apollo, particularly Apollo 15. He was, of course, a Flight Director. Gerry was very keen on getting out of the job, and he clearly had recommended me as a good replacement.

So I moved, with family, to Washington, D.C. I was actually sworn in by Jim Fletcher, because I was now a government appointee, a high official, sworn in on a Bible that he had in his office, with my wife standing there. There are [even today] some quite interesting pictures of an individual purporting to be me, clearly a much younger person, being sworn into that job.

[After the swearing in ceremony], Gerry took me into his [NASA Headquarters] office, right across the street from [Smithsonian National] Air and Space Museum [Washington, D.C.],

not yet opened. The office looked out on the Capitol Building. … [The Capitol] was gorgeous. … I said, "Gerry, I'm a physicist. I know nothing about this [building]."

He said, "There's not too much to know." He said, "The House of Representatives, 435 people, is there on the south. They're called Congressmen. The Senate is 100 people, there on the north. Don't ever get the two confused, and if you don't get them confused, you'll be fine." He also gave me a little book that's written for eighth graders that's entitled *How A Bill Becomes Law*. He told me to read that and clued me in on a few other things, delicate problems that we were working, and then he quickly moved back to Texas.

I was there for three years. It was far and away the most difficult NASA job I had in many ways. It was [both] fascinating [and] a terrible headache. That said, I made some of the best friends in my life, an example being Don Fuqua, who was a member of Congress, a gracious and thoughtful individual, and my respect for individual members of Congress went way, way up.

I [also] got the chance to work very closely with George Low and Jim Fletcher and, again, George Low was one of the great leaders of the space program, without any question, an extraordinary human being.

I can give you vignettes of those years that will go for hours, right now, and I don't really know how to start. Well, I do know that there had been about six people in this job before me, going back to the very first one when NASA was formed, maybe five. The last one [had been] Gerry Griffin. He had been extremely good at the job. Earlier people had been either good or bad, but I think, to an individual, they had each left because of an onset of extremely bad health, at least two very serious heart attacks. [This] shows something of the pressure and tension of the job.

The Assistant Administrator's responsibility is to assure a constructive and continuing communication between the agency and the Congress, a communication that results in two bills being passed into law each year. The first bill authorizes NASA to do what it wants to do in the next year. It's called the authorization bill. The second one appropriates the money enabling NASA to do what it is authorized to do. It's no more complicated than that.

The process whereby that happens [begins with a] series of hearings held by the Congress for the members of Congress as they make decisions about what is good in the draft bills and what is bad and what they, the Congress, will agree to do. [In a nutshell], the President puts forth to the [Capitol] Hill the draft bill[s] each year. [They] come from the President. Actually, NASA drafts its own bill, what it wants, how it should read, and there [are] very important charts at the back that's called the budget; what monies it needs to do this. This draft is worked out months earlier in discussions, arguments, head-banging sessions, between the NASA Administrator and Assistants and the President. (The individuals that do it for the President are actually the Office of Management and Budget.)

[Administration officials] ultimately arrive at what they, the administration, agree is to go to the Congress. That's "the President's request." Then the Congress, for about nine months, argues over this request, and then, in a perfect world, passes judgment on what they, the Congress, agree to authorize NASA to do, and what they, the Congress, appropriate in terms of monies for NASA.

The NASA budget in the Apollo years was approximately four pennies out of every tax dollar. The NASA budget during the years I was there, I will guess, was about a penny out of every tax dollar. The NASA budget today, I would guess, is about—and this is just a guess—is probably a fifth of a cent out of every tax dollar. It reflects how our federal budget has gone up,

up, up, and the NASA budget has gone up, but from about $5 billion a year up to about fourteen, so nowhere near what the federal budget has [done]. [The NASA] size of the pie has been increasingly smaller.

There are typically a hundred NASA-related hearings each year, so there's at least a hearing about NASA every third day in the whole course of the year—a surprising [number]. And these all have to be orchestrated, witnesses have to be prepared, testimony has to be drafted, and the Assistant Administrator's job is just to make sure that gets done, if not doing it himself. So there's an enormous amount of work.

