

NASA HEADQUARTERS HISTORY PROJECT

EDITED ORAL HISTORY TRANSCRIPT

JEFF M. BINGHAM
INTERVIEWED BY REBECCA WRIGHT
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WRIGHT: Today is November 9th, 2006. This oral history interview is being conducted with Jeff Bingham in Washington, D.C., for the NASA Headquarters History Office. Jeff is currently the Staff Director for the Subcommittee on Science and Space, the U.S. Senate Committee on Commerce, Science, and Transportation. Rebecca Wright is the interviewer, assisted by Sandra Johnson. We are meeting in his office in the Hart [Senate Office] Building.

Thanks again for taking time this morning to visit with us. Your years of public service span more than three decades with a number of years spent being involved with the nation's space agency. Tell us how you first became involved in the space program and how that evolved into what you're doing today.

BINGHAM: It's good to be here, and I appreciate the chance to walk back in time. I hope I can do so with some accuracy in my recollection. It's a long time; as you said, thirty years. I guess I would begin with my association with Senator [Edwin Jacob "Jake"] Garn, who really was the reason I got involved in space policy. That grew out of some activity in college, when I was the Director of Intern Programs for the Hinckley Institute of Politics at the University of Utah [Salt Lake City, Utah]. I provided interns to the City Commission and to the State Legislature.

In that context I met Senator Garn—he was then Mayor Garn—and I met with him to discuss the establishment of an Urban Fellowship Program, we called it. It was patterned after a New York City Urban Fellowship, but it was basically an internship in city government. He

liked it and introduced an ordinance, which I had drafted for him, to make this an authorized thing for the City Commission to do.

Then the next year I graduated and went to work for the Model Cities Agency as a health planner, with absolutely no background whatsoever in that field. In the course of that I worked again with Senator Garn, then Mayor Garn, who was the Chairman of the Board of the Model Cities Agency, which was a HUD-funded, Housing and Urban Development funded, program under their Model Cities Block Grant Program.

I ended up interacting with him and eventually met him in the context of trying to get him to serve on a board of a new program we had started, the Great Salt Lake Health Planning Council, which was going to be a quasi-governmental entity with three public board members, and we were asking him to join as one of them. After the meeting he asked me to stay behind. He had been mayor now about a year, and he asked me how much they paid me. I told him, and he said, “I was afraid of that.”

I said, “Well, why?”

He said, “I’m looking to have an assistant, and I thought you might be interested.”

I thought, “Well, you know, money’s not everything,” because that was more like what I wanted to do. We ended up talking, and so in October of ’72—in fact, it was October 12th, 1972, and I remember that because it happens to be his birthday, the Senator’s birthday. He often says he and [Christopher] Columbus discovered America on the same day, some years apart.

I went to work as his assistant, Assistant to the Mayor, in Salt Lake [City, Utah]. By the way, he appointed me to serve as his rep [representative] on the board of my old organization, so I ended up becoming one of my former boss’ board members. It was kind of interesting. About a year later he was recruited by then-Chairman of the Republican National Committee, George

Herbert Walker Bush, who came out to recruit Jake to run for the Senate. Senator Wallace [F.] Bennett of Utah was retiring after twenty-four years in the Senate. That's the current Senator [Robert F.] Bennett's father.

Jake agreed to run, and was elected in '74, and then I came back with him as his Chief of Staff in 1974. I actually came back a little early. Senator Bennett offered to have me come back and be his Chief of Staff—Administrative Assistant was the title more commonly used back then—to learn the ropes and see what we needed to do to get organized and build a staff. So I came back in November of '74.

Jake was sworn in early. Senator Bennett retired and resigned early in December to allow Jake to get a little edge on seniority. He was able to be appointed to fill out the unexpired term, and that gave him a jump in seniority over his classmates, one of which was Paul [D.] Laxalt. Actually, the only Republican classmate was Paul Laxalt of Nevada. Both he and Jake were the only two Republicans elected that year.

That was '74, and then we started in earnest in '75. One of his committee assignments was then the Senate Space and Aeronautics Committee. At that time NASA had its own authorizing committee. It wasn't buried in Commerce or someplace else. It had its own standing committee in 1975. The other Utah Senator, Frank [E.] Moss, interestingly enough, was chairman in that year, which is kind of unusual to have two members from the same state on the same committee like that, but that's just the way it worked out.

That began Jake's focus, and as his Chief of Staff, my focus on aerospace subject matter. I don't remember much about that. I wasn't really heavily involved in that first year. I do remember Jake making a trip to Johnson Space Center [Houston, Texas]. He went down there and ended up flying with Tom [Thomas P.] Stafford in the Apollo-Soyuz simulator they had

down there, totally—he said—destroying both capsules. He was an old pilot, and he was a very accomplished pilot, but he was used to if you let off the throttle, you slow down. That didn't happen in space, so he wasn't able to reverse thrust, and crashed everything. I remember that part about that experience, but there's not much else from that period that I was involved with.

In '76 they reorganized the committee structure, and that committee was dissolved, and that's when NASA was folded into the Commerce, Science, and Transportation Committee, and this subcommittee that now exists was created. There's slight variations over the years, but that's basically the way it's been since '76.

Jake was also on Banking Committee, and so he spent a lot of activity there. He was also on Appropriations and was on the subcommittee that handled NASA's appropriations. In those days it was the Independent Agencies Subcommittee. Then it became the VA [Veterans Administration], HUD, and Independent Agencies Subcommittee. It was actually in that realm that Senator Garn got much more active in NASA-related issues, because NASA's budget and the appropriations came up for discussion. The NASA authorizations, even back then, were somewhat spotty in terms of—they weren't an annual thing. It wasn't until 1981 that I really got much more focused on NASA in the context of Jake's activity, and that was when I was invited to go attend the launch of STS-1.

WRIGHT: How did you get invited for that?

BINGHAM: NASA invited, of course, the Senator and then his senior staff people. Jake was then, I think he was then, ranking member of that subcommittee. As his Chief of Staff, I was on their list to invite, and I went. That did it. I saw that launch, and I was hooked. I attended the next

twenty-five launches in succession. In fact, if I wasn't there, they didn't launch, it turned out, so I tried to convince NASA that they had to take me down as a good luck charm. But that really got my interest, obviously, and from that point on I became much more focused on his committee activity.

Now, as a committee ranking member or Chairman of the Subcommittee of Appropriations, he had a staff to do that work, and then he had his personal staff, just like Senator [Kay Bailey] Hutchison has her own personal staff. But I am her staffer for space things, for this subcommittee. It depends on the personalities and preferences and interests of the individual staffers, how they interact on subject matter like that where you have a committee responsibility. With Jake, though I was personal staff, I got very involved in NASA issues because I was interested in it, but more importantly, it was a key interest of Jake's as well, and as his chief of staff, my focuses tended to mimic his focuses, as a matter of course.

A lot of times personal staffs just don't want to be bothered with it. They don't want to spend the time. They have to worry about the whole rest of the universe, and they don't have time to do it, and they rely on the committee staffer to handle that work on behalf of the Senator. On the other hand, the committee staffers don't typically get involved in constituent-related activity that heavily, because their job is to technically work for all the committee members.

In the case of our Appropriations Subcommittee, I just injected myself and paid more attention to it. I didn't really do the work. We had a committee staffer to do that work. I went along just to keep my nose involved in what was going on, because I knew it was a big thing to Jake. So I, as I said, attended all the launches, but at that point my involvement was not what I would call policy. It was more voyeurism. [Laughs] I just loved it, and I wanted to be there.

