

**NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT
ORAL HISTORY 5 TRANSCRIPT**

JOSEPH P. ALLEN
INTERVIEWED BY JENNIFER ROSS-NAZZAL
MCLEAN, VIRGINIA – 18 APRIL 2006

The questions in this transcript were asked during an oral history session with Dr. Joseph P. Allen. Dr. Allen has amended the answers for clarification purposes. As a result, this transcript does not exactly match the audio recording.

ROSS-NAZZAL: Today is April 18th, 2006. This oral history with Joseph P. Allen is being conducted for the Johnson Space Center Oral History Project in McLean, Virginia. Jennifer Ross-Nazzal is the interviewer.

Thanks again for joining me for our fifth session.

ALLEN: Thank you, Jennifer, thank you. Is today the hundredth anniversary of the San Francisco earthquake?

ROSS-NAZZAL: I think so, yes.

ALLEN: A very interesting day today.

ROSS-NAZZAL: I wanted to start, actually, by going back and asking you about something we should have talked about in your first interview, and that's astronaut desert survival training in Washington that you participated in in 1967.

ALLEN: Ah, yes. Well, I do have some recollection of it, and it's just one of several survival schools that the early astronaut training had us go to. If memory serves me, one was water

survival, another was jungle survival, and then there was desert survival. I believe the desert survival may have been the first. The way NASA does that, of course, is they outsource it. They hire the military to provide military training, because the military runs survival schools on a very regular basis. The military officers are going through these survival schools at a relatively steady rate. So NASA just booked us into a class, and we were that class. There were not other active-duty officers there with us. The standard set of instructors gave the classes, though.

By and large, military survival schools consist of two parts. One is a classroom, where you learn about things you're going to be facing, and the second part is an exercise in the field. You're expected to survive for a day and a half or three days, whatever it is.

The fundamental lesson, I remember, from all the survival schools is: don't panic. Every survival situation, at the hands of the military, has a survival kit that comes with it. In the kit is a survival manual, a handbook, and you're to read the handbook, believe it, and don't panic. Follow the book's directions methodically. Don't panic, because the idea is really just survive. Don't make big waves or panic. Just survive, and we, your military buddies, will ultimately find you and save you.

In terms of desert survival, obviously the idea is to conserve whatever liquid you have, and don't aggravate the situation by a lot of activity such that you lose perspiration. I think the training was really not much more complicated than that. This school took place in eastern Washington state. We were taken as a group from Houston, Texas, I think your records show in August.

ROSS-NAZZAL: Yes.

ALLEN: Just weeks earlier, my wife Bonnie and I had newly arrived in Houston, Texas, from Seattle, Washington, the nice, cool part of North America. We had arrived in our only automobile, which did not have air-conditioning. As we got into Texas, we began to wonder why so many people were driving with the windows rolled up, because it was really hot. Then we realized that most cars are air-conditioned. Sadly, ours did not!

It was extremely hot in Houston, and now we were to go off to survival in an even hotter situation. Well, we found ourselves being shipped to eastern Washington state to the desert, which is delightfully cool in August compared to the way it felt to me in Houston. I remembered, "The government is very strange in the way it does things. This makes very little sense to me."

Nonetheless, the few days took place, and in addition to the lesson that the military taught properly, I also remember the extraordinary hospitality of the community there. We were welcomed as VIPs [Very Important Persons] for reasons that were difficult to know, and given several quite nice receptions prior to the exercise and after the exercise. It was the most comfortable survival circumstance I was ever put into, let me put it that way. I think that even lest, we get too uncomfortable, contrary to the policy, they provided us with more to drink when we were out in the desert than we should have had; but I'm not exactly certain. That's kind of what my recollection is. I don't know that I have a lot more about it than that.

Jennifer, I have enormous boxes of photographs that I will go through, and many of them are from the survival schools at NASA. I've only just started with eight-millimeter movies and super-eight movies. I've just had these home movies transferred into DVD [Digital Video Disc] formats, and there are some wonderful snippets of the young Neil [A.] Armstrong and the young

“Jack” [Harrison H.] Schmitt at launch sites at the Cape [Canaveral, Florida], and the young Gene [Eugene A.] Cernan as we mill around waiting for the various Apollo launches.

ROSS-NAZZAL: Are these your personal—

ALLEN: These are all mine. I’ve taken photographs my entire life, since I was a boy. That’s the good news. The bad news is I have kept almost no records, but I have both the films and the photographs, and I will methodically start to go through those. There may well be some that would be of interest to your archives.

ROSS-NAZZAL: Absolutely.

ALLEN: You know, looking several years in the future—which I would be more than happy to give to you if they show up.

ROSS-NAZZAL: Great. Well, I’ll give you that information. I know that the archivist is looking for personal effects.

ALLEN: Right. Well, I definitely have a lot from these survival schools, and they’re quite fun photos.

ROSS-NAZZAL: Yes, that sounds like fun. I wanted to ask you next about your book, *Entering Space*. Why did you decide to write that book, and what was the reception of the book?

ALLEN: The reception of the book was extraordinary. I think it went through eight or ten printings. The reason I wrote the book was the photographs. I worked very hard in my early years on space photography, because I was interested in cameras, but some quite early space photos were not very good. The reason for the poor photos in my view was not the fault of the astronauts who took them. It was the fault of the photo equipment given to early space flyers,.

For example, the first movie camera that was to have gone aboard a Space Shuttle had a military number attached to it. The camera was originally designed for taking movies of artillery tracers. It looked like it came from an Army surplus store from the 1930s. You did not have an easy way to focus it. You were uncertain of what you were framing; you just framed it through a sight on the top. You had to guess at what the exposures would be. I think NASA, early NASA, didn't give much attention to photography. NASA officials were so worried about the spaceships, they just went to the most battle-hardened photo equipment they could find and put it aboard.

That upset me, because cameras were increasingly capable, and all cameras were amongst the most tested of objects we humans use, mostly tested by people in the news business. The cameras are thrown around. They're abused. They're used in storms, disasters, and in wars. As a consequence, they're engineered and reengineered until off-the-shelf cameras are amongst the most rugged of instruments that we can buy today, and it has nothing to do with NASA's making them ruggedized.

I liked the photos and worked on them hard. When the Space Shuttles first flew, there were a handful of good photos that came back from the missions, and there were, as you well

know, some wonderful photos that came back from the Moon because of the Hasselblads that NASA put aboard.

By the time the Space Shuttle number five flew, although there were some good photos coming back the news media was typically interested in two or three the day after the landings. By the way, these photos came back in film form. They didn't get beamed down the way the photos come down now electronically. It was really old technology.

STS-5, on which we flew, had some terrific photos taken, and I'll take credit for some. I didn't take them all, but I set the cameras up for all crew members to use. I think far and away the best photo taken of me in space is one taken by Vance [D. Brand], and it was taken with the Hasselblad in available light. Again, the photo people said, "No, the Hasselblads are for taking pictures outside. Use the small format camera for inside photos." We improvised and took some gorgeous portrait photos with the Hasselblads in the spaceship.

There was only one photograph published, as I remember, in *Time* magazine, and it was a photograph of the four of us crew members that I had set up and taken with a delayed timer. I told you the delayed timer story, I think.