Also, [it is essential that there] is continuing and very honest, open communication between the NASA Administrator and members of Congress, because the minute distrust raises its head, there will be troubles. And I will assert that I was very good at the job. As my evidence, look at the tenor of the hearings in those years contrasted to the tenor of the hearings right now. There is terrible suspicion between members of Congress right now and what they suspect NASA's doing or not doing. It's not necessarily—in fact, I won't say it's the current Administrator's fault at all. The fault lies in large part in the hands of an Associate Assistant Administrator in NASA, no longer there, recently fired, who clearly was not being very successful, exacerbated by the peculiar signals that are coming out of the current administration, not from the Administrator's office, but from the President's office, that the Congress doesn't trust at all, and we won't talk about current politics at all right now. [The task today is to recall] past history [of NASA, the] history of space. [Our task] has nothing to do with [reflecting on] what's going on right now.

I was in the job [of AA for Legislative Affairs] for three years. In my first week, my first hearing was George Low was going to testify in front of the Senate Appropriations Committee.

The Chairman was Senator Bill [William] Proxmire, who was outspokenly anti-NASA. … Many NASA people were made very nervous by him. Jim Fletcher was one of those. Jim Fletcher, I think, could barely tolerate the man, but Jim would never say a bad word about any individual. But you could just judge by body language when the two were together, the Administrator did not like the Chairman.

George Low, in contrast, was respectful of everybody, and he certainly wasn't cowed by the Senator. [About one hour before the hearing], I met George in his office; we went out to the elevator at the old NASA Headquarters; we got in the elevator, and in an attempt to make myself feel a little less nervous, I said to George, "Well, George, you'll be in very professional hands today," referring to myself. I'd been in the job only one week.

And he smiled and he looked at me and he said, "Yes, Joe, I know. I'll be in my hands." [Laughter] Which was exactly correct. He always was a very good witness, a thoughtful witness, always completely honest.

Perhaps three weeks after I was in the job, the Administrator's secretary called me. I think her name was Frances. She [was] a very nice lady, had been in the job a long time. She was loyal to a fault to Jim Fletcher. … She said, "Dr. Allen." She always called me Dr. Allen; everyone else called me Joe. "Dr. Allen, Chairman Proxmire is calling Dr. Fletcher. Why is the Chairman calling Dr. Fletcher?"

I didn't have the slightest notion, of course. I said, "Frances, I don't really know. Why doesn't Dr. Fletcher take the call?"

"Well, he's not here right now. I've told the Chairman that Dr. Fletcher's not here right now."

I said, "Well, Frances, the schedule shows that Jim has got a meeting going on [in his office]."

She said, "He's left the building. He's walking around the building, because he does not want me tell a lie." [Laughter] So he walked outside the building, and she told the Chairman he wasn't here.

By then I had established some friendships. I called the Chairman's Administrative Assistant, a man named Tom Vandervoort and said, "Tom, the Chairman's calling."

He said, "Oh, Joe, we've got—," and he explained to me what it was. But, really, within a few weeks, I had acquaintances and, actually, lifelong friendships made with people that worked in the offices of the members of Congress, and it was useful all the time I was in that job.

I was going to say, I asserted that I was good at [the job] because of the nature of the hearings. Also, in the solid recognition on the part of the Congress that what NASA wanted to do was worth doing, and they, without fail, every year I was there, appropriated the dollars and gave the authorization that was requested, sometimes a few million short, but out of five, six, seven billion dollars, it was just a token amount [of "marking us down"]. And on one occasion, they even granted more dollars appropriated than OMB [Office of Management and Budget] wanted NASA to have. So it was a good run.

The major issues and challenges to NASA in those years were being successful in the operation of the Apollo-Soyuz Test [Project] mission, which NASA was [to fly] in 1975 [and] getting initial funding for large space science projects. [Major projects] were the Space Telescope, now the Hubble [Space Telescope] that's flying; the Jupiter orbiter probe that later was renamed *Galileo*, which was extremely successful; the successful operation of the two *Viking* spaceships that had been committed to earlier and [the] highest priority was completing

the design, engineering, manufacturing, and testing of the Space Shuttle. And these were the years where the Space Shuttle main engines were not passing [tests]; they were blowing up on the test stands and prototype test articles that involved the heat tiles were falling off prototype bellies of the Orbiters, [all in all not a pretty picture].

So the NASA was clearly facing serious development problems. [As a consequence, tough arguments were taken] to Capitol Hill with people who could articulate what the problem[s were] and what the agency intended to do to fix [them] in a way that was convincing to the members of Congress. Again, we were successful in [mounting compelling arguments].