Probably the NASA Public Affairs [Office] in those years would say the same thing, that I just was always underfoot.

The good part of that was that we established relationships over time. Something that I've always believed is not adequately done in interagency actions with the Congress is the development of a partnership. There's too much of an adversarial kind of thing that happens. The Constitution set it up that way. We are separate and equal branches in government. But in the end, it's all the taxpayers' money, and we're all trying to do things to serve the taxpayers. I think there needs to be better cooperation, and I think it was that personal interest and involvement that I had that allowed me to do that.

So over time I would get more involved when Senator Garn had policy decisions that were larger than just budgetary issues. I would get involved in those discussions, along with the committee staffers. Sometimes—frequently, as a matter of fact—the committee staffer would be interacting with NASA primarily on a budgetary basis with Appropriations, and not always in a spirit of comradeship and cooperation. We had staffers that sometimes really thought—they took a budgetary, strictly a “green eyeshade mentality,” as Jake would call it, somewhat like OMB [Office of Management and Budget] and like the White House approach to things, and not see the big picture.

I would get calls from my friends at NASA, saying, “Hey, it's Wally Berger leaning on us for this or for that; can you help us?” Wallace Berger was one of the staffers there when we first went on the subcommittee, and then Stephen Kohashi was the staffer later. Depending on what they were saying and doing, sometimes an appeal would come back-channeled to me, and I would go to Jake and explain the issue, and Jake would say, “I don't know what Wally (or Stephen's) trying to do.” We'd get Wally or Stephen in to Jake's office and we'd correct the

situation, which didn't make me popular with Stephen or Wally. This actually happened more with Stephen than it did with Wally Berger.

That was how I initially got involved in the policy issues dealing with decisions at the congressional level about NASA. Then there were other things. For example, unrelated to any of the budget, NASA legislative relations, back in the eighties, had evolved into a structure that was not unlike it is today. They had an Intergovernmental Relations Associate Administrator position, and then they had Public Affairs and Leg [Legislative] Affairs within that as subsets, so you had civil servants doing the legislative affairs.

There were so many times that we would hit situations where we seemed to be road blocked by those folks. They were insensitive to how the Congress really worked, and they were really very bureaucratic. They didn't understand the Hill, because they'd never had experience up here. They were just following some kind of guidebook or something that didn't have any foundation in reality. So we had a lot of frustration in dealing with them.

This would have been probably in 1982, ['83, ['84 time period, I guess; probably '83. We ended up suggesting that they change the structure, and make it a political position, an appointed position, directly accountable to the [NASA] Administrator, because what we ended up doing is we ended up bypassing them. If we needed to get an issue resolved and we didn't get help there, we'd just call the Administrator. Well, the Administrator didn't really need to spend all that time involved in that.

A lot of these were issues, again, that were not really addressed in the course of the appropriations deliberations. They were more just fine-tuning the agency's interaction with the Congress in a way that would make it more readily apparent that they could have better access to the congressional decision making and vice versa. It would be a better two-way street, this

whole thing about cooperative activity that Senator Garn really taught me. That's my view now, but I learned it from him.

We interacted on a wide range of things, anything that was a hiccup for the agency that Congress might have some role in, I'd get phone calls, or I'd go down and meet, and they'd come up and talk. In this case, they made that legislative liaison position a political job, and then were looking for someone to fill it. I went and got an old friend of mine who had been Senator [Barry M.] Goldwater's Chief of Staff early in the [President Ronald W.] Reagan administration in '81, and had gone down to the U.S. Agency for International Development and was doing Leg Affairs for them. He was okay there, but it just wasn't his bailiwick. Barry Goldwater was his boss and was very keen on aerospace and it was his personal interest as well, and so I got in touch with Jack Murphy, who was the guy that I'm referring to.

I had lunch with Jack and said, "I think you ought to go over to NASA. They're going to make that political, and you've got to put your name in." He ended up doing that, and got that job, and of course, because of that relationship, Jack and I dealt closely on a lot of issues, since I had recruited him for the job.

About that same time, Jake's interest in NASA had peaked after the STS-1 mission as well, and although he did not attend the launch, his personal interest in it was in flying on the Shuttle one day himself. I remember the way it came up initially. It was two or three days after the mission, so it would have been April 17th, 18th, somewhere in that time frame in 1981, and Alan [M.] Lovelace was the Acting Administrator of NASA. Jim [James M.] Beggs and Hans Mark had not yet even been nominated. Well, they may have just been nominated, because I remember the administration did not nominate them until after the successful Shuttle launch. They waited until after for whatever reason.

It was right about that same time, and Lovelace was up presenting the budget request to Jake's subcommittee. He was Chairman then. At that time the Republicans were in control of the Senate, and so he was Subcommittee Chair. I remember him in his opening statement congratulating NASA on the successful launch and mission of the Space Shuttle.

He said, "Of course, I have some questions. One of the questions I have is one of the more serious ones. I want you to think more carefully than maybe about the others in answering." He is leaning forward, and Jake has kind of a bald head and brooding eyebrows, and he can really look intense and intimidating. He leaned forward, and of course, Lovelace is shifting in his chair, waiting for this question, and he goes, "When do I go?" [Laughs]

Of course, Jake was a pilot. He'd flown 10,000 hours at that point in Air Force planes, and Lovelace's response was something along the lines of, "Well, you know the story about the 900-pound gorilla. You can sit about anywhere you want on the bus." So it was kind of laughed off and chuckled about.

Then it was about two weeks later that Jim Beggs and Hans Mark came in for their courtesy call. They'd been nominated, and they came in for their courtesy call. Typically, that was when a nominee is presented, the agency will bring the nominees up to meet the key committee members that they're going to be in a position to either vote on their nomination or have some influence. Jake wouldn't be voting on their nomination, because at that time he was just in Appropriations. That's where he was, and they don't handle nominations; those are authorizing committee functions. Their courtesy call was on the basis of his appropriations role.

They came in, and it was Jake and myself and Jim Beggs and Hans Mark in the room. He started getting acquainted and having conversations, and he recounted this story of what he had said to Lovelace. They both had already heard about it, and Hans Mark piped up and said,

“But of course you should fly. The whole purpose of the Space Shuttle is to have routine access to space. What better way to demonstrate that than to fly a member of Congress?”

Well, that was all Jake needed to hear. Up till that point it had been kidding and wishful thinking and that sort of thing, playfulness. But when Hans said that, Jake took that as, “Okay, then I’m going to pursue this.” Jack Murphy became the guy who was basically given part of the task to, whenever the chance presented itself, remind people that Senator Garn was really interested in flying on the Space Shuttle.

From that point on, they would also bring Shuttle crews in. After a mission the crews would come to town, and they would do their thing at Headquarters, and then they’d bring them to the Hill. They’d bring them in to see the Senator, and we’d have all these meetings with crews, and they’d talk about their mission. Every time he’d remind them about this conversation and let them know that he wanted to fly. It became kind of a litany. Everybody knew that he had every intention at some point of trying to get on board the Space Shuttle.

WRIGHT: When he asked the question to Mr. Lovelace, was that a surprise to you?

BINGHAM: It was a surprise. Yes. Yes. In fact, I wasn’t in the hearing. I heard about it. He came back and told me about it, laughing. That became a standard thing, to remind people of his desire to fly on the Shuttle. I’m trying to think of how to move from there. I guess we can go ahead and paint in some of the details about his flight, because that, I think, will set the stage for a lot of other discussion and my involvement on space-related issues.

