ORAL HISTORY TRANSCRIPT

CHARLES A. BERRY
INTERVIEWED BY CAROL BUTLER
HOUSTON, TEXAS – 29 APRIL 1999

BUTLER: Today is April 29, 1999. This oral history is with Dr. Charles Berry, at his offices in Houston, Texas. This oral history is being conducted for the Johnson Space Center Oral History Project, by Carol Butler, assisted by Summer Chick Bergen and Tim Farrell.

Thank you for taking the time and joining us today.

BERRY: You're very welcome.

BUTLER: To begin with, if you could give us a little bit of the background that led you to becoming involved with aerospace medicine.

BERRY: Led me to be with aerospace medicine, not necessarily with the space program?

BUTLER: Yes.

BERRY: Well, I was in what today would be called family practice, general practice in Indio, California, down in the Southern California desert. I had had some time in the Navy V-12 program just prior to the Korean War, and I was discharged with no ties. I didn't have to be in reserve or anything. Then when the Korean War started, suddenly everybody was getting recalled, but I wasn't in a reserve thing or anything. I felt I had to do something. I was going to get into the service and spend at least two years, so that I got that specter out of the back, looking over my shoulder, when was I going to have to go and do some service or would I ever have to.

So I decided I was going to go into the Air Force, and I went into the Air Force. Then very shortly, within about three months after I went on active duty, I was at a base in California north of San Francisco, and they called me from Washington [DC] and said, "Would you like to get some more training while you're in?"

I said, "I think that would be fine, yes. What are we talking about?"

They said, "Well, there's a new course, a new thing that the Air Force is going to do."

At that time, the word "space" wasn't in anything. In fact, in the Air Force we were forbidden to use the word "space," and so we were talking about aviation medicine. They said, "There's a new course in aviation medicine, and would you like to go?"

I said, "Well, yes, that would be fine."

So they said, "Okay," told me how to apply, and I did. And lo and behold, I came to San Antonio [Texas] to then Randolph Field, where the School of Aviation Medicine was.

When I arrived, to my chagrin, I found out that this wasn't just a course; this was a residency program. General Benson [phonetic], who was a commander of the school at that time, had worked very hard with the AMA, the American Medical Association, and some of the other medical organizations, the medical boards, in trying to get a board for aviation medicine. There would be a residency training program and then they would board-certify people who finished that training program as a specialty in aviation medicine, which did not exist at the time. This was in 1951.

So I found, gee, this is not just a little course I'm going to. This is a one-year program, and then you're supposed to go to another year. At that time it was going to be at Johns Hopkins [University], and then you were going to have another year's training in the field. Well, that meant that you were going to pay back time for all of those, too.

So we went through the year, which was a great year, and they put us through Air Force pilot training, too, at the latter part of that year, up at Goodfellow Air Force Base [Texas]. In fact, there's a picture over there, I think, and a T-6. They put us in yellow T-6s

so they could see you for a long way away, and called it "the quack squadron." So we got trained to fly T-6s.

Then at the end of that program, we suddenly found out that—General Benson said, "Well, what they've decided is that Hopkins won't take you for the second year unless you've graduated in the upper 50 percent of this class, and you have to have graduated in the upper 50 percent of your medical school class." Well, we had twenty-five people in the program, and it turned out there were only seven of us that fit that category out of the twenty-five. So of the seven people, General Benson called each one of us in and he said, "Well, Dr. Berry, we know where you're going to go. You're going to go to Hopkins next year."

And I had thought about this all night the night before, and I said, "General Benson, I really don't want to go to Hopkins right now." [Laughter]

And he was not very happy about that. In fact, he was very unhappy. He said, "Well, you've got to go."

I said, "Well, let me tell you very honestly." I said, "I'm convinced that what's going to happen if I go ahead and complete this program now, I'm going to end up in a command position all the time and I'm going to be telling people how to do aviation medicine, and I've never been in the field to do it, not out in the field." I said, "I think that's wrong, and I need some time in the field."

Underneath that surface, I also felt, okay, then I can make up my mind am I really going to end up staying with this whole thing, too. I was pretty turned on by that year, so I had really felt that I might stay, but I left a practice with a partner who was expecting me to come back.

So I was sent—first I had orders to Korea, and I had those for about a week. Suddenly I got changed and they sent me to Panama. So I arrived in Panama. It was an amazing, amazing three years that I spent there, because I was supposed to be for one year.

He said, "I'll let you go to the field, but you're going to go for one year, and I'm going to call you back, and you're going to go to Hopkins."

I said, "Okay. Fine. We'll do that." So I got down there, and I found out that there were a lot of things that—we had a rescue squadron there, and I flew a lot of air rescue missions, got to do some really interesting things. We were responsible for the missions in Central and South America, and for Military Assistant Groups in all those countries, so I was able to set up aviation medicine programs for a lot of countries in Central and South America.

Then I dug up—literally dug up out of the ground an old altitude chamber that had been down in Panama during World War II, and it had been buried with a bunch of old tires. I heard a story about this, so we went excavating one time and found this chamber, dug it up, refurbished the whole thing, and set it up, and we started doing altitude training there, not only for our people, but for the Central and South American Air Forces.