The prototype Shuttle airframe was constructed [in 1975-76]. … NASA, in those years, ran a contest to see what [the first Shuttle] should be called, and an enormous groundswell of people, now known as Trekkies, submitted a write-in vote, *Starship Enterprise*, and NASA, [perhaps because of] way they had devised the contest had no choice but to accept [the selection. Thus it was] named *Enterprise.* There was a certain irony in that NASA forgot to mention that this ship would never go to space. But never mind that. I think elements of the Trekkies, when they found this out, thought they had really been hoodwinked big time. But the *Enterprise* was named and it was tested [as a test article flying] off the top of a 747 aircraft.

I'll tell two stories about that testing. A very important man in the Senate was Senator Barry [M.] Goldwater. Senator Goldwater had been a pilot in the Second World War, and he knew a lot about aviation. He was very proud of the aviation [success of America]. And he sat on several NASA committees, was interested in NASA and was a strong supporter of NASA, but he thought this was the most cockamamie idea he had ever seen, [the testing of Shuttle by] affixing the Orbiter to the top of the 747 and then exploding away the bolts that held it there. He knew in his gut that, once released, [the Orbiter] would slide back and hit the tail of the 747,

break it off and [everything] would be lost. He just knew it. He wanted hearings [held on this very concern].

… I talked to his staff, and said I would organize the hearing, but I requested fifteen minutes with the Senator himself to go over the aerodynamics of [the problem] a little bit. I was taken in to see the Senator. I brought a model and I said, "Senator Goldwater, I understand your concern, but I'm a pilot [as well]. Let me just talk as one pilot to another. No science here; we're just talking pilot talk." I then described for him the way the Orbiter is mounted on top of the 747, with its nose slightly high [gestures]. [In this angle] it has a positive angle of attack. When [the Orbiter and 747 sit] sit on the ground, [the Orbiter] rests on the 747 with a weight of 200,000 pounds. Nonetheless, the 747 can still lift off the ground with a 200,000-pound payload. … But I said, "It lifts off and climbs. Now, as it goes faster and faster, because the Orbiter has a positive angle of attack, it, of course, has lift. The lift causes [the Orbiter] to weigh less and less as the 747 goes faster. There is a point when it weighs nothing at all. It's not bearing on the 747 at all."

The Senator said, "Joe, I understand that."

I said, "Now, it goes even faster and it's actually now carrying some of the weight of the 747; it's tugging up on the 747. And it's at that point that we blow the bolts. So what happens when the bolts blow is [the Orbiter drops the 747], because it's carrying some of its weight."

And the Senator said, "That makes complete sense to me."

I said, "Now let me show you the calculations. The tail drops and by the time it goes below where the Orbiter is, the Orbiter has moved back only an eighth of an inch toward the tail, so it's not going to hit it."

And he said, "I understand that. Why didn't NASA tell me that before?" No hearing [was held].

Another Senator [who] sat on the Appropriations was Senator Birch [E.] Bayh from Indiana. I'm from Indiana; I know Indiana people. He was a rather liberal Senator. He was not keen on NASA. He was not a friend of NASA. He wasn't antagonistic as was Proxmire, but he didn't do a lot for NASA. I got to know individuals in his office, including [a most genuine] lady [who] ran his office, and I discovered one day that she was from Rockville, Indiana. Rockville is a very tiny town. It has maybe two stoplights, or three, max [maximum]. It is thirty miles from where I grew up in a somewhat bigger town, not much bigger. I knew something about Rockville that she did not know, and I got a photograph of the 747 with the *Enterprise* on top, flying along, a beautiful big photograph, and I took it in to this office. She said, "Joe, how are you?"

I said, "Fine."

She said, "This is for the Senator?"

I said, "No, this is for you. I brought this to you. I want to tell you something about [this photo]. This, of course, is the 747 and it's worth $300 million, and this is the Orbiter, [even more] valuable." And I said, "The 747 on these tests is flown by an individual I think you know. His name is Tom McMurtry, and he grew up in Rockville, Indiana." And he was, up until a few years—he was a very skilled test pilot at NASA Dryden [Flight Research Center, Edwards, California].

And she said, "That's being flown by Tommy McMurtry?"

I said, "Yes, that's correct."

She said, "Golly. How much is all of that worth?"

I said, "Well, it's about a billion and a half dollars."

"Lordy," she says, "I remember when Tommy's daddy wouldn't let him drive the Buick." [Laughter] She was older than Tom, but she knew him [as a boy].