The way that flight finally came to pass was in early—I want to say ’84—Beggs established an activity to look at the space flight participant concept in some depth. John Denver

[singer-songwriter] always felt that he was in part responsible for that, because he too wanted to fly and had been encouraging Beggs to let him fly on the Shuttle at about the same time period. I think they can probably both share some of the credit for that getting under way. Alan Ladwig is probably a good source to find out about how, because he was involved in that when it became the Teacher in Space Program.

They went through and evaluated all these different options for flying people over a period of time, and it finally came out, I think it was in August of '84, that they presented the options to the President, and he liked the idea of flying a teacher. There was an education initiative that he was promoting, so he decided to announce the decision (a) to fly nonprofessional astronauts on the Space Shuttle in August, I believe of '84, and that the first one of those would be a teacher. Then that became the real push for the Teacher in Space Program.

The same time that was being announced publicly, I got a call from Jack Murphy privately saying, "This announcement is going to be coming out in the next couple of days. Don't worry. This doesn't affect the Senator's flight. That's separate. He'll be flying as a congressional observer as part of his oversight capacity," because by this time they had decided, "Okay, we're going to seriously consider making this happen." So that was August of '84. The election came in November, though Jake wasn't in cycle, but I think the White House or NASA wanted to wait until after the election to make the announcement about his invitation to fly.

Then the morning after the election, I got a call from Jack Murphy in my hotel. I was out in Utah, and this was about six in the morning. Jack said, "Where is the Senator going to be at eight o'clock?"

I said, "Well, he's going to be heading for the airport to catch a plane back to Washington."

“He’s going to get a call from Beggs. We’re going to fax a letter for him, but the call will invite him to fly, and the letter will formally do that, and we’ll fax that to you.”

I called Jake. I said, “Don’t leave for the airport till you get a call from Beggs.” So Beggs called him and indicated that they were going to be announcing that day an invitation to all chairmen and ranking members of NASA’s committees to fly, not just Senator Garn, but the chairmen and ranking members of both House and Senate committees, and Jake was going to then announce that he had verbally accepted that invitation.

So I remember it was kind of interesting. They announced it, and he flew back here, and by the time he landed, the media had seen the announcement, and Jane Pauley had gotten him lined up to come on the *Today* show [NBC] the next morning. She said, “Senator, isn’t it because of your chairmanship of the Appropriations Committee that they’re inviting you to fly? Is that the only reason they’re inviting you to fly?”

He said, “Of course. Why would you invite the Chairman of the Agriculture Committee?” She thought she had him in a conflict of interest or something, I guess, and he goes, “Yeah. So? And your point is?” She didn’t seem to know what to say to that straightforward answer. So it was interesting and set the tone for how he handled the media through the whole experience.

He was the only member that accepted the invitation at that point. Now, Bill [Clarens William] Nelson was not Chairman or ranking at that point on the House side, but he became that after the Congress reorganized the following January, and Bill was on the House Subcommittee, and then he accepted the invitation. That’s why Bill Nelson flew later, because it was still on the strength of the initial invitation that had been issued to all four of the Committee and Subcommittee chairmen, House and Senate, Authorization and Appropriations.

Jake accepted the invitation, and that was November 8th of '84, and I think it was December 17th we ended up at JSC [Johnson Space Center, Houston, Texas]. He was invited to come down and do some initial medical examinations and discussions with some of the Flight Ops [Operations] folks. Gerry [Gerald D.] Griffin was then Center Director, and we both flew down and had a meeting and it was decided that he would commence his training in earnest in January. We decided that I would go down and set up shop with him in January, so I could be sort of a liaison between NASA and the Senator, as well as keep the link between him and our office and his colleagues up here. That really put me even more intimately involved in that whole thing, because I came down here with him.

We showed up in early January, and he did the physical exam stuff, and he started training, some of which I participated in as well. I remember we were out having the classroom discussions preparatory to the "vomit comet" flight, the weightless training aircraft [KC-135], and doing the spinning chair and getting parachute orientation and instructions. At that time I had this similar full beard, and Jay [F.] Honeycutt indicated that I couldn't go on that flight because I couldn't do the pressure chamber with the beard, and the pressure chamber qualification was required in order to go on the flight. They told me that about ten o'clock. I went home at noon and shaved the beard and came back and did the pressure chamber. [Laughs] Jay had gotten what he called the "short straw" to be the liaison between JSC and Jake and me. I forget what position Jay was in at that point. But, I ended up going on that flight experience, which was, of course, tremendous. It only served to get me even more enthused about the whole business.

Then as we landed from that flight, it was announced that he was being assigned to the crew of STS 51-E. So that would have been January 17th, 18th, of '85.

That afternoon we had a meeting with the crew. “Bo” [Karol Joseph] Bobko was the commander. Don [Donald E.] Williams was the pilot. Crew members at that point included Jeff [Jeffrey A.] Hoffman, Dave [S. David] Griggs. Patrick [Pierre R.] Baudry was flying as the French payload specialist [PS], and [Margaret] Rhea Seddon was the other mission specialist. That was the crew, and we met with most of them that afternoon.

After we all sat down, Jake said, “Look, I know how you must feel, being saddled with this Senator, and I want you to know I’m going to do everything I can to be a contributing member of the crew. I’ve been in the military. I know chain of command. You’re the commander, Bo. You tell me to jump, and I’ll ask you how high. And I want to make it real clear my name is Jake and not Senator. I’m not a ‘sir’ when I’m here. I’m a payload specialist.”

Bo’s response was, “Yes, sir.” [Laughter]

I remember at the time Jeff Hoffman was probably the one who had the most obvious hostility towards Jake flying. He wasn’t pleased. And Jake understood that, that there would be those kinds of feelings, and I think he knew that he would have to prove that he would carry his load. There’s no doubt afterward. I know Jeff very well as a result of all that, and he and all the crew became real fans of Jake before they ever flew, and knew that he carried his weight, as did many of the astronauts. Some of them were very critical, because they were waiting in line for seats themselves. Not that Jake took a seat that one of them would have taken, because none of them would have wanted to fly as a payload specialist anyway.

We had quite a lot of controversy about that that we dealt with up here. Ralph Nader even got in the game and filed a lawsuit with the Secretary of the Senate to challenge his continued receipt of his Senate salary while he was in training at Johnson Space Center and all

that kind of nonsense. It was in the media, and there were editorials about it. “Cookie” [Alcestis R.] Oberg got in the act; as Cookie can, inimitably.

Anyway, it was quite an experience, but I was able to go down there and stay—in fact, I stayed more than he did, because he had to run back for votes occasionally. But Bo really let me participate a great deal. Not the actual training; I wouldn’t say I was involved in the training, other than the weightless flight.

We went to TCDT, the Terminal Countdown Demonstration Test, at the Cape [Canaveral, Florida]. I got to hang out at the 195-foot level at the pad, while they did the emergency egress training, and jumping in the little baskets to go down the wire. Of course, they didn’t go down. They had a safety strap to restrain the baskets. They’d jump in these carts, and then there was a thing; you just bang on this lever that cut the main restraining rope that held the basket there. That’s how you started down the guy wire. They would have them get to the point of banging on it, and cut the main restraint, but the additional safety restraint would hold them for the training exercise. Sometimes they’d put a little slack in that, and for a split second the crew wasn’t sure they weren’t going all the way down that guy wire, which I don’t think any of them were thrilled about doing.

I was able to sit in on a lot of the sessions in Building 9 at JSC; again, not in the training, but around the edges, and it gave me a better appreciation of what was going on and a better understanding of what the crew was all about and who they were. So it was a great experience.

WRIGHT: So that serviced you well in answering the Senator’s questions when he wasn’t there, because you had this firsthand knowledge?