ROSS-NAZZAL: Yes.

ALLEN: I won't go into that again. But it appeared—well, I also have spoken about this, because I had taken some photos, just a handheld camera, out on the launch pad before the launch; given it to the technicians out on the launch pad with you to take back to the photo labs. I think John [W.] Holland ran the photo labs then. To my surprise, when I returned, my wife had magazines

where some of those photos had already appeared in magazines. I was thrilled that NASA had printed them and said, "Hey, these are good photos," and made them available to the news.

After the flight, however, the only flight photo that appeared in *Time* was the one of the four crew members, and I was looking in the photo labs at maybe five hundred, six hundred gorgeous photos. I said, "Maybe I should think about doing a book on just photographs with captions." Jennifer, about two months after that flight, Bonnie and I came to the Northeast, and we accepted an invitation at a very elegant home in the Hamptons. It was an invitation from Lynn Sherr, ABC's Lynn Sherr, married to quite a wealthy man.

Also weekendng at the home was one of her friends who ran a boutique in the Upper East Side of New York City, New York, very fancy boutique, a lady named Diane Love. Lynn had helped me with how one takes some videos, and so that weekend we were talking about photography. Diane Love, whom I only met that once, indicated that her brother was very interested in photography, and indeed, her brother was a publisher.

His name was and is Andrew Stewart, Andy Stewart, and he was the principal in Stewart, Tabori, and Chang, a book publisher in New York City. This publisher's books, by and large, were art books or books about museums, or in some cases, about cooking. One of the books that Andy had been instrumental in publishing was one written by his wife, Martha Stewart. They were a couple at the time. They had one daughter. Andy is quite a handsome gentleman, tall, very well educated, and very much into the art world. It was wonderful fun.

Well, his sister put me in touch with Andy Stewart, and I think Andy came to Houston to meet me, because I said to him, "All of these photos are public property. You can have them. I will help you go through them, and I will be happy to help with the captions." He, of course, is a businessperson, and he wanted to know what kind of a contract I needed. I asked some NASA

people, and it turned out because I was a government employee, I could not accept any money at all for doing this. I would have to work on the book only on nights and weekends, which didn't bother me a bit. But he, as an individual, loved that, because that meant his firm paid no royalties to an author and didn't have to pay any rights to get the photos.

So I think that probably swung him to say, "Well, it's a little unorthodox, but why don't we do it." He also came into the photo lab and began to go through some of these photos. He was so excited, because he knew good photography. He said, "Yeah, we'll do this." So we agreed. We just agreed on a handshake to do it. We started to go through the photos, and I started to build the captions, and he went away to think about it. In about a month, he called and he said, "Joe, this is not going to work. We need text. It just can't be photo captions alone."

I said, "Andy, I can't do text," and because I was then starting—I think I was already in a flight rotation again, and I said, "I'm not available."

He says, "Not to worry. I know a young man who is an extremely good writer, and I will put you in touch with him, and the two of you will be the authors of the book." He introduced me to a fellow named Russell Martin from Cortez, Colorado, one of the most interesting individuals I've ever met. Russell is still a wonderful author of books. He's written—I'm not sure what his last one. He wrote a book called *Matters of Gray and White: A Neurologist, His Patients, and the Mysteries of the Brain*. It was about the human brain. He wrote a book called *Cowboy: The Enduring Myth of the Wild West*, published by Stewart, Tabori, and Chang, that is an extraordinary book of photographs from the Old West, from the West, and Russell did the text for that.

Russell and I sat down with tape recorders, and we began to talk about the STS-5 flight, but also about the human experience in flight. I don't know if you've looked at the *Entering Space* book recently, Jennifer.

ROSS-NAZZAL: Not recently. Probably about a year or two ago.

ALLEN: But if you look at it, it's basically just an account of what it is like for you to go to space, for me to go to space. It's not about the flight of Joe Allen, but were you to be there, the text describes what you would experience. Russell then developed an outline, and pretty much, we just dealt out the chapters, and I would try my hand at one; he would try his hand at another, and then we would swap drafts.

He was a wonderful help to me on this. I would call your attention to the preface in that book, because I thank him in that. I can't quote myself, but the sense of it was Russell was such a help. I said he was an expert on horses and cowboys, and never mind the fact that an astronaut is a bit of a cowboy, but the horses used are millions of them—in the power of the rockets—rather than one, but oftentimes their nature is very much the same, something like that.

But he and I really did work hard on the book. Writing was a terrible headache, terrible, as you know from writing papers. It's no fun at all. But when it's finished and it was published, I was suddenly really extremely pleased with how the book had turned out. A lot of the credit goes to Russell; a lot to Andy, who took personal interest in this book; and an additional credit to the book designer, a man named Hans Teensma, who had been born in Holland. The three of us, Russell, Hans, and myself really had a great time doing the book, and then were every pleased with the final product.

I think it's been published in about six languages, and I've got a copy of the book in each of these languages. To my astonishment, a colleague of mine recently brought me a catalog from a rare book auction house, where they have such things for example as first editions of Robert Louis Stevenson "for sale in good condition." They advertised a first edition of *Entering Space* in there, signed by me, for sale for \$500. Wow, I couldn't believe it. The books are now all gone, and they're out of print. Stewart, Tabori, and Chang is out of business. I think my book may have been their most successful book. They made a lot of money on it, but the success didn't sustain them as a business.

Then this need not be part of history, Jennifer, but Andy and Martha were obviously, they were both very, very strong individuals, and Andy sometimes privately referred to her as "the dragon lady." She began to get increasingly successful, for all good reason, and Bonnie and I once were invited to their house for dinner in Westport, Connecticut, and attended.

Later when we were doing the second edition of the *Entering Space*—the edition with the STS 51-A chapter in it, and it sold every bit as many as the first—the Stewarts came to Houston, Texas, and I said, "Well, you'll come to dinner."

Andy said, "Fine. We'll be happy to."

I went home and told Bonnie Martha and Andy Stewart was coming to dinner, and Bonnie said, "Not to my house, they're not." She was quite intimidated by Martha by then, and thus it was my responsibility to make certain they were entertained. We took them to the Cadillac Bar and Grill down on Shepherd Drive, where Martha became very intrigued by the cabrito being cooked, and she was also quite intrigued by the tequila being sold. That's another story which I won't put on the record

ROSS-NAZZAL: Well, these are great anecdotes.

ALLEN: But now what else to say about the book? Not so much, other than ever since, Jennifer, if I'm out and giving a speech, more often than not an individual will come up to me afterwards with a copy of the book to be signed—of course, these are the people that are space buffs, and so I'm very pleased to do. I got a number of letters written to me by people that have read the book and enjoyed it. Many of them I still have.

One of them was an all-time favorite. "Dear Dr. Allen, we're a family of four children and, in the evening, we always read books to the children, or bedtime stories. I began to read excerpts from your book to my six-year-old son, at the beginning of—." He's in the first grade. He said, "You'll be pleased to know that he's now—let's see, he's in his first few months of his second grade, and he's able to read a few of the passages from the book to me."