[She immediately put the] picture up on [the Senator's] wall, [and to my recollection] the Senator never voted against NASA again, ever, not once. So that's a way that our laws are made. It's a funny story.

When *Enterprise* was tested, we took numbers of members of Congress out to watch the drop test, and the Air Force was happy to supply several important big airplanes to take them out there. I flew out with Mr. [Olin E. "Tiger"] Teague of Texas, who was the Chairman of the Space Committee, [and] numbers of members of the Congress. Mr. Teague was a wonderful individual. He was an awardee of the Congressional Medal of Honor. He had been nearly killed in the Second World War. He carried war wounds on him, visible, to the end of his life, including a badly deformed leg that had been repaired and put back, but he had been unable to walk on it for about a year and a half after the injury. He was a soldier's soldier. [George Fisher] ran [Mr. Teague's] office [in Congress, but earlier he had been] his master sergeant, and they had [together] fought all through Europe. [George] ran the office the way he had run the platoon in Europe. It was a no-nonsense place.

Mr. Teague had come into [Congress] out of Bryan-College Station, [Texas]. He campaigned [for his first term in part] from his hospital bed, because he still had not recovered from his war wounds. [In the mid 1940s, Mr. Teague was elected to] Congress, [and] immediately [was] taken under the wing of Sam [Samuel T.] Rayburn, and he [often] spoke so fondly of "Speaker Sam." [The Speaker had stressed to] Mr. Teague that part of a [being a] good Congressman was honesty. [Consequently], a Congressman should never receive gifts of any

kind that were worth more than five dollars. Of course, anything that came in a bottle couldn't be worth more than five dollars, so [Tiger] was very happy to receive gifts in bottles, and whenever we traveled, I made certain that there were several bottles of Early Times whiskey on the NASA aircraft. Even though our Administrator was a Mormon and didn't exactly approve of [such beverages], he did not say no, bless his heart. [Rather], he said, "Whatever the Chairman wants, the Chairman gets."

So I watched Mr. Teague fly all the way to California, drinking at least one full bottle of Early Times whiskey and playing gin rummy with Congressman Bill [William M.] Ketchum. [Gin is] a very tough mental game, as perhaps you know. At the end [of the flight], I went up to Bill and I said, "Bill, you are an excellent gin rummy player."

He said, "Joe, you're right." He said, "I am such a good gin rummy player that I've never been quite able to beat the Chairman." [Laughter] And his eyes just twinkled [because he knew that] I knew exactly what he had been doing. You could see it. Maybe that's another way [our] laws are made.

The first [drop] test [of the Orbiter] took place very successfully. A story that I'm very fond of [relates to that first test. There we all were]—members of Congress, a handful of us NASA people, including Dr. Fletcher—[watching as] the *Enterprise* gets lower and lower, [about to touch the desert bed], and suddenly Jim Fletcher realizes the landing gear's not down. [In a near] panic, [Jim] begins to shout, "Landing gear! Landing gear!" Well, the landing gear then pops out, comes down, and [locks in place for the landing just seconds away]. The flying procedure is you can't put [the gear down] until the airplane's going [less than] a certain speed lest you rip [the gear] off. And that speed [occurs only when the Orbiter] is very close to the

ground, so [the scene] is unnerving to watch, no question. You see it in Space Shuttle [landings, the gear] comes out right before touchdown. It's the same procedure.

[As] we were walking back, Dr. Fletcher comes up to me and he says, "Joe, I am very upset with myself. I'm so embarrassed [with myself for shouting], and you should have told me that the landing gear [would] not come down until the last moment. Why didn't you tell me?"

I said, "Jim—," and I usually called him Dr. Fletcher, but I said, "Jim, my responsibility is the Congress, communication to the Congress. You did not hear one member of Congress shout 'Landing gear!' They knew when it was coming down. You talk to others on your staff."

He said, "You're correct. You're correct about that." … He was [a] gracious [and honest individual].

I had such happy feelings about that flight, because Fred [W.] Haise [Jr. was the chief pilot aboard], and Fred had flown Apollo 13, [the flight in which the crew] almost didn't get back. Then between Apollo 13 and the landing tests, Fred was in a single airplane accident and had been horribly burned, terribly burned, and had recovered over a period of probably [four] months in the burn ward [at the Medical Center] in Galveston, Texas. … He nearly didn't live through it, but he did [yet much of his body is] still horribly scarred. Have you talked to Fred?