BINGHAM: Oh yes. Yes, and I was also I was able to help him understand other things that he wasn't able to see in the background preparations and Center management. Although, he did spend a lot of time there. It worked out that, because it was a new Congress starting up in '85, they do a lot of organizational stuff in the first two months, and he got all his Banking Committee—he was Chairman of the Banking Committee as well as being the VA-HUD-IA Appropriations Subcommittee Chairman—he got all that organized, and actually ahead of most of the other committees, even though he was not physically here. He was down in JSC because he took his training very seriously, and he would not leave there to come up here unless he had an absolute essential requirement to do something.

WRIGHT: Where did they house you? Were you part of the astronaut corps office, or did they have you in a different building?

BINGHAM: No, physically, we were over in Building 32. That's where they had the Payload Specialist Office over there. It's the one where the big vacuum chamber is, in the front part of that, in those offices. That's where the Payload Specialist Office was, and that's where we were. We had one office, and then next door were Christa [S. Christa McAuliffe] and Barbara [Morgan], and Greg [Gregory B.] Jarvis, who was in that same office. We interacted with them a lot. Jake had been assigned a “mother hen” astronaut, who was his tutor, and that was Mike [Michael J.] Smith, who was the pilot for [Space Shuttle] *Challenger* [STS 51-L], of course. Mike was Jake's mother hen throughout his training, and we got to know all of them really well, shared offices with them.

I was housed there, too. I kept an office and a desk there. That separate location for the payload specialists became one of the bones of contention later in our report. I did a report for Jake to the Senate on this experience subsequent to that, and in the course of preparing that, one of our recommendations was better integration of payload specialists and the Astronaut Office, because they were treated like secondhand citizens. And they implemented that recommendation, and moved them over into that Building 4 after the time. But that's getting ahead of the story.

All the way through the preparation for that mission, I was involved in that. I became the unofficial "mascot," self-styled, for the crew, since most of the crew didn't have dedicated support staff. They had their support staff in the Astronaut Office, but they didn't have somebody to do a lot of the logistics stuff, so naturally I'm the little eager beaver, "Anything I can do to help. I'm the little space cadet. I'll run and get sandwiches, whatever." [Laughs]

So right up until the time of the launch, I was pretty heavily involved, and I would keep Jake in touch with what was going on in the Senate. We had, at that point, one of the first portable cell phones; it was in a briefcase. The Senate made these available, and they were in this beautiful leather briefcase, and it had a flap cut in the top of it, and you could open that and bring an antenna out. You open it up, and there's this huge, heavy battery pack, and then over here is the phone cradle and the phone. It was very, very primitive, but it worked.

I remember coming and catching Jake to take a call or make a call to Washington. He'd be in a sim [simulation], and they'd come out of Mission Control [Room] and out there in that atrium between the two buildings, and it was where we could get a signal. We'd fire up this thing, and he'd be in touch with the Senator or the leadership or whoever needed to talk to him, so he could stay on top of what was going on there as well. I'd catch him over in Building 9. I

was able to get a signal if I got high enough up on the platform leading into the fixed-base simulator, so that was one of our spots, if we had to get him on the phone.

Then I ended up coming down with walking pneumonia about three weeks before the flight, so when they were in the quarantine, I couldn't get near him. In those days the astronauts were inside the quarantine building inside a trailer. They had trailers inside the buildings. They had a trailer accommodating the crew inside, the primary crew, and then they had a trailer for classes. Then they had another trailer perpendicular to that, outside, for the PSs over there.

I would go over and have a stack of letters and papers that Jake needed to look at and review, and I would go over and set it on the stairs and knock on the door. Then I had to stay twenty-five paces away, so I would pace off twenty-five paces. He'd come out and sit down on the steps and go through the papers, and we'd yell across this twenty-five-pace gap to communicate. It was kind of interesting. I'm sure if anybody saw it from a distance, "What is going on here?" [Laughs]

Unfortunately, that lasted all the way up until launch time when they would go to the crew quarters. And then, of course, there was liason with the family; I handled arrangements for the families. We did all kinds of activities for our senate staff and family and friends. We set up what we called the "Garn Ground Crew," and we had jackets and hats made up with that title embroidered on them, and the Mission number. One of our lobbyists—in those days lobbyists could do those things and not go to jail for them—they offered to make flight jackets available, and they talked to this guy that made knock-off blue flight jackets, and had them embroidered with "Garn Ground Crew" on one side, with his personal patch, and his crew patch on the other, and the US flag on one sleeve and the NASA "worm" patch on the other sleeve.

I had designed a patch, because the payload specialists could have their own patch in addition to the crew patch. Andy Truly, Dick [Richard H.] Truly's son, was a very accomplished graphic artist, and we got him to help do the artwork for this patch from a basic conceptual design sketch I gave him. Senator Garn's patch had this stylized picture of the Capitol Building, and it had his name at the bottom, and then it had this banner around the top that had in Latin the words, "Congressional Oversight and Medical Experimentation," in Latin. I got the Library of Congress to provide for me the Latin equivalents to those terms.

Because he had made it clear he wanted to not just go, he wanted to do something, they had trained him to do certain experiments, some leg plethysmography experiments, which checks the girth of the leg as you go into space to show the fluid loss, fluid transfer rate, which is apparently really extreme and rapid. This is a case where he literally on ascent would be pulling these Velcro straps and loops tight. They all had measurements, and he'd be recording the measurements all along the way, so they could see and actually trace the narrowing of his legs and the movement of the fluid to his upper torso, which they couldn't get very many other astronauts to do, but Jake was willing; again, whatever.

So that's what the patch had, and it had an EKG [electrocardiogram], because they used an electrocardiogram to monitor him on orbit and check blood flow, etc., and it had a microscope symbol on it, as well as a gavel for his chairmanship. So it was kind of a unique thing. I was involved in getting all that done, so I just did all kinds of logistical things.

Of course, there were a lot of guest operations activities for the launch, and all the crew had family, and I sort of took a lot of that over for them to make sure all the families of the rest of the crew were all taken care of so that they could concentrate on the mission and it wouldn't

burden the Astronaut Office, who normally did that stuff. They would normally get somebody to do it, but I said, "Ah, I'll take care of that," because I had a whole staff at my disposal.

We did a lot of blending of responsibilities for all of those guest-related operations, and then I interacted closely with the two escort officers, the contingency officers, they called them, for the crew, which were, interestingly enough, Mike [Michael L.] Coats and [Charles] Lacy Veach. That's how I got to know Mike real well, and Lacy, during the preparations and activities for that launch.

So the launch came and went, and during the mission I was back at JSC and spent almost every waking moment of the mission in Mission Control. I had a chance to design another patch there, because on that mission they launched a Hughes [Aircraft Company] SYNCOM [IV-3, synchronous communication, also known as LEASAT-3] satellite. They launched a couple. They had a [TELESAT-1 (ANIK C-1) communications satellite] and then a SYNCOM. The [TELESAT-1] had a PAM [payload assist module] system motor, and it's what they called a springboard launch, as I recall. It spun up and then ejected the satellite out and so it was spinning as it left the cradle. It went up and eventually when far enough away from the orbiter it fired its PAM engine and went on up to its orbit.

The Hughes satellite was a "Frisbee" launch. It's in a cradle, and then it's launched out like this, spun out, like a Frisbee. [Gestures] When it comes out of its cradle, there's a rocker arm that is compressed when the thing is in the cradle, and when it's free of the cradle, the rocker arm comes out, and that initiates the sequence to start the satellite, to deploy its antenna and get itself fired up and powered up and ready to launch its own motor to take it up to its orbit.