Which I really enjoyed this letter because I had wanted the book to be in language that any man or woman on the street could understand. No NASA jargon, very little scientific jargon, just English, good, simple English language. I didn't know if I'd succeeded, but when I got the letter, I thought, "Maybe I overshot. Maybe it's too simple." [Laughter] But he was certainly a very precocious youngster in the second grade who was doing the reading.

Okay, I don't have anything more about the book that I have to say.

ROSS-NAZZAL: Let's talk a little bit about the *Challenger* accident and then your work with the Challenger Center, and how you became involved with that.

ALLEN: Jennifer, when I left NASA in the summer of '85, so this is post-NASA, and I think that some of this I've put onto your tapes before. I apologize to you. You probably remember, and I don't. Stop me if I've said this before, but I decided it was now time to leave. I was—I'll do the calculation—what was I? I was forty-three, I would have been. If I ever was to leave, now was the time. I'd also been on two missions that, to my mind, had a very interesting, simple symmetry. The first had to do with carrying the first cargo to space. The second had to do with salvaging the first cargo to be brought back from space. During my first mission, the spacewalk had failed. During the second one, the spacewalks had worked beautifully, even including overcoming really huge difficulties, but we had gotten through it. So after my second flight, I didn't have anything stuck in my throat, so to speak, that was totally unfinished.

Additionally, Bonnie had suffered through this dangerous occupation for eighteen years and desperately wanted me to be out of the business and with reasons that every one of us can understand. So we decided to leave.

I was pretty certain I could be appointed at a relatively high level within NASA again, because I had earlier been an Assistant Administrator at NASA, thanks to George [M.] Low and Jim [James C.] Fletcher. Somewhat to my dismay, none of the NASA higher officials had anything they thought they could offer me, not even a deputy position at a research Center. I didn't really think going into a directorate at JSC made much sense, because we'd lived in Houston a long time.

So I then thought, "Well, I'll go back to university." That said, I was many—let's see, '67 to '85, 18 years out of the university. I would have had to have gone back to school for two years to retread my Ph.D. in physics, and I could have probably done that, but at a fairly low

level. And we didn't have the money or the time for such a delay in salary. My third choice was to enter the business world.

Flown astronauts were still hot property with the big aerospace companies, and there would be no problem getting hired, and I indeed was talked to very seriously by people at Rockwell and Lockheed, individuals I had known through the space business and liked very much. But I could not understand why business people wanted to hire a forty-three-, forty-four-year-old individual who knew nothing about business, and give me serious responsibility for a business. It didn't seem right.

So I decided I would go with a small business, where I could learn about the business world. I went with Max [Maxime A.] Faget, who had just started Space Industries. Max was a dear friend of mine then and was till the end of his life. I admired him greatly, and I know that I've said that he reminded me some of my grandfather, a Methodist minister, whom I adored. The similarity is a little bizarre, but the two had an approach to life that was very similar. Max's was a little more profane, but nonetheless, the approach was the same. And Space Industries was started.

Now, tell me, what question did you get me on?

ROSS-NAZZAL: I was asking you about the *Challenger* accident.

ALLEN: The *Challenger*, right. This is important, thank you. We had a perfect business plan for Space Industries not very much money, but a perfect business plan. Well, it turned out the plan had some imperfections. For example, Space Industries had to depend on a robust space transportation system. So on that fateful day in January of '86 when we lost the *Challenger*, we

had a business with just enough start-up money to sustain ourselves for two or three years, but we now no longer had a space transportation system. We were essentially out of business.

I was also heartbroken, because I knew every person aboard, and with the loss of Challenger I lost seven family members. That's no more simple way to put it.

Also at Space Industries, though, was a man named David [H.] Langstaff. David is the male version of the "Unsinkable" Molly Brown. Although then still young at the time, David had already faced many challenges and trials and tribulations, but none of them got the best of him, and this one was not about to. Although we didn't have a business, David said, "Look, let's just stand down for a little bit. Let's you and me work on doing a benefit concert to raise money for the families."

A concert was put on in Jones Hall in Houston, Texas, and I'm certain—and I think it was in April, so it would have been about twenty years ago—that there are surely news accounts of it. I think it is the only time, Jennifer, where all the performing arts of Houston were brought together at one time. Each put on a performance as a benefit, and Jones Hall was sold out. John Denver served as the master of ceremony. He had even written a song for the occasion, "Flying for Me," which he performed for the first time there. I remember something like \$100,000 were raised, which were put into a trust fund that was being set up for family members of those souls lost aboard *Challenger*.

Now, also during that time, because I was no longer at NASA, I had become the Chairman of the Space Foundation, which was a sort of commercial space entrepreneurial club. We had a luncheon every month or something, either out in Clear Lake, Texas, or sometimes downtown Houston. Just in being around the area, it came to my attention that someplace in Building 1 were these stacks of letters being received, condolences. Someone had decided that

the monies being sent to the families could not be accepted; this money had to go back to the individuals sending the money.

When I found out about such a stupid decision, I was infuriated, because I thought returning the money was discourteous to those who had sent the money. Sometimes it was pennies that children had put in envelopes. It was discourteous; it was heartless; and just because there was a government policy about the government couldn't accept money on behalf of. Totally beside the point.

I met, I think, with Hank [Henry W.] Flagg, the chief lawyer at JSC. We together decided that, "Well, we can just put the money in the hands of the Space Foundation, and the Space Foundation, which is a not-for-profit entity with an official board of directors, etc., it will be fine." So that's what was done. So monies from the benefit went in with monies coming in from elsewhere. Then ultimately the monies were transferred to the family members in some sort of a formal way; I can't remember quite what.

About that time, also in April, June Scobee had a meeting in her living room on a Saturday morning. "What do we do with these monies?" The families decided that the mission of *Challenger* was a mission of education, and the mission should continue. Thus started what became the Challenger Center, a learning experience, and it evolved over years.

The first thing that was done was a simulator was conceived and actually built there at the museum in Houston. It was built by Carolyn Sumner. Do you know her?

ROSS-NAZZAL: I know the name, but I'm not sure I know her.

ALLEN: She's an educator who is still there, and she was involved—she's a science educator—was involved with the museum. She's still involved with the two Learning Centers in Houston. But that was, and actually that idea, was June's—well, June's with her fellow widows, and Chuck Resnik, Judy's brother, was involved. Steven McAuliffe, Christa's husband, was involved, before he became a federal judge.

Well, the Space Industries, by changing its business plans dramatically, evolved, evolved, evolved, and changed business plan every year, but somehow still further proof that David Langstaff is the “Unsinkable” Molly Brown, Space Industries wound up going onto the New York Stock Exchange under the name of Veridian with the trading symbol VNX. Thus, we had survived as a business.

The way we did is we sold ourselves to a company who wanted good managers, and they thought we would be good managers. Then two years later we bought ourselves back, because under our management, the company wasn't doing very well, either. But we were able to get ourselves refinanced in still a different business venue, and in June of I think '03, we became an “overnight success” in going on the New York Stock Exchange. Never mind the fact that it had taken us eighteen years to do it. Let's see, is that right? '80, '85, '95, '03, and we went on in '03, right.