WRIGHT: We didn't get to talk to him, but he's been talked to.

ALLEN: We split up duties in the Astronaut Office to sort of [baby]sit with him, and I always had the nighttime duty, so I sat with him many, many nights there. I was an astronaut without many assignments, so I was on the Fred Haise "watch" a lot [and I was personally aware of the

suffering he had endured. Thus], I was thrilled at his successful flight, because [through it in a sense he] got the monkey off his back by flying successfully [again].

During the time I was in NASA Headquarters, [I spent time again with a] friend of mine from the Apollo years, Mike [Michael] Collins. Mike was the Curator of the Air and Space Museum as it was being designed, developed, and built. Mike had left Apollo 11 and done several things, including gone with the State Department [until he] decided that diplomacy was really not his cup of tea and he'd left the State Department. He was in the private sector [for a while], then he [was] engaged to be the curator of that museum. [Under his leadership, the Air and Space] Museum was opened on time and under budget. When that happened, I told Mike that he clearly had now failed still again as a government [employee. Being] on time and under budget [is not done in our government]. …

One of the pioneering things the Air and Space Museum did [was to include] an IMAX theater. IMAX had just been invented, and there were no IMAX movies as yet. [The museum] organized to have commissioned the first IMAX movie, which was called *To Fly*. … [Both the original movie and the IMAX format have] been a spectacular success.

[Mike] and I were so pleased by [the IMAX success], that we began a campaign to get an IMAX [camera] aboard a Space Shuttle, although the Space Shuttle hadn't even been successfully tested yet. We got some documents—[memos and letters—into] the system, even in those early years, that ultimately resulted [I think] in IMAX being allowed to go aboard. I was keen on [IMAX] because I'd always been very interested in photography, and I still am. When we get to the Space Shuttle missions, I can speak to that some more.

Mike and I were good friends in the city [of Washington]. We would run on Saturdays and then we would play handball early in the morning at the Pentagon through the week. Mike

was one of the most skilled athletes in the Astronaut Office. He's very skillful at handball and a very skilled squash player. …

He got me sort of interested in running, and the job I had was so frustrating that, really, it was helpful for me to take out my frustrations just by running. One day he said, "Joe, they're starting a marathon around here. They're going to name it the Marine Marathon, and I think you and I should run in it."

I said, "You're out of [your] mind."

But he said, "Oh, come on. We'll just run together and we can do it." So he got us signed up. I think it may have been the second Marine Marathon. … But we ran in it together, and we both finished it. We were both—let's see. I have to calculate how old I was then, but I was in my forties, maybe forty-one, forty-two.

We finished it, and I declared, "Boy, that's it for me. One's enough," as I ached the next day and the next.

On Wednesday, Mike called me, "Joe, good news."

I said, "What?" I said, "I don't want to talk to you again."

He said, "Good news. We ran that so fast that we're qualified to go run in the Boston Marathon." [In those years], Boston was the only marathon that you had to qualify [to enter], and since we were older than forty, had qualified to go run in the Boston.

I said, "Mike, I'll kill you." Well, we later ran in the Boston marathon as well, [and I finished in a time of three hours]. …

When he retired from that job as the curator, as part of his retirement party, I donned running gear and came in like an Olympic runner, carrying a torch, and gave him some awards. That was there on the floor in the Air and Space Museum after hours. …

An individual had gone to see Mike because the NASA was thinking about a broader astronaut selection of sorts. The individual [who] had gone to see [Mike] was an engineer [who] worked for Xerox. Mike had sent her to see me, and that's how I got to know Judy [Judith A.] Resnik. She came to see me [at NASA Headquarters] and talked about applying [to the Astronaut Office], and I encouraged her to apply. Her age was good, her skills were obviously going to be very competitive, and she was a no-nonsense engineer. … [I have thought about that first meeting many times since then.]