In that case it didn't activate. The antenna never came up, so they knew there was something wrong. They ended up eventually deciding to re-rendezvous with the satellite, so it

was the first unplanned, untrained rendezvous in Shuttle history. They backed away and got all the procedures uploaded.

It was really fascinating, because they were trying to figure out how to resolve the problem in the Mission Management Team [MMT]. I think Glynn [S.] Lunney was the Chairman of the Mission Management Team for that mission, and they met there down below Mission Control or back around the corner from the Mission Control Room. I sat in on all those meetings where they tried to evaluate the options for how do we try to fix this. They came up with all sorts of ideas, and of course, all they had to work with was what was in the cabin and on board, as far as tools and materials to work with.

They had theorized that it was the rocker arm, because they had enough visual on the satellite that they could see that the rocker arm wasn't fully deployed. It was apparently snagged, this little hook, arm, literally, just not quite out, not fully deployed. So they figured out that the answer was to try to somehow get up there and jerk that thing open. They came in to the Mission Management Team with all of these contraptions that they had modeled from replicas of what they knew was on orbit, and they finally came up with this flyswatter, two different types of flyswatter. One literally had this piece of plastic on the end of this tool that actually, the astronauts use to help flip switches that are beyond their reach when they're strapped into their seats.

So they had that tool, and then they had, of course, duct tape. The flight manuals had Velcro plastic covers, so they had taken the covers off one and cut them into the shape, with these holes of the flyswatter, literally, with two holes in it. The idea was they would put that on the end of the arm, and then get the arm up next to the spacecraft, which is still rotating slowly, and line it up to try to snag that as it came by, as that hook came by, snag it and pull the rocker

arm out so it would be fully extended and, hopefully, activate the start-up sequence to boost the satellite to its orbit.

Then the backup tool, which they ended up putting on the other side of the end effector of the arm, was one that had, instead of using the Velcro plastic, they fashioned two loops of wire so that they could drag the wire along the side of the satellite as it rotated and try to snag the rocker arm that way. But they had to be careful to have it be something that wouldn't damage the solar cells. The solar cells were on the outside. They weren't on an expandable, like a wing-type solar cell. They were just attached to the surface of the satellite, and this little rocker arm came out of a hole in those solar cells, so they had to be real careful.

It was interesting to watch how they developed all this, and finally they would bring in these samples in the MMT and show how they would plan to do it, and the MMT would say, "No, that's ridiculous. Go try something else. Thanks for sharing." Or they would say, "Okay, yeah, we like that," and then they would send that over to Building 9 and have another crew of astronauts rehearse it, test it.

They had built a mockup of the satellite in Building 9 and had the mock satellite and that little rocker arm assembly, and had the mock-up rotating at the same speed that they knew the satellite was rotating. They would literally get somebody out there and try these things to see how they worked. That's how they finally came up with the approach. It was fascinating to watch, this whole process, and how they tested everything on the ground. They put together the checklist, step 1 through—maybe through 6,000, whatever, to make this work, then they uplinked all that.

There's a great picture of the crew with the—at that time they used this kind of teleprinter, like a big fax machine with a continuous roll of paper. They sent up all these

checklists, and there's this roll of paper that's just snaking all around the middeck. Don Williams is there, and he's pulling this stuff off, and they had to cut it down and put it into books, and then for both the rendezvous and for prox ops, proximity operations, and the actual EVA [extravehicular activity] procedures that Dave Griggs and Jeff Hoffman then put in place to go out and attach these new-built tools. Then the procedures for Rhea Seddon, who was operating the Remote Manipulator System to go up and get close to it, and Don Williams and Bo to do the rendezvous. It was really complex.

I got to watch how NASA adapted to that challenge. There was no great danger or risk, but they were fixing an anomaly. They had a satellite they couldn't get into orbit. That was a great experience for me to see that internal decision-making process and the thoroughness with which it was undertaken, and then to get to watch it actually be put in place, sitting in the Mission Control; see them succeed in getting up there, rendezvousing successfully, and getting up and actually flipping the switch, only to find that wasn't the problem.

It was successful, in that they accomplished everything they needed to do, but they didn't get the satellite restarted. That's something that Joe Henry [Engle] had to go and do the following August in his mission. It was interesting, because they landed the next week, and Jake's sister and brother-in-law were in town, and we took them over to Building 9, and there's Joe in there, measuring that big satellite, because he's getting ready to propose and pull together a mission planning to go up there on his mission in August and fix that thing, which eventually they did and he did, and "Ox" [James D. A.] van Hoften relaunched it by throwing it back into space with enough rotation to stabilize it so it's onboard engine could take it on to its orbit. It was pretty amazing.

It was a great experience for me to see that, to be able to watch all that firsthand, behind the scenes, in the MMT, which were normally not widely attended, or at least publicly visible. NASA was very good to give me unfettered access to the whole process, and be the eyes and ears for Jake on the ground. George [W. S.] Abbey and Jay Honeycutt had sort of taken me under their wing, and I got to go on STA [Shuttle Training Aircraft] flights at the Cape with George. George and I would go ride on the STA flights, and Charlie [Charles F.] Bolden was flying his first [STS] 61-C, and I got to have the experience of flying on the STA at the Cape on doing approaches and landings, with him at the controls, which was an incredible experience.

I've got some incredible movies from that. I had my Super-8 movie camera with me. The STA aircraft have a middle seat that pops down right behind the two front seats, the pilot and the copilot, for the flight engineer. Of course, the engineer had to be in that seat, but I was able to loop around and borrow the harness that comes out of the ceiling and get situated so I could zoom in the camera on the altimeter as we're going down. I got these great movies of the altimeter just going [imitates sound]. The hundreds are in a row vertically, and it's a blur. Then you see the dial just going like this [gestures] as you're coming down, because you're in such a steep approach.

Then I had shots out the window, looking out at a cloud cover. There was about a thousand feet of clouds at seven thousand feet, so seven thousand feet was the minimum you could have and still land, and this was about a thousand feet deep. So we're up starting at about forty thousand feet, and you're looking down, and you see this layer of clouds, and I've got the camera running as they reverse thrust, and you start dropping. You're just going down, and on this movie you see this cloud that's coming up like this [gestures], and then boom, you're through them. A thousand feet of clouds, you're just through them like that. Then you can see

the ground, and you're thankful to see that it's still quite a ways away. It was quite an experience to do that and just to see the Orbiter and the processing and everything with the crew. It was a great experience.

WRIGHT: Were you there for the landing when he came back?

BINGHAM: Yes. I was there for the landing. They blew a tire. Too much brakes and blew a tire, and that was interesting, and a little startling of course when it happened and this puff of smoke shot out from the tires just before they stopped rolling out. I was also there when the crew came back in to greet the families in crew quarters.

WRIGHT: You were well enough they let you get near him?

BINGHAM: Yes, although I guess by that time they didn't care if I got near him. Yes, if you get sick then, that's okay; it's not a mission impact.

WRIGHT: How much contact were you able to make with him while he was on the mission?

BINGHAM: None at all, really. If I'd needed to, I could have, and it was kind of funny, because we were accused of keeping in touch, because during the mission they had a call from President Reagan, and there was a vote on the floor on the Panama Canal Treaty coming up the week after Jake's flight was planned. Of course, we knew it was coming. Those things are often planned in advance up here, and you pretty much have a good idea. But when, in the course of this

conversation, the President said something about Jake and looking forward to his return and added, “We need your help back here on the Earth on this Panama Canal vote.”