A year later we were bought by General Dynamics, somewhat to our surprise, which meant that David and I no longer had a job, properly so. But, Jennifer, virtually every one of our 8,000 employees had a continuing job with a very good, large corporation. And because many of them had purchased shares of us, of Veridian, in a savings plan as we evolved and grew, and some employees owned serious chunks of the company, and General Dynamics bought us for \$35 a share, cash. That profit went into their savings plans as a nontaxable transaction.

So I take considerable joy in knowing that in 2003 and in 2004 when General Dynamics bought us, we did exactly the opposite of Enron, also a company from Houston, Texas. We guaranteed the continued employment of our employees, whom we cared dearly about, and we made many of them wealthy, rather than causing them to lose all their retirement, which is what Enron did. I don't know if you know any of the Enron folks in the Houston area.

ROSS-NAZZAL: I don't know any of them, no.

ALLEN: Oh, it's a total tragedy. Many of them were in their forties, fifties, sixties, no job and no savings plan at all left. All gone. And Mr. [Jeffrey K.] Skilling is explaining how that came to pass, even as we speak, right now.

Okay. I followed Challenger Center with considerable interest as it evolved, for probably five years, and then June asked me to come onto the board, and I agreed. That would have been after I had left the Houston area and we'd brought the business up here, so it would have been in the early nineties. So I think I've been on the board about fifteen years, and I've been the Chairman about nine, which frankly is a privilege and an honor; it's also a heavy responsibility, and I'm now old enough to—it's now time to be getting additional new people involved, because it is a continuing challenge.

We're fifty-one centers now. We grow about three a year. There is considerable irony in knowing that twenty years ago this month the first center was built, and it was to kind of celebrate the mission of flight 51-L. A few weeks ago the fifty-first center was built. Isn't that weird?

ROSS-NAZZAL: Where was it built?

ALLEN: In Mississippi. I think it's Hattiesburg; I'm not exactly certain. But it became operational. It's quite extraordinary, a weird coincidence. Indeed, it was dedicated by June a couple of weeks before the twentieth anniversary of observation of the tragedy at KSC [Kennedy Space Center, Cape Canaveral, Florida], and she spoke at that. Rick [Frederick H.] Hauck, who returned us to flight, spoke, and I spoke, together with several members of Congress and the Center Director, and Rick Scobee, Dick [Francis R.] and June Scobee's son also spoke.

If you'd like a copy of those remarks, I don't know if you guys do that, but because it's my recollection—more carefully thought through—my recollection of what the Challenger Learning Centers were or had become. The essence of it, Jennifer, is through the courage and the commitment of the *Challenger* family members—in spite of the tragedy—their commitment and courage has turned a national catastrophe into an educational triumph. It's heroic on their parts to have done that.

ROSS-NAZZAL: We'd love a copy. We can put it as an appendix to your oral history, and if anyone would like more information, we can set it up so they can click on it.

ALLEN: Let's see. We have an annual budget of about three and a half million a year that's consumed by the national headquarters. Each of the centers has to worry about its own budget, so it has to be a break-even operation, and it's always—like many educational things, it's a struggle. But some centers do it easily; others struggle on. But they're still all operational.

Our main problem right now is that the simulations which they do are as obsolete as the Space Shuttle, and we are desperately attempting to upgrade the quality of those simulations, now with big flat-screen TV and high-resolution and better operating computer systems and so on. But we need money to do, and we are constantly attempting to raise money. Every time there's another national disaster, it gets harder for us to raise the money.

It's not been helpful that the number of aerospace companies has dwindled dramatically in size. There was a time when each one would contribute. Now Lockheed Martin and Boeing both are very generous contributors, but there are only two of them. Much less are from the Northrop Grumman, and Raytheon, almost none. But we've begun to attract such international corporations, though, as some of the big Japanese firms, and they're starting to help us out.

I'm very sad to tell you, and I'm—should this? Yes, this should go on the record. Twenty years ago Vice President George [H. W.] Bush, under [Ronald W.] Reagan, was very helpful to June in helping her get this started, and through then Vice President George Bush and Jake [Edwin Jacob] Garn and Don Fuqua, and other leaders on Capitol Hill, an endowment fund was set up to endow the Challenger Learning Centers every year—not endow—to pay, to help support at the level of a million dollars. So for our annual budget of say, \$4 million, we get 25 percent of it from the feds, which is helpful. Provided—the way the public law reads—provided that we have raised at least an equal amount from private sources.

Now, I don't know the precise number. We've been around now for twenty years. We've gotten now \$20 million, maybe \$19 million from this Federal Endowment fund. But we have additionally raised upwards of \$70 million in this twenty years' time, so we are way oversubscribed in gleaning money from nongovernment sources.

Over the years, NASA has served as the custodian of this endowment fund. Recently problems occurred between NASA and OMB [Office of Management and Budget] that I do not know the nature of, and there have been a series of letters from me, from June, to various members of Capitol Hill and to the NASA Administrator underscoring the urgency that these monies flow. NASA wound up nearly a half a year late in paying their last fees, so we're down a half a million dollars. They blame it on OMB. OMB blames it on NASA's squandering the money.

I don't know what the real facts are, but if a university squanders an endowment fund, it loses its accreditation. If it were done elsewhere, at a not-for-profit, there would be individuals who would go to jail, because that's a violation of the law. Now, the monies due were actually paid a week ago, and I still don't know what happened. When they were paid, I personally talked to Mike [Michael D.] Griffin, who's a good friend of mine, the NASA Administrator, and thanked him for solving it.

He said, "Solving what?" He had been unaware that anything was going on. So the "eyes-only" letter which I had sent to him never even got to him. So I don't know what's going on. Ask Josie [A. Soper].

ROSS-NAZZAL: We'll have to ask.

ALLEN: Ask Josie. I think she'll suggest it has something to do with White House appointees in NASA right now that certainly have complicated several people's lives.

Jennifer, were you aware of the problems in the press raised recently about the NASA scientists talking about global warming? There were some news articles up here, at least, about

NASA Public Affairs officials are sitting on this NASA scientist. Do you know what happened from that? Are you aware?

ROSS-NAZZAL: I thought I'd heard that the gentleman was let go [or resigned] because his university degree was not official.

ALLEN: That is correct. You have a good sense of it. Well, the official responsible, a little snippet of his bio wound up in some papers, that he was a graduate from Texas A&M [University, College Station, Texas]. Some people from Texas A&M couldn't remember him, and they went back, and they couldn't find any record of his having graduated. He was either fired or quit, but he had been appointed by the White House.

Mike, to his credit, has come out with a policy now that's a real tribute to how these things should be handled, about scientists within NASA. But in the meantime there are a couple of other appointees there that are causing him all sorts of trouble that I think he's not aware of. Anyway, it's not my problem to solve.

Well, the Challengers now, we touch in a positive way hundreds of thousands of children each year, and it's a good thing. It's always complementary to what's going on in the school system. Teachers in a school system can take a trip to a zoo. They can also take a class to a Learning Center, and it's all kind of a nice experience.