I left NASA in August of '85. [At such times], you're always asked to give speeches [in public forums. I refused most but did agree to give a] last talk as a NASA astronaut; I would talk to the teachers, the teacher applicants [for the Teacher in Space]. I came from JSC, flew into Andrews [Air Force Base, Maryland], and Judy Resnik [came] with me. The two of us gave the lecture to the applicants—[a hundred or so finalists]. Two from each state, plus maybe a territory, or [two]. Then the next day, [Sharon] Christa [McAuliffe] was selected, with Barbara [R. Morgan] as her backup. Just the poignancy of all that, because then later, Judy, of course, was assigned to the flight with Christa, [the flight destined to be the last flight of the mighty spaceship *Challenger*]. …

One more story from those years as Assistant Administrator. NASA was going to land the *Viking* on Mars on the Fourth of July, in '76. It turned out there was a horrible dust storm on Mars and so NASA wisely waived off the landing. I think your records will show that it landed on either the 19th or the 20th of July, when the dust storm abated. [That] itself [is] interesting, because [July 19-20 is] Moon landing day, more or less. When NASA decided to [land then], I was furious, because our main hearing in front of Chairman Proxmire for appropriations on an extremely difficult appropriations bill had been scheduled for weeks and it was going to be the

day after the attempted Mars landing. I thought, "This shows that NASA is an engineering organization; it doesn't have the vaguest clue about politics. This is really a bad idea." I raised [this political disconnect] in Administrators' meeting, but everybody [decided], "Well, we just have to do what we have to do."

[At that time], Tom [A. Thomas] Young was one of the *Viking* managers at NASA Headquarters. [He was] later to become the president of the Martin Company—and this is the Tom Young that has run many major studies of NASA in recent years, some of them very critical about our current NASA. The *Viking* [landing] was [totally] successful.

I was at my office at about six the next morning, preparing for the hearings, and Tom brought to me a box of buttons. [Each button] was a smiley face with the words "Hello, Mars" [across the smile]. … [Tom] thought [these buttons] might be useful to give to the Senators and so on. And Jim Fletcher, to my astonishment, put one on his coat as he went up to testify [and prior to the testimony, handed one to NASA's nemesis, Chairman Proxmire].

… Towards the end [of my Headquarters assignment], I was asked to come up to see George Low, and I was taken into his office with his assistant at the time, just the two of us, and he said, "Joe, I want you to hear this, and Ann, I want you to hear it, because we have some homework to do." … He said, "The subject that I want to address is my leaving NASA. I will leave NASA in two weeks." I was flabbergasted and shocked. I could not believe that he was going to leave. "I'm going to leave NASA," he said, "to become the President of RPI," Rensselaer Polytechnic [Institute, Troy, New York], which was his alma mater and it's one of the great engineering schools, universities, of the nation, no question about it.

We had to notify the Congress [and many related VIPs (Very Important People)]. We had to draw up press releases, and I can remember I had a hard time doing that, because I was

having to read these through tears in my eyes. I didn't want him to leave NASA, and I was fearful about that, because he was such a brilliant man and such a leader, that I had just a bad feeling in the pit of my stomach. Without people like George around, on this extremely difficult assignment, we've been through some catastrophes, and we're going to have more in the future. It's just too nonforgiving an environment without extremely smart people involved.

Well, [George] became the President of RPI, and [he personally led] that university to an entirely new level [of recognition and accomplishment] over the [next] years. I actually was there after he had been there about six months, I think, and I was there, I will say, on the 17th of April, because I gave a lecture. He asked me to come up and give a lecture on science. I went there, met Mrs. Low and George Low, and then gave a lecture to a colloquium [in] a very elegant hall, and as I recall, [I gave a very] good lecture [about recent discoveries in space science]. …

The one thing that was a bit awkward was [in order to] get to the podium, one had to step over a railing that was that high [gestures], because it was a room that actually had been used as a church at one time. This railing had a bar that you could lift up and walk through it or you could just step over it. George stepped over it, then he introduced me and stepped back. I went to it, I reached down to raise the bar and walk through it to get up. I thought, "This looks bizarre." The reason I raised the bar, I had actually run the Boston Marathon that morning and I couldn't lift my leg any more. I was fine, but I was having muscle challenges in my leg, so I didn't want to trip and embarrass myself completely by going over this small bar. I had not told [George] that I'd [run the race earlier], because I had committed to give the speech before Mike had entered me in the Boston Marathon. …

It was now time for me to go back [to Houston, Texas, and again be on flight status]. The Shuttle had been more successfully undergoing tests and the NASA had selected thirty-five new

astronauts. I asked permission to report for active duty one day before [the new astronauts arrived]. More superstition than anything, but I didn't want to be considered junior to thirty-five people, having been associated with the Astronaut Office for [longer than they].

[In their first night there], I was introduced by George [W. S.] Abbey as the thirty-sixth [astronaut]. He said, "I told you there were thirty-five; there are thirty-six. This is Joe Allen."