Jake said, “I’m looking forward to being there and voting with you on Tuesday, Mr. President.”

Just because he was that specific, the big question was, “How did he know? Do you guys have a secret channel or do you have some way to talk to him?”

“No. He knew in advance.” He remembers those things. But I didn’t use any e-mail connections or packet messages. There was just no reason to during the mission.

We didn’t have any contact during the flight. I lived it vicariously in Mission Control, which worked out well, because afterwards he was asked by many to write articles and give speeches about his experience. Of course, he could talk about it wonderfully, but he always had me do the writing, and I ended up writing it as if I was there, from his eyes. I’d heard about it so much, and I had watched so much of it first hand, at least from the ground, in Mission Control.

When we got back and landed at JSC—they landed on a Thursday at the Cape, and we got back to JSC on Friday. Then they had the weekend and into the next week while they did their debriefings. We had an apartment where we had a suite, a two-bedroom apartment.

His sister and brother-in-law came down and visited, and family visited, and they all wanted to hear about it. For hours on end I’d hear everything about what it was like, what it felt like, and what he did. Because I had been there watching it, I could even fill in the timeline, because in some ways it was a blur for him. I could say, “No, that was before the rendezvous, and after, and what were you doing here.” I really became very much caught up in that whole story, where I may have begun to believe I had been there. I don’t know. [Laughs] It was like I had been, and I could write about it as if I had been.

But it was a great experience. I really liked JSC, so I stayed down there as much as I could for the next six months to work on his Senate report. I found every excuse I could to go down there and stay as long as I could—go as often and stay as long—and do interviews with Flight Directors, with management, with other crew members, with whoever I could to flesh out issues.

Issues like using commercial, off-the-shelf technology for cameras versus having to go to the expense of special designs, and why couldn't you just flight-qualify existing designs, those kinds of issues, to try to find ways to economize. Questions. The follow-up, of course, the rendezvous and docking of the mission, which was all done firsthand, real-time; what were the lessons learned from that that needed to be captured, that kind of thing.

Carolyn [L.] Huntoon was Deputy [Center Director] at the time and she was the one that wanted to review the report. I let her review it when I had a draft. We argued about content, because some of it they weren't as happy to see us saying. But I explained that this was congressional oversight now; I'm wearing a new hat. I'm not just a leading member of the fan club. I also have a responsibility to examine and find anything that I felt Jake should report to the Senate as a result of his experience. That included things like the payload specialist activity I mentioned. It included recommendations about giving the crew more support for ground operations, guest operations at launch, because they literally were left to their own devices to come up with whoever could help. A lot of different issues like that. It was quite an extensive report.

It included, in addition to these kinds of findings and recommendations, it also had the mission story; the day-by-day account, and that's where, again, I wrote this basically in first person, what it was like day by day. And all of that was put together in a report to the Senate

Subcommittee, and therefore a report to the Congress, which never actually got submitted. It was in final form and I had just completed the final draft and was gathering together the supporting documentation for appendices—samples of the Flight Data File and all that sort of thing—when *Challenger* happened. So it got lost in the dust of that tragic experience.

WRIGHT: Other space-related issues were happening in the early eighties. One, of course, being Ronald Reagan's announcement at the State of the Union [address] that he wanted to have a Space Station. The other was a Paine Commission Report [*Pioneering the Space Frontier*, May 1986]. Can you talk about those and how some of those affected issues that were going on as well?

BINGHAM: Yes. The Space Station, I guess, would be the first place to start. As you probably know, one of the first things that both Jim Beggs and Hans Mark said back in their confirmation hearing in '81 was when Jack [Harrison H.] Schmitt, who was then Senator Schmitt, was Chairman of that subcommittee, this one that I'm now sitting on as a part of staff-wise, asked them what's the next step for NASA after the Shuttle launch had been initiated, and where do we go from here? They talked about Shuttle becoming operational, but they also said the next logical step would be a Space Station.

That initiated the efforts at NASA to study more aggressively Space Station development, something that NASA had been doing, but not really visibly and openly, for years. Space Station was part of the original 1959 long-range plan of NASA, and, of course, was superseded, in effect, by the leap—Apollo was leapfrogged over the Space Station in the planning by President [John F.] Kennedy. But that's another story we'll get into.

But the point is that NASA never gave up the idea of a Space Station. They tried to turn Skylab into a Space Station by trying to expand it and extend it, and, in fact, would have, had the Shuttle not gotten behind in development. One of the first missions of the Shuttle was to have been to refurbish Skylab and reboost it, and they never were able to carry that out because it came down in '79, two years ahead of the Shuttle's first launch.

NASA began in earnest working on Space Station after Jim Beggs and Hans Mark were confirmed. That was not really very visible from '81 to the end of '83, to us. It was mostly an internal thing. They let us know they had this Space Station Task Force. We knew that was going on; but I didn't pay much attention to it in that time period, so I didn't really follow it in any detail.

The Paine Commission was the result of legislation in '84 which came after the announcement of the Space Station. Space Station announcement as a policy was on January 25th in 1984. That's when the State of the Union Address took place in which Reagan announced that tasking and decision and gave NASA the challenge to, within a decade, to build that Space Station, taking a leaf out of Kennedy's historic challenge on Apollo. Again, we noticed that, and it was interesting, but there wasn't a big thing. We just knew that that was something NASA was working on.

The desire to have the Paine Commission do a review was to get a better fix of how the Space Station or anything fit in the long-term plan. There hadn't really been a long-term vision for space exploration, so this commission was established to try to do that, and that was in '84. In '85 they did hearings around the country. We were, again, aware of those. They had one in Salt Lake City, as I recall, and we knew that was going on. I knew Marcia Smith, who had been tasked to be the Executive Director of that, but we really didn't focus on it in '85, because we

were so heavily focused on his mission in late '84 and '85 and this whole report thing I was describing to you.

We really didn't have much direct involvement in that evolution and that activity, and were just looking forward to it being released. We knew it was coming out. We'd seen some advance draft language from it. I had seen some videotapes of some of the hearings, but was just looking forward to the report, which was due to come out in early 1986. It went to the printers about the same time *Challenger* happened, so it was released in April or May of '86.

Unfortunately, because of *Challenger*, it never really got looked at. It was really a shame, because it was this humongous, fifty-year plan of the future, and it just put everything into perspective, and it was beautifully done, and it was basically wasted and lost, until Sally [K.] Ride did her report to try to take excerpts out of that that could then be applied to the situation we found ourselves in after *Challenger*. So, yes, those things were going on in that time frame, but they weren't something that the Congress was—the Congress had initiated them and was waiting for the response. There hadn't been a lot of involvement that I was aware of, at least, or a part of, and I don't believe the Appropriations Committee was.

I don't really know how much the authorizers were involved in during that same period of time. Looking at it now, my guess is they were probably much more interested and active in reviewing that than I would have been aware of, not being part of the authorizing side, because I remember at the same time the Office of Technology Assessment was doing a review of Space Stations in general. That was back in '83 and ['8]4. It started in '83 and into '84, but this is stuff I know retroactively in a historical sense; I wasn't aware of at the time. I now know those things were going on, but they weren't a part of my world at the time.

WRIGHT: Where were you when you heard about *Challenger*?

BINGHAM: I was at home, actually. Again, the crew, as I've mentioned before, were friends, and we had gotten to know them very well. Shared offices with Christa and Barbara and Greg, and Mike Smith had been Jake's mother hen, and we knew Dick [Francis R. Scobee].