So it was a pretty exciting time. I get a call at about nine months, from General Benson, and he said, "Okay. We're sending you orders to come back to Hopkins."

And I said, "General Benson, I really don't want to come back right now. I want to finish this tour here. I'd like to finish the three years and then come back. Honestly, I'll come back." [Laughter]

He said, "You get on an airplane." The commander of the Caribbean Air Command, he said, "You get him and you get on an airplane, and you come up here to Washington [DC] and we'll talk about this."

So we did. We go up to Washington, sat down with him, and said, "Okay. Here's what's been going on, and here's the things that I'm doing."

The commander said, "Yes, and we really need him to stay and do this and get all of this stuff completed, at least get it all started right."

So he said, "Okay. If both of you document all of this, I'll see that you get a year of your residency credit for that time, and then you'll come back."

Well, by the time I was ready to come back at the end of the three years, they had then started the program at Harvard [University], so you could go to Harvard or Hopkins. Ross McFarland [phonetic] was a very famous physiologist who had worked with Pan American Airlines to set up their routes all over the world, and he'd done a lot of things in the aviation world and was really good in that field. So I wanted to go to Harvard and have that year with him. So I got to go to Harvard and I spent the year at Harvard.

Then I came from Harvard back to the School of Aerospace Medicine. Then while I was there, first year I was assistant chief, and for the second and third year that I was there, I was the chief of the Department of Flight Medicine then for the school. We taught both the residents and we taught short-course people who came in and became flight surgeons. They were only going to spend two years in the Air Force and get out. So we taught all those courses and we got to do research there.

During that time period they set up the boards. The boards had been set up then. In 1953, the board was actually established, and so I took the board exams right after I finished the time at Harvard. So then I was a specialist in aerospace medicine, although aviation medicine is what it was then. We still weren't allowed to use the word "space" at that time.

However, during the time I was at SAM [School of Aerospace Medicine], I was involved with—we were selecting people for special programs like the U-2 flights, the Yuri Powers' [phonetic] people that you've probably heard of. So I would go down at night to Laughlin Air Force Base [Texas] down on the border of Mexico, and we'd get a pilot into a partial pressure suit, which was what we had at that time, and launch them in the U-2. Then I'd get back before breakfast in the morning and not be able to tell my wife where I was or what I'd done. And she's still with me after fifty-four years, so it worked, anyway. [Laughter]

Then there was a program that was called Man in Space Soonest. We were going to try and launch—it was a secret program, and they were going to try and launch a volunteer suborbitally, like Al [Alan B.] Shepard [Jr.], like we did with Al Shepard eventually, but we didn't really have a good rocket to do that. We didn't have a spacecraft. They were going to sort of pad the nose cone of a V-2, the V-2s that we captured from the Germans after World War II. So I was supposed to pick some volunteers for that, and we had selected a prime and a backup guy to do that. President [Dwight D.] Eisenhower decided that was not a very good program, that we didn't have a really good way to recover the people, and if we didn't, we were going to have them dressed the same way out in a raft and pick them up. So, decided there's got to be something done better than that.

The next thing I knew, I had a set of field orders that said, "Go to Wright-Patterson Air Force Base [Ohio] in civilian clothes and you'll be met and told what to do." I'm still at SAM now, in the Air Force.

General Benson is now back from Washington [DC] at the school, commanding the school again. So I went and told him I had these orders and he had to get somebody to cover for me in my teaching load and things. He said, "You can't go to Wright-Pat. I don't know why you're going there. I haven't heard anything about this."

I said, "Well, I've got a set of sealed orders here, and I don't know why I'm going either." [Laughter]

He called Washington [DC], and they wouldn't tell him anything. He said, "You can't go."

I said, "Well, I'm sorry. I've got the orders. I've got to go." So I went.

I went to Wright-Pat, was met and taken to some little cottages that were in the woods, that were built there during World War II. I went in, and there were two guys sitting at a table. I said, "Okay, what am I here for?"

They said, "Well, you're here to select astronauts."

I said, "Okay." [Laughter] And, "What's an astronaut?"

They said, "Well, that's what we're going to try and define here."

So we were involved in the selection of the original seven guys at that time. What we were doing, they had already been called in to Washington [DC], graduates from the test pilot school, both the Air Force and the Navy, and then the volunteers from that had been sent out to Lovelace Clinic [New Mexico]. You read that probably in that other interview. They'd been sent out to the Lovelace Clinic for the physical exams at that time, because we had been sending U-2 pilots out there.

Then they came to Wright-Pat and we did a lot of stress testing things that were aimed at trying to expose them to the space environment as people said it was going to be, and we suspended them in an onychoid chamber. Have you ever seen an onychoid chamber, with all the little baffles and things it in? It's totally—I mean, you can hear your heartbeat and everything because it's totally silent in the chamber.