I'll say one last word for it. In my mind, Challenger Centers are valuable to a community because they encourage our young people to pursue math and science. When I was a youngster, caring adults got me past the fact that some early math, arithmetic, and some early science is pretty boring. But teachers helped me get past that, and because I got past it, that's why you're

talking to me here. I wouldn't have been at NASA. Who knows what I would have been? Well, actually, I would have been a good science teacher. That's what I would have been, which is an adventure in itself. But thank goodness they got me past it and a Challenger Center experience can do the same thing.

Increasingly, if you look at school statistics now, Jennifer, you will note we have youngsters who are just as gifted as anybody and interested in math and science up till the time they're about twelve years old. Then by the time they're about fifteen years old, we can barely compare with any third-world country with regard to the percentage of youngsters interested in science. It is just abysmal.

Probably an oversimplistic reason for it is when you get twelve and thirteen, particularly if you're a girl, your friends are telling you, "Don't do that, because you don't want to appear smarter than boys. Plus it's just not cool. Math and science are only for geeks and nerds. It's just not what's happening." What the Challenger Learning Center experience does for kids of that formative age is by using just a little smattering of some math and science, it enables them to go on a terrific adventure. Our fervent hope is that at the least this adventure will put these kids on the horns of a dilemma, that when Mikey tells them it's not cool, they begin to think, "Well, maybe Mikey doesn't know what he's talking about, because it seemed pretty cool to me, and gosh, it was fun." So we're very hopeful that that's what these Challenger Centers are doing.

When you give a lesson at Challenger, does it have an effect? Do kids remember it? We are in the process of developing metrics so that we can measure whether we indeed are having the positive effect we think we're having. Now, there are hundreds of stories about good Challenger experiences, but you want to have some measures that statistically prove these are

just not the occasional random lucky story. We need such measures because they are all so very useful in raising money.

ROSS-NAZZAL: Are you partnering with the Sally Ride [Science Club]?

ALLEN: When Sally [K. Ride] was a Director of Veridian, Veridian was a sponsor of all of her early Sally Ride Science Club shows. Challenger does not partner with Sally, but it's the same idea. Sally has kind of a specialty niche. It's aimed in at about the same age, but it's aimed primarily at girls. In fact, I think it's exclusively at girls. I've been, actually, a speaker at a couple of her shows.

One of them was with Kathy [Kathryn D.] Sullivan, so Kathy and Sally and I spoke. Their message was, science was woman's work; that science is for girls. "That's what we do. It's for you." Well, boys can be scientists if they want, and they held me up as exhibit A. But girls, don't worry about that. Science is woman's work. I was perfectly agreeable with being the token male there, because what she was doing was terrific.

When we did that, Jennifer, our company, Veridian, would sponsor the show, and we encouraged every one of our employees who had a daughter or a granddaughter to attend. We would do the shows in places where Veridian had hundreds of employees, and so we had a good ready-made audience. Thus, the Sally Ride Science Club presentations would be very heavily attended. I don't know if you were aware, but if you would attend, you would get a Sally Ride T-shirt, and you get to hear her speak. Then if you want, she'll autograph a space photo for you, which is pretty amazing, because she then sits at a table and autographs for about three hours.

But in the meantime, you can attend workshops on mini-science projects, and every one of the workshops would be taught by one of our employees, a female volunteer who was also an engineer, a scientist, a technologist of some kind. So it was great. The girls were going to classes taught by women who said, “Look, this is what my profession is like, and believe me, it is a lot of fun.” So we were having a very good effect.

ROSS-NAZZAL: Let’s turn to the Augustine Committee, which you served on in 1990.

ALLEN: I did. I did. I have very little recollection of—well, my problem, Jennifer, I served on a Don [Donald P.] Hearth Committee, and then I served on an Augustine Committee, and their charter was virtually the same. In my mind the memories are jumbled. Now, the Don Hearth Committee had been chartered by Jim Fletcher, and it was to assume that we have a working Space Shuttle in the late 1970s. What should we use the Space Shuttle for, and what other big pieces of equipment do we need to augment it? In that study, Max Faget, Joe [Joseph P.] Kerwin, and myself were representatives from the Manned Spacecraft Center. We were to deal with the human aspects of spaceflight.

At one point we came up with our recommendation, which Joe Kerwin and I wrote, and Max agreed to. It was a little bit irreverent, but the assumption was we now have a Space Shuttle going to and from space, and the way we summarized ours recommendation was, “After serious thought, our study group will thus advise our nation. We’ve built a railroad into space, and now we need a station.” [Laughs] Well, I’ve come to regret that advice, because I’m not a fan of the Station, and we no longer have a railroad into space, which is another problem.

The Augustine group, it sat in what year and reported out in what year?

ROSS-NAZZAL: Nineteen ninety, you were selected.

ALLEN: And I was no longer a NASA person when I sat on that group. I was Space Industries. Tell me one or two of the other members of that group. They were non-NASA people, is that correct?

ROSS-NAZZAL: They were. I don't have that with me.

ALLEN: Or were they all NASA people? Norm [Norman R. Augustine] was not a NASA person.

ROSS-NAZZAL: Norm Augustine? I don't believe so.

ALLEN: I think he had just stepped down as the—he had been the president and CEO [Chief Executive Officer] of the—well, what had he been? He had been within Martin, and then he became—Martin went into Lockheed Martin, and then he became the president and CEO of Lockheed, which was an extraordinary corporation, and he is one of the most remarkable individuals I've ever met.

Well, we had a series of workshops, and we'd talk about this, and we would do position papers, and then come up with a sort of a clunky, weird draft. Then one weekend Norm disappeared with the draft, and he came out with a report, which was beautifully written. Some of the essential ideas in the draft are in his report, but it is ever so much better told in a more

compelling and—he as an individual condensed it down, but basically rewrote the whole thing, and he is an extraordinarily gifted writer. I would be interested to go back and even read now what he wrote. I suspect that it's as valid today as it was then.

Let's see, we'd already lost the *Challenger* when he wrote it, though. Yes. Yes, I'm sure. Jennifer, he's also done the same sort of a thing for education in nation America. Are you aware of that? And I think the title of it is *The Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*. It's got a very provocative title. But if you read it, you're going to fall into despair about where our nation is going to come out, because of our lack of good education and interest on the part of our young people in things scientific and technical. We're going to become the service sector to the world. "Do you want fries with that?" Uneducated, with vast technical economies going elsewhere, away from nation America.

You put that up with our frivolous use of federal dollars now, and the massive debt, and the total neglect of where we're going to get the energy of the future from, the future for my grandchildren and great-grandchildren is being mortgaged to the hilt right now by totally unthinking federal policies. Well, do I stay awake nights worrying about that? I really don't, because it won't be my problem. But I've done all I can do to put modest resources in the hands of my grandchildren right now, and starting with education, which is the only thing that's going to sustain them. Hopefully they can survive.

We'll see. I'm a very optimistic individual. This sounds less than optimistic. Maybe something will happen, but it has to be a reawakening on the part of our national leaders that this is very serious business, and we just have to get after it.