I gave a little talk and I said, "Yes, what Mr. Abbey said is true. I had come earlier and I had some problems as an astronaut candidate, and as a consequence, I was banished to NASA Headquarters for three years. Don't let this happen to you." I thought this was rather amusing, and I think Mr. Abbey thought it was humorous, but I was surprised when some of the thirty-five didn't laugh at all. [Laughs] They thought I was telling the truth and they were very concerned over, for goodness sake, what had I done, so they wouldn't do the same thing.

… [As my first assignment back as an astronaut I] then became involved in early flight techniques meetings and was assigned support crew to STS-1, with [John W.] Young and [Robert L.] Crippen, and worked in that capacity until STS-1 flew and served as the reentry CapCom [Capsule Communicator] for STS-1.

Those were busy and challenging years, and certainly that flight is unique in human spaceflight history, certainly unique in the United States. It may be unique in the world, because it's the only [space] vehicle that I know of that was tested the first time with humans on it. [This] would never be done again, not even close. Those two individuals are heroes in every sense of the word, bold in the extreme, and I think they themselves will tell you that they're lucky to be alive.

But the systems worked exactly as Max Faget had engineered and designed them, and as Chris Kraft and others had organized the flight techniques and operations. That flight was as

good as any flight we've ever flown. As they say, the rest is history, including the videos of John and "Crip" walking around underneath, looking at all the tiles [that] were still there, and John so excited about the tiles [being] still there, and giving credit to the American working man and woman to getting it done. It was as great an event in many ways—well, an engineering feat [as great] as the Apollo landing was, I think. …

A lot of interesting stories about getting ready for that.

ROSS-NAZZAL: I wonder if this might be a good place for us to stop and pick up with. We're running close to your time.

ALLEN: I'm going to tell one story.

ROSS-NAZZAL: Okay.

ALLEN: Yes, it may be.

My wife and I had moved back to Texas, and we had an automobile that we'd had since we left Texas. The winters up here had not been kind to it. It probably was meant to be driven in Houston, but it wasn't meant for the snow and ice and the salt [of the Northeast]. This was characterized once, during a simulation when during kind of a down time, one of the controllers—in fact, it was a man named Ed [Edward I.] Fendell said, "Flight, can I ask a question of CapCom?"

"Yes, go ahead, INCO [Instrumentation and Communication Officer]."

"Yeah, CapCom, I saw your automobile out in the parking lot today. I didn't realize that Rust-Oleum made a car wax." [Laughs] They were just kidding me about it. So I took a lot of heat about my car.

When we got ready to fly STS-1, I was support crew to Young and Crippen, I was also an assistant to George Abbey. I was the "Bubba." He said, "Joe, we're going to go take John and Crip out to the airplanes. Come with me."

I said, "Fine. Why do you need me?"

He said, "My car won't start."

I said, "Oh, terrific." He couldn't get his car started. I said, "Okay," then we went down and we got in my car. I'd had lunch with them the day before, and John hadn't had any money, so I'd bought his lunch for him. We got in the car and John reached in his flight suit, and he took out the money and he gave it to me.

I said, "Come on, John."

He said, "No, you don't go fly these things when you got debts." He paid me. He was correct, and I was correct to accept it, so he had no debts. "All my debts are paid," he said.

We're driving out there [to Ellington Field, Houston, Texas], and as we get there, I realized that I can see television antennas out near the airplanes, and just a terrible chilling thought goes through me. First of all, these guys are going off to goodness [knows where]. The second is, they're going to be getting out of my car on television and my wife is going to see it and she's going to be so mad, she's not going to talk to me for days. I said, "You guys, I've got a favor. This sounds a little peculiar, but I can't really—can I drop you at the parachute shack?"

George said, "No, their parachutes are in the airplane."

I said, "I just need to drop you [out of sight of the TV cameras. Then] you just walk out."

John said, "Oh, I get it. It's the car."

I said, "Yes."

He said, "Be happy to." And so I dropped them behind the hangar, and they walked through the parachute shack, and then out without parachutes, because their helmets and parachutes were in there, with the television all over them. Then I quietly went back. I just could tippy-toe away.

That's the story I'm going to tell, and that's a very important part of history. Not. But what I think is the important part of history is their attitude and clear bravery in the face of just an impossible assignment.

That's a good place to stop.

[End of interview]