We put them in there in the dark and suspended them so that they weren't touching anything. They were suspended with wires, and left them in there for six hours in the dark. Now, that's dumb when you think about it, because the thing I didn't like about it, I said, "If we ever have an astronaut in this position, that means that we've really had a failure somewhere and he's out of a spacecraft, and it isn't going to make a lot of difference anyway then. So this doesn't seem like a very realistic kind of thing to do." But we exposed them to heat and cold and ran them on treadmills which were not being used anywhere else at that time. Exposed them in partial pressure suits.

We did all of this before we exposed the crews to it, or these people to it, and then we ended up selecting the original seven guys at that time. So that was my entry into what became aerospace medicine then, was through that door, coming through the Air Force. All of the people, really, at the beginning of the NASA program were borrowed then from the Air Force, Air Force or Navy. Most all of us came originally from the Air Force.

I think in one of those other interviews that you have that I've given at the Center [Manned Spacecraft Center (MSC)/Johnson Space Center (JSC), Houston, Texas] back in 1960-something, I had told about going—I was called after that selection program. I was sent—amazing. I was sent to Hollywood for three months to be a technical advisor for the Air Force on a TV series that was called "Men Into Space," and we actually went to the Moon. Bill Lundegan [phonetic] was playing an Air Force colonel, and his wife was Angie Dickinson, very young at that time. And we got to the Moon in that thing. It was a series before its time, because I don't think it did very well, and it didn't last over, I think, that season.

After the three months that we had made a whole bunch of the sessions for that, then I went to the Surgeon General's office in Washington [DC]. During the whole time in Washington then, I spent 50 percent of my time with what was then the Space Task Group [STG]. NASA hadn't been formed yet; it was the Space Task Group. They were located at Langley Air Force Base down in Virginia. They were trying to set up some things to select and monitor. We wanted to get some medical monitors to send around the globe, because we had to build sites around the globe to monitor flights.

At that time—it's hard to realize that today, but we had data come only by teletype. So we would not know that a spacecraft was launched, for instance, if you were at the Bermuda station or the Canary Islands station. The spacecraft would be overhead if it was launched, before you got any word from the Cape [Canaveral, Florida] that it was launched. So you sent data back and forth by teletype. So you had to have monitors out there. By the time we got into the Apollo Program, at my console at the [Mission] Control Center in Houston, I could have contact with the spacecraft, because we had some satellites up. I could have contact with the spacecraft virtually all the time. Not when it was behind the Moon eventually, but virtually most of the rest of the time we could contact the spacecraft and we could contact all the ships that we had out for any recovery operations. So you had contact

with everything from the one place, and you didn't need to send monitors out anymore. So we trained monitors and sent them out.

I spent a lot of time going to both the Bermuda station and the Canary Island, setting up both the Bermuda station, which was set up as a backup Control Center, and then the Canary Island station was our test station, and we used it to test both with unmanned flights and then with the animal flights, too. So that was what I did then for another three years in the Surgeon General's office.

Then we were launching John [H.] Glenn [Jr.], and we had a lot of trouble with the rocket. As a result of that, we had to stop the launch, I don't remember, I think at least twice, and not launch, call it off and regroup. So I was at the backup control at Bermuda, and so Chris [Christopher C. Kraft, Jr.] and Walt [Walter C.] Williams and Bob [Robert R.] Gilruth called me back and said to come down to Langley and talk to them. They said, "Instead of spending half your time here, we've got to have you full time," and they wanted to try and set up a medical operations organization in the Space Task Group for NASA then.

NASA had been formed, and they were looking for a place to put the Center. That was about the time that they were trying to select a place for the Center. We had spent a lot of time both with President [John F.] Kennedy and President [Lyndon B.] Johnson, running back and forth to the Cape and things, and going to the White House and so forth.

By that time we knew that we were going to have to go to the Moon right after Al's flight of fifteen minutes. President Kennedy said that he thought that we ought to go to the Moon, with fifteen minutes of suborbital flight, and we thought that was a pretty dicey thing to do, but, okay, we would try that. So I said, "Look. I don't want to get out of the Air Force." At that time I had about fifteen years of time, and I said, "I really don't want to do that." I said, "If you can get the Air Force to send me on a duty assignment, then great, that's what I'd like to do."

[D.] Brainerd Holmes was the head of Manned Space Flight in Washington [DC] at that time, and so he and George [M.] Low and Bob Gilruth wrote a thing to the Air Force, and they got me assigned from the Air Force to come to the—we were going to move the Center. By that time they were moving it to Houston from Langley.

So I was coming on an assignment, and the first thing that happened, we had all the difficulty at that time that had done on with Deke [Donald K. Slayton] and his heart problem, with atrial fibrillation, and so the first job I had before I even got there was to try and see what I could do about Deke. So I took Deke up to Boston to [Dr.] Paul Dudley White, who was probably the most famous cardiologist in the country, maybe in the world at that time. To avoid the press people, we went up an alley and climbed in the back window of his office, because press people had gotten some word that this might be going on, that there was going to be a visit to Paul Dudley White. [Laughter] So that was the first job I had.

Then I came down to the Center. It wasn't the Center yet. We were in Houston, in town at that time. That was the start of the rest of the story from that time on.

BUTLER: Maybe before we go any further, we can jump back and