Jake and I had actually gone down to the launch. This was when it was going to launch on Sunday morning as it was first scheduled to launch. In fact we were down there on Saturday night when they were looking at the clouds and the weather forecast and trying to decide whether to go do the tanking. Mike Smith had invited us to go have breakfast. We were going to have breakfast in the crew quarters, so we had gotten our physicals and we had gotten our clearances. We were healthy; I didn't have walking pneumonia this time. So we were going to have breakfast with them, and then they'd go off to the pad and launch.

But this weather was coming in, and they were trying to decide, also, if the Vice President was going to come down, and they wanted to give him as much notice as possible. This was for Sunday. But the key thing was the weather, and they finally decided that the weather looked iffy right at launch time, so they scrubbed the tanking Saturday night. I think I was over at the hotel lobby there about ten-thirty or eleven. I think the tanking was scheduled for midnight, and about ten-thirty, eleven, they scrubbed it.

I called the crew quarters and I spoke to Mike Smith and Dick Scobee, and gave them our condolences on the delay, and wished them well, expressing regret we'd have to miss the crew breakfast, because we had to leave the next day. We were down there with Bill [William R.] Graham. We'd flown down with him on the NASA plane. I forget exactly why, but the plane had to go back the next day, so we needed to fly back, because I remember it kind of being

ironic. The way it worked out, we lifted off from the skid strip or the Shuttle Landing Facility at about the same time the launch had been scheduled, and the weather was fine—we could see the front coming as we got up there. It was just north. But it probably would have been okay to have launched on that Sunday morning, which, had they done so, probably would not have had the failure, because it was a beautiful day.

We were back here in D.C, and Congress was not yet in session, so we were on recess hours like now. I was at home, watching it on NASA TV on Tuesday when they lifted off. I was watching it, and I, of course, had been to twenty-five launches, so I knew pretty much everything to expect. I knew what to expect about every stage in the launch, and immediately knew something bad was happening, and then I could really see what happened. I immediately called Jake, who was also home and in the shower at the time. I told his wife, Kathleen, and said, “We just lost the crew and the *Challenger*.” She went and got him, and I told him what had happened.

He said, “Okay, meet me in the press gallery. I’m heading down.”

We both went in to the office, and he immediately called the press together. We tried in the meantime to get all we could information-wise, so that we knew what happened. But he was focused on wanting to say, “Look, we need to find the problem, fix it, and get back flying again.” That was his main message, within an hour of the accident, that he wanted to stress.

He did that about noon that day, that morning, and then he got a call, we got a call from somebody in the White House wanting to see if he would fly down with Vice President Bush and John [H.] Glenn [Jr.]. They had invited Jake and John Glenn to go down with the Vice President to see the families. So they went out to Andrews [Air Force Base, Maryland] and went down to the Cape to visit with June [Scobee] and the families.

I'll never forget Jake's description of that meeting. The Vice President, and John Glenn and Jake walked into the room where the family members were gathered, literally only a matter of a few short hours after suffering their terrible personal loss. June Scobee, as the Commander's wife, took charge of the meeting and spoke on behalf of the families. She said that, above all, they knew their lost loved ones would want, more than anything, to see the mission continue; to keep the dream of human space flight alive, and not to let the tragedy of their loss stop America from reaching to the heavens. It brought Jake to tears that evening when they returned from Florida and he recounted that meeting to me.

We started the process of trying to make sure that everything was done to find out what happened, and everything was done for the crew and their families, and stayed very, very heavily involved in that whole process the whole time; watched closely the Rogers Commission [*Report of the Presidential Commission on the Space Shuttle Challenger Accident*, February 3, 1986] and stayed on top of that and got briefings regularly from NASA on what they were finding. I went down to the Cape. Bob [Robert L.] Crippen, once the recovery effort was complete, took me down and showed me everything they'd found.

They still had the remnants of the SRB [solid rocket booster] out in the place where they were decontaminating them. They were getting the residue fuel off of them so that they could be looked at to help determine the sequence of events. It was a completely numbing experience for me to see these large broken, twisted segments of the boosters, and to be looking at the very spot where the burn-through occurred, which had sent the jet flame, which weakened and caused the failure of the rear mounting strut for the right Solid Rocket Booster, which caused the booster to become unhinged at the base and tip into the external tank near the top at a point just ahead of the orbiter cockpit. Mike Smith, in the right seat, had a split second to see that movement and

say "uh-oh," followed immediately by the burst of static and loss of signal as the vehicle began to break apart.

[pause]

BINGHAM: Okay, we'll go back to the *Challenger*, I guess. History has pretty much recorded everything that happened there. I can't shed much light on that, other than it was something that profoundly affected both of us from a personal as well as professional viewpoint. We felt very strongly, and Jake did especially, and I just followed his lead. He set the tone. I was his staffer. He was asked to do so many speeches and memorials that I ended up doing a lot of those that he couldn't do, and so we both really got very much into conveying the message he had received from June, for the crew families. That's the thing that Jake focused on, was that June Scobee and the others, the first thing they wanted to make clear to the Vice President and Jake and John Glenn was, "This mission must go on, and the best way to honor our families is to not stop space flight."

That became Jake's theme and his focus from then on, and everything we did was geared to make sure that happened. That's why we watched the investigation closely, because we didn't want to see a rush to judgment. We didn't want to see throwing the baby out with the bath water. We wanted to find ways to fix it and move on, and that was the message. Jake felt very strongly about that, and every opportunity he had, he said that.

He had a lot of opportunities, because he had flown, and people knew that he could speak from experience and having been exposed to the same risks, the same dangers, the same circumstances. He could have very easily said, "Well," all bluster and fuss, "I wish they'd told

me it was that dangerous.” Instead, his message was he knew how dangerous it was, and they had told him how dangerous it was. He knew, and he was a volunteer. It really helped, I think, a lot to give him credibility as a spokesperson in that context, the accident, having been there and done that. Same with Bill Nelson, who, of course, had flown three weeks before on [STS] 61-C.

WRIGHT: Did he encounter a lot of his colleagues or other folks on the [Capitol] Hill that had questions of whether or not to shut the space program down at that time?

BINGHAM: You had people like Bill [E. William] Proxmire. There were people who questioned it, but not very many, and they didn't question it for long. Jake could be fairly persuasive, even with his colleagues. They had to have a real solid reason why it shouldn't be done, and none of them had one. So he didn't really have that much opposition, and there was never any organized effort to stop the Shuttle Program. There never was anything like that. Had anyone had the temerity to suggest that, I think Jake would have physically wrestled them down, let alone speak them down and vote them down.

There wasn't really a lot of concern; that was more a media issue. Jake felt very strongly about restoring and replacing *Challenger*. In fact, he actually was responsible for that happening. It was probably not until August of that year, of '86, that the White House, President Reagan, finally said and made it official that NASA should build a replacement Orbiter. But he didn't provide any money. So Jake and Ted [Theodore F.] Stevens got together. Ted Stevens was Chairman of the Subcommittee on Defense Appropriations at the time. Jake was Chairman of the VA-HUD. They agreed to take \$2 billion out of the allocation for defense and move it

over to the allocation for VA-HUD and make it available to NASA to pay for a replacement Orbiter.

In fact, they had discussed it all summer, and staff members Stephen Kohashi and Sean O’Keefe for Stevens. Sean was the staffer for Ted Stevens, and Stephen Kohashi was our staffer. They had worked out all the details and then were just waiting to sort of get the final “go” on the floor, in fact they were on the floor of the Senate with the bill, and Jake was in the hospital. He had just the day before given a kidney to his daughter, and so he had basically been sliced in half. They literally cut you from stem to stern and take a kidney out. He was recovering from that in the hospital, and Ted called him from the floor, basically the cloakroom, and said, “Are we going to do this deal?”