Oh, let's see. So from the Norm Augustine Report, I have this vivid recollection of him as a megathinker and as a very thoughtful chief executive. In many ways I wound up in the world of serious business, and many people there are from the Harvard Business School [Cambridge, Massachusetts], the Darden School [of Business, University of Virginia, Charlottesville, Virginia]; all of them extremely well educated. Not I. However, I do feel I had gone to the "Norm Augustine School of Business Ethics," because of just the workshops I sat in with him. I really felt myself so fortunate. An aspect of his success is he really cared about his fellow workers and his employees enormously, and he listened to them, and it was genuine. A consequence was the corporation he ran was without question an extremely successful corporation.

We attempted to build Veridian to be what we called the "employer of choice." If a smart individual could go anywhere he or she wanted to go, we wanted to be the company that she chose to come to or he chose to come to. We could state that's what we wanted, but we couldn't make it that way. All potential employees had to decide whether we were doing it. But we would always say, "We will continue to work such that we will be for you the employer of choice."

To do that, you're often not as profitable as your shareholders want you to be and building such a company often takes a longer time. But strange things started to happen. We acquired small companies, bought them, usually from the original owners and founders. Typically they'd be a company of maybe two hundred or three hundred people. The individual selling them would be an individual who was maybe sixty-five years old; had started the company as an energetic, naïve thirty-year-old, but over the years had grown and been successful. And that individual always cared so much about the people who worked for him.

On at least two occasions, Jennifer, we found ourselves buying a company where the offer we had made for it was not the highest offer, and realized that we were now the acquirer of choice, as seen through the eyes of some of these individuals, because they knew that their employees, for whom they cared, and their traditions, would not be trampled on by new flippant management. We'd gotten a reputation of being thoughtful buyers, and good for us, because later it paid huge dividends.

ROSS-NAZZAL: I just have a couple more questions.

ALLEN: Are you still recording okay, can you tell?

ROSS-NAZZAL: I am, yes. We probably have about another twenty minutes. I wanted to ask you about the Hubble Space Telescope EVA [Extravehicular Activity] assessment that you participated in, and my notes indicate that you wanted to talk about a Dan [Daniel S.] Goldin conversation.

ALLEN: Ah, I did.

ROSS-NAZZAL: Sometime back you told me this.

ALLEN: That's right.

Two things happened, and I don't want to get them confused. Dan Goldin called me twice—well, several times. I thought he was a wonderful public speaker and quite good on

Capitol Hill. I was distressed, as many of my former NASA friends were, that his employee practices within NASA were really heavy-handed. He would say one thing and do something else. He tended, in my opinion, to be two-faced. That said, he was an extremely good public speaker and extremely good on Capitol Hill, and he had some considerable success. He put boundless energy into being the NASA Administrator. I don't fault him on that.

He also was hired to become the President of, I think, Boston University [Boston, Massachusetts] when he left the agency. When I saw that, I thought, "That is probably the worst choice a university could make, because a university president is far different from what had been a mercurial NASA Administrator." I thought, "The faculty are going to eat this guy alive."

Within a month, there was an out-of-court settlement where Goldin took several millions of dollars and said, "Okay, the contract is now no longer valid," or, "I will nullify the contract." But hiring him initially was a stupid move on the part of the Board of Trustees of that university, for which they're still paying.

He called me twice. Once was when one of the missions, after 51-A, had attempted to grapple a satellite to repair it, and they couldn't grab it. The grappling device didn't work. They'd tried during two EVAs. I was still at Space Industries in Houston, right across the street from the Space Center, and thought it rather strange that nobody from JSC called me, because I'd handled a satellite just two years earlier.

I went into the office after the second failed EVA, and the phone rang. I was usually one of the first in the office. The phone rang, and I picked it up. A voice at the other end said, "We're trying to reach Dr. Allen. The NASA Administrator is calling him."

I said, "Oh, yeah."

Dan Goldin picked up the phone. “Joe, you were an astronaut who did this very same thing.”

I said, “Yes, sir.”

He says, “Well, are you over in the mission control helping this?”

“No, sir. Nobody’s called me at all. I’m in my office”

“What?” He went through the roof. “No one? Well, you tell me, what should we do here?” He was so upset.

I said, “I’d be pleased to go if somebody if mission control wants me there. No one’s asked. I ought to stay out of the way.”

But a result—I won’t say that I told him to do this, but they put, I think, three people outside. Did we have an EVA with three people? And they three together were able to grab it with their hands.

ROSS-NAZZAL: I don’t recall that mission, but—

ALLEN: But, maybe it was just two people, but it was just hands-on and hold it and fix it. Don’t try to use this grappling feature that was not working. Don’t try to do it that way. Just go outside and grab it by hand. When tried, the method worked.

Now, the other instance, and I’m a little uncertain if this involved Goldin or not, but it had to do with the first spacewalk to refurbish Space Telescope. The specific crew members to do that had not been selected, and I was called by somebody at [NASA] Headquarters [Washington, DC]—it may have been at Goddard [Space Flight Center, Greenbelt, Maryland]—to do an independent review of the EVA procedures that they were setting up to fix the telescope.

Well, I was very well aware, Jennifer, that there were about six reviews ongoing, and the last thing that the people trying to do these procedures needed was still another blue-ribbon panel looking over them. Plus, I'd been away from EVAs for long enough, and I was attempting to run a business. I didn't want to be an unappreciative NASA alum, but I didn't really want to do the review.

But finally I said I would do a review with the following condition. I would be the only reviewer. I wasn't going to have a committee. I just wanted to talk individually with three people or four people. Then I would give a report that would be a simple letter, and that would be the beginning and the end of the review. Whoever assigned me to it—and maybe it was Goldin; maybe it was.

ROSS-NAZZAL: That was in '93.

ALLEN: So he would have been the Administrator. He would have been.

In any case, I did perfunctory interviews with several key individuals, and it looked to me like they had done everything possible to assure that the tools they were going to use to grapple the telescope were going to work. Also, they had a “hangar queen,” in other words, sort of a backup space telescope, that everyone swore was identical to the real one, at Goddard, such that they could test the tools against it. Lack of such a hanger queen had been the problem with the satellites we'd grappled. They had built the tools to work against the blueprints they had of the satellites, but they didn't have a hangar queen or an identical satellite like it on the ground.

Once I had determined these facts, I then looked at the timelines. It looked to me like the EVA crew had been given plenty of time to do the repair, such that they weren't going to wind

up just short of hours. But the one thing that I remember was they had not yet selected the spacewalkers. In my letter, the main recommendation was that in selecting the spacewalking crew, the consideration should be exactly the same as had been used to select the United States basketball team for the 1992 Olympics.

They called that team “the dream team,” and what they had done is taken the very best professional basketball players in America and put them all on one team. There was not a beginning basketball player anywhere. That year we dominated the Olympics in basketball. I said, “Do the same thing for the spacewalkers. Take your very best spacewalkers, and give them the assignment. It’s no time to train rookies.” And the spacewalkers were Jeff [Jeffrey A.] Hoffman and [F.] Story Musgrave.

ROSS-NAZZAL: I think there were two teams.

ALLEN: Yes. Okay, there were. But they were equally good spacewalkers, so there was not a rookie spacewalker. And get them assigned right now such they can get a lot of work in the WETF [Weightless Environment Test Facility]. Somewhat to my surprise, those selections were made about a couple of weeks after I sent the letter. Story later said thank you to me.