Jake asked him to do it, and they did it. Now, it turns out in the end that that bill, just like our bill this year, didn’t get passed in that form, but the money got reserved to get added. They added, actually, a little bit more to it, about \$3 billion for recovery efforts for that. But it included upfront funding for [Space Shuttle] *Endeavor*, what became *Endeavor*, which then, as a result of that upfront funding, came in six to eight months ahead of schedule and about \$300 million under budget, which is kind of an interesting lesson in multi-year funding and the consequences.

It’s also interesting that, in a wrinkle of time, that now, of course, I’m working for Senator Hutchison, and she and Senator [Barbara A.] Mikulski have joined in an effort to add a billion dollars to NASA’s money to reimburse NASA for [Space Shuttle] *Columbia*, because NASA was not given any money to pay for the recovery costs. And of course, our precedent that we’re citing for that is that experience with *Challenger*. So that was ’86.

WRIGHT: Policy changed during that time period regarding commercial satellites.

BINGHAM: There was the decision that Reagan made to remove commercial satellites from the Shuttle and DoD [Department of Defense] satellites.

We weren't heavily involved in that. We were focused more on the number of Orbiters and having the replacement Orbiter issue. We didn't really get involved in the other; at least, I didn't.

That was '86, and then in the next two years we monitored progress in recovery, and I wasn't very heavily involved in any of that. I was going through some stuff personally. They weren't flying, so I wasn't going down to launches, so for that hiatus I was out of pocket. I went back to the Cape for the return to flight, for STS-26, and I was there for that in September of '88.

Once they got flying again, I got more active, but again, not involved really in paying a lot of attention even to Station, which at that time was now back on track in terms of design. Refinements were being made. I know that during that period our staffer was pushing back and forth on issues of robotics, and there was the dispute over the Industrial Space Facility at that time in '88.

That's when I had some initial awareness and probably had one meeting with Courtney [A. Stadd] back in those days, but I don't think either one of us even remember much about that. It's only afterwards when we piece together where we've been that we've said, "Oh, yeah. I remember that," because the Industrial Space Facility was a pretty hot topic. I do remember Jake getting fairly exercised about that, because he was concerned that it was going to be a diversion from money to the Space Station at a time the Station had already been rephased and

restructured; this is all previous to it being redesigned in '93. He was concerned that it was going to be a distraction from Space Station.

I think now he would look at it differently, see it as a complement to it. But in those days you had the same problem you always have, I guess, and that's limited money, and he wanted the focus kept on getting Space Station up and running as soon as possible. He very reluctantly accepted the rephrasing, where they were going to do an initial human-tended approach, and then evolve to a permanent human occupation later, do it in phases. I remember he was reluctant to do that.

It's funny, I read later that was supposedly a proponent of robotics ahead of human, because his staffer had gotten him to have language in that demanding that NASA do a study on the use of robotics for Space Station. The whole point was he just wanted that to be a catalyst to use to encourage efforts to help enhance robotics, but he never saw that as a supplanting of the human crews for Station. [Howard E.] McCurdy missed that nuance in his book, and so he characterizes Jake as promoting robotics instead of humans, which he never would do. He not only wanted humans there, he wanted himself to be one of them, whether it's on a Shuttle or Station or whatever.

WRIGHT: That's good to know.

BINGHAM: That gets us through the post-*Challenger* and return to flight and up to '90, and that's basically when I left. Jake had decided not to seek reelection. Before you leave the Hill, it's best not to leave when everybody else is leaving. [Laughs] Kind of like insider knowledge; you need to know. So I left. I actually ended up going to NASA on an interim basis for a year to work as

a NASA consultant to the [Space Exploration Initiative (SEI)] Synthesis Group, which had been set up at that point to evaluate long-term exploration options for NASA, under the leadership of General Tom Stafford.

That reminds me, we can go back to the '89 announcement of the Space Exploration Initiative, because I do remember that as being a major, major event. We were there at the [Smithsonian National] Air and Space Museum [Washington, D.C.]. My parents were in town visiting, and we were all there at the twentieth-anniversary celebration of the lunar landing over at the Air and Space Museum, and that's when President Bush, 41 announced the Space Exploration Initiative, the return; going to the Moon and then Mars, initiative of that day.

That had gotten started. In fact, we were there, went to that event, at the Air and Space Museum, and then attended a thing at the White House afterwards with all the astronauts, to pat each other on the back and reaffirm that, "We're going back to the Moon and then to Mars." It was great. So that was a significant event, to see that happen, and then a year later I left Jake, to go to work in the planning aspects of that, actually trying to figure out how to devise the architectures, mission architectures, to make that happen in Tom [Thomas P.] Stafford's Synthesis Group.

That was an incredible experience. It was like drinking out of a fire hose. We had a fairly limited period of time to come up with four different, separate architectures for how you might structure these missions, and we had briefings from everybody. For about six months we did nothing from 7 a.m. to 7 p.m., but have briefings; a non-stop succession of hour-long sessions with experts in every aspect of such a set of missions.

People from Bechtel came in and showed us how they would move regolith around on the surface of the Moon with tractors and specially designed vehicles, and build habitats and

protect them from radiation. We had every rocket designer, every propulsion system; we had people talk about the psychology of long-duration space flight. It was just nonstop and endless, and we divided up in teams and came up with four different architectures.

I felt like, “What am I doing here?” because these are all rocket scientists, and these are engineers and designers and technicians, guys like Doug [Douglas R.] Cooke. George Abbey was the Director of that, Executive Director. I went to him, and I said, “What am I supposed to do here? I don’t know.”

He said, “You’re supposed to ask the dumb questions.”

I said, “Well, good.” Basically, knowing George, I knew he meant that I was there as a non-engineer. I was supposed to ask the non-engineering questions, like “Well, why are you doing that?”

WRIGHT: Was he the reason you were involved? Is he the one that brought you down there to work on that?

BINGHAM: No, actually, it was Dick Truly. Dick was then the [NASA] Administrator, and I had spoken to him and said, “I’m leaving Jake’s office, and I’m going to be doing something. I’m not sure what. If you’ve got anything, let me know.”

He was in Paris [France], actually, and he sent a note to whoever was his Chief of Staff and said, “Get Bingham in to the Synthesis.” I guess he had talked to Tom, and they were looking to fill out the Synthesis Group. I got the call, and they needed me to come ask dumb questions, so I did real good at asking dumb questions. I’m very good at that. So it was very much a taking thing for me. I got a lot more out of that than I gave to the effort.

Towards the end of that as we were wrapping that up, I got asked if I would be part of a proposal to JSC, to be part of a team that SAIC [Science Applications International Corporation] was putting together with Hernandez Engineering to do some consulting and strategic planning for the New Initiatives Office down at Johnson Space Center. I let them include me in their proposal, and they won their proposal, and I ended up taking that job and moving to Houston in '90 to start that, and that got me back to God's country and in the space world, as far as that was concerned.

WRIGHT: I'm glad that's on the recorder, because I'm not quite sure people would consider Houston "God's country."

BINGHAM: Well, within the space world, it felt that way to me. [Laughter] I grew up in the "real" God's country out in Utah and Idaho. Yes, most of the people think of Houston in August as the other end of that spectrum, that particular spectrum.

WRIGHT: Do you want to stop here? Is this a good place to pick up when we come back, that you took a shift from government service work to private sector?

BINGHAM: Private sector. If that works for you, that's fine, yes.

[End of interview]