I said, “Story, I didn’t cite you by name.” But, of course, you’ve interviewed Story, I’m sure.

ROSS-NAZZAL: We haven’t, actually. He’s on the list.

ALLEN: Do you know him at all?

ROSS-NAZZAL: I don't, but I've heard he's quite a character.

ALLEN: When the Lord made Story, he threw the mold away. No doubt. No doubt. He's as unique an individual—I mean, every individual is unique, but Story sets a new record for uniqueness, in large part, Jennifer, because of the enormous obstacles he overcame as a young man growing up. Somehow he got through it all and became an astronaut, and he's among the most of the flown astronauts, he and Franklin [R. Chang-Diaz] and I'm not sure who else. Oh, you have to get Story. But pack your lunch; it's going to be an all-day journey.

ROSS-NAZZAL: All right. Let me change the tape.

[Tape change]

ROSS-NAZZAL: I wanted to ask you about your role as an astronaut advisor on two films, *Mission to Mars* and *Armageddon*.

ALLEN: Let me go to the *Mission to Mars*. That was a Disney production, and I was called onto it even though they already had an advisor. Story Musgrave was already on the set in Vancouver [British Columbia]. I think maybe the producer had a Yale connection, and he was aware of my Yale roots, and he somehow wanted me to come to Vancouver as well. I agreed to come, but got up on the set in Vancouver, and Story was already there.

During that time, the director wanted each of us to give an intro briefing about zero-gravity to the cast. One of the cast members was Tim Robbins. He was in *Bull Durham*, and he was married to a famous actress. Oh, he was in *The Shawshank Redemption*. He was in that, and it was an extraordinary movie. Well, he was in this movie, and he's a very interesting individual, quite tall, and it was fun to meet him. Tim Robbins, and I think Gary Sinise was in it, who has since become a very famous actor. I saw him briefly, and then I forget who else. But we talked to them, and they were ever so pleasant people.

I will not remember the name of the director, but he's a famous director, and I think he had done in earlier times—he's rather known as eccentric—*A Clockwork Orange* or something like that. I met him very briefly, and he struck me as the most bizarre individual, and I left thinking, "He's rather eccentric." He may have made great movies, but I—and I looked at what they were going to do, and I thought it was a dumb—well, the story inherently is maybe interesting. I thought, "This is going to be a terrible movie."

After that one day I left and said I didn't think I was going to add all that much to it, with all due respect, and they wouldn't do any better than Story. He spent a lot of time on it, and I think he was even in the movie. But as far as I know, Jennifer, the movie came and went without a whisper.

Now, *Armageddon*, somewhat of a different story. Way back in the 1960s, my wife and I became very good friends with Dick [Richard] Fox and his wife Olga. They had children slightly older than ours. They were neighbors in Nassau Bay, Texas. Dick was a wonderful engineer, graduate of MIT [Massachusetts Institute of Technology, Cambridge, Massachusetts], an honors engineer. He was also the chief test engineer for Grumman on the lunar module.

That's why they were in Houston. The modules were being tested in some vacuum chambers at MSC. The Foxes and the Allens became very fast friends.

After successful Apollo, Dick looked at his options, and he went to work for Walt Disney. Moved his whole family to California, and he became the chief engineer for Walt Disney. Because we were friends, he brought me in from time to time, after I left NASA, as a consultant to the Disney organization, and I consulted on things that involved motion-based simulators and even a part of the early Space Mountain design.

Disney paid me serious money as a consultant, and it was great fun, partly because we could stay with Dick and Olga, and we were just super good friends. He, Dick, has long since passed away, but Olga is still a good friend and was a houseguest just a few weeks ago. However, a few maybe months or maybe a couple of years after Dick's death, I got a call from people at Walt Disney. They had found my name in their records as a good consultant on space. Would I consider working on a Disney produced space movie?

Well, Walt Disney is involved in a lot of things, and the Dumbos and the Bambis of the world, Walt Disney does. However, some of the more high-powered movie ideas they give to other studios to produce, although it's Disney money that's doing it. And Touchstone is one that does it.

Well, they were going to do a picture about the possible end of the world because of an approaching giant meteorite. The director was to be Jerry Bruckheimer, a very successful, very well known producer. He had a young hotshot director working with him named Michael Bay. The two of them had done a movie called *The Rock*—it's about Alcatraz—that was extraordinarily successful. They were now going to do a movie called *Armageddon*. Would I consider going out to Hollywood, California, to be the technical space consultant for the movie?

I said, “Sure.” So I did go out and was paid a consulting fee for several weeks’ work. I found the movie people fascinating as individuals. The whole thing was just totally outrageous, and it had a cast of thousands, but it included Liv Tyler, Bruce Willis, Ben Affleck, and some lesser known actors. Oh, well, Steve Buscemi—do you know who Steve Buscemi is—and Peter Stormare. Steve Buscemi has been on *The Sopranos* fairly recently, and Peter and Steve had been in an earlier movie, *Jennifer*. The name of that movie was *Fargo*.

ROSS-NAZZAL: Yes, okay, now I know who you’re talking about.

ALLEN: They were the two criminals in *Fargo*. Well, I went out, and on my first day out there I met Michael Bay the director and Jerry Bruckheimer the producer. But on the set, the first day, Peter introduced himself to me. He was just a very good looking individual, tall, and he had a slight accent. I asked him where was he from. He was from Sweden.

“Oh, Sweden. How did you get here? Have you been—?”

“Well, I’ve only made one movie here,” he said. “I had a lesser part in a movie, but I’ve made a number of them in Germany.” He said, “I always played the bad guy, and I can always speak—,” and it turned out he could speak German, good German but with an accent. He spoke beautiful English, but with a slight accent. “Yeah,” he said, “Steve and I were in a movie called *Fargo*.”

I said, “Oh.” Then later I got to thinking about *Fargo*. Then I realized he was the guy with the blonde hair, the killer that wound up at the end stuffing Steve into the woodchopper. It made my hair crawl. He was just as nice as pie.

I also met an actor whose name is Michael [Clarke Duncan]; he since was in *The Green Mile* with Tom Hanks, and this movie made him a very successful, known actor. Prior to coming to Hollywood, Michael had worked in the sewers of Chicago. He just was so nice. I spent a lot of time sitting with Michael and talking, and he was so happy to be in a movie with Bruce Willis.

My wife Bonnie was with me at the time, and she really took to him. She said, “Michael, it looks to me like Bruce Willis is in a movie with you.”

He says, “Well, that’s a way to think about it.”

In Armageddon he played the role of an oil field worker. In any case, let me share with you maybe three like recollections about the movie. One is I was the technical advisor, and I was to help them make it look real. Every time I would say something about this scene does not look real, they would say “blank, blank, blank.” They had very colorful language, and very profane. “Blank, blank, blank. It doesn’t matter. It’s only a movie.” So nothing I told them technically they cared a whit about. I had no idea why I was there. However, I was very helpful in getting them through the various NASA wickets, including some of the filming was done at JSC, including in the WETF facility and in the Apollo mission control.

Oh, Billy Bob Thornton was in this movie. He’s a character. He’s from Texas, and he’d just come off that incredible success and an Academy Award, for a movie called *Slingblade*, which is a powerful movie that he wrote and starred in. Scary movie, as odd a duck as he is. Before the movies, his career was working in rental agencies and playing drums in a country and western band around little towns in Texas. Go figure.

In any case, all the actors knew each other and rather liked each other, but they were more than anxious to meet real astronauts. Well, the real astronauts were keen to meet these

actors, very famous actors. I was there. I could introduce them to each other, and it was just a hoot, Jennifer. It really was fun for me to do that.

A dear friend of mine, Vince Privitera, who loves movies and actors, had come over on the sets there at NASA and wound up talking at length with Bruce Willis. The director, Michael, “Bruce, we need you on the set now.”

“Michael, cut me some slack. Can’t you see I’m talking with the astronaut and his friend the shrink?” [Laughter]

In any case, that was fun introducing them around, and then for reasons that still escape me, as a joke, the director said, “Joe, we’ll put you in a movie scene just for fun. It probably won’t be used in the film.”

The movie makers organized the premier for that film at Cape Kennedy [Florida], in a special facility there, and invited a lot of space people. Aerosmith, Steve [Steven] Tyler’s band, Liv’s dad, performed afterwards, and a Space Shuttle was out on the launch pad, all lighted and clearly visible to all of those at the concert. KSC’s [Kennedy Space Center, Florida] never been quite the same.

My daughter and wife went, and I attended the premier. During the movie, my daughter suddenly said, “Dad, that’s your voice.” And I was in the film.

My wife looked at me, and she said, “You’ve got some explaining to do.” I hadn’t told anybody about the faint possibility of my appearing in the movie, because I thought it was going to be on the cutting-room floor.

Then later Ben Affleck brought his girlfriend, at the time, by to introduce me, and he picked me up like a little boy. He said, “Joe, you’re a movie star. You’re a movie—.” He’s

quite physically a large guy, very, extremely handsome guy. His girlfriend was Gwyneth Paltrow at the time, who is just amazing; beautiful individual.

Anyway, what happened after the concert and the premier, the various cast members and the people who did the sound and the lights and the makeup, went around sort of hugging each other and saying, "That was a great adventure. Thank you. It was a good movie. We did a good job." Then, they all scattered and went their separate ways.

It occurred to me that a space mission ends at the Cape, and immediately after the medical debriefing, all the crew members hug each other and squeeze each other, and you pretty much all go your separate ways. It was exactly the same scene. One was about a movie, because they'd worked together for a year. And the other is about the end of a space mission that succeeds. I'm very struck to this day by how similar these two scenes were. People that work in teams care a lot about each other, work horribly long hours, and then there's a result. In the case of a space mission, it's whatever the goals of the mission were. In the case of a movie, it's a good movie.

Armageddon is not *Enchanted April*. It's not totally my cup of tea. But it's very good entertainment for a lot of people, no question.

This time is good, five minutes. The question is my most significant accomplishment?

ROSS-NAZZAL: Your most significant accomplishment and your most challenging milestone.

ALLEN: Challenging milestone. Challenging milestone.

ROSS-NAZZAL: Some folks have a hard time with it.

ALLEN: Well, a milestone is a—what was the toughest challenge? Do you know the secret of success in business?

ROSS-NAZZAL: The book?

ALLEN: No. There is a secret to success in the business world, and the secret is there is no secret. It's just one bit of attention to detail after detail after detail after detail. To my mind, NASA for me was not suddenly an enormous milestone someplace that I had to get around. It's just attention to detail over the course of a long period of time. In some cases, the details are aggravating, and in some cases, maybe anxiety-producing, but with the proper help from team members and so on, you get around it and on beyond it. That's what it was. So I think milestone is a hard word for me to deal with as a very definite, hard thing.

Now, significant achievement. I've got three minutes, so this is just about right. I'm very pleased with elements of things I did accomplish during my NASA years, but in large part, none is a milestone. They're just a series of modest contributions, but in some cases, had some value to them.

Jennifer, I'm going to digress for just a second. There is a poem called "Ithaka." It was written by a Greek in Greek some hundreds of years ago. But it's a prayer to the gods to help me as I undertake this hazardous journey that lies ahead in order that I may reach Ithaka, where I will find vast wealth, vast riches. While I'm on the sea, and I may be beset by all sorts of monsters; help me here. While I'm on land and among strange people, help me here, and when I get to Ithaka and look around and discover there are no riches after this lifetime of a journey, it

will not matter, because the reward had been the journey all along. That's the important part all along.

I was at NASA eighteen years, and the journey really was, to my recollection, quite an extraordinary one, starting with being among the group who were "strangers in a strange land," scientists who were now astronauts. That was definitely a shock to the astronauts and to us scientists, but both groups survived it beautifully, and I think both groups were the better for it, and ultimately completely integrated.

Being involved in the early parts of the Apollo in the mission control was just a wonderful experience, and there will never, during our lifetimes, be an undertaking as successful as Apollo by this nation. It was extraordinary. I think in many ways elements of Apollo will be to nation America what the pyramids are to Egypt, looking back from many, many centuries. There may be other things about America, but that's definitely going to be one of them, the first human excursion out from Earth.

My contribution there, by the way, I think was as a translator. I was quite good—maybe in some just sort of a natural, I don't know—at enabling hard-nosed, and in some cases Nobel Prize-winning, scientists to communicate successfully with hard-nosed, world-famous test pilots, and enabling each to understand the other's point of view. I was quite good at that. Later that was useful in the business world, as well.

My contribution into early Space Shuttle speaks for itself. I was just a crew member, one of several, no better than anyone else that went, but let's face it, we were all quite good at what we did, thanks to NASA training, and I think thanks to diligence on the part of each one of us as an individual. I do think I contributed significantly to improve camera technologies and techniques and methods, and now it's just there, being used beautifully. But it was a struggle. I

think I had a definite hand in getting, for example, an IMAX camera on Space Shuttle flights, early Space Shuttle flights, which has added tremendously to what the human space program has been able to bring to those of us on the Earth.

I was an extremely successful, in my view, thanks to Josie Soper's training, as an Assistant Administrator, '75, '76, '77, part of '78. When the Congress was being asked for and was funding the completion of the Space Shuttle, the implementation of the space telescope, the construction of the first big, great probes going out to the planets. Let's see, the Jupiter Orbiter probe, which I think is later called the Galileo; some of those enormously expensive, big instruments. We got that out of the Congress, authorization and appropriation, at a time when the administration, and that would be the—[Richard M.] Nixon, [James E. "Jimmy"] Carter, weren't interested in space at all. So that was a good accomplishment.

I think that's a nice assortment.

ROSS-NAZZAL: Well, you've had a colorful career.

ALLEN: So far.

ROSS-NAZZAL: Moved from physicist to astronaut to businessman.

ALLEN: So far, and now as I approach my seventieth year, I say half of my life is done. I've got a lot left to do. And I'd be even more confident if I had a number of friends who were 140 years old. [Laughter] That's a good place to stop, dear friend.

ROSS-NAZZAL: All right. Well, thank you very much. I appreciate it.

[End of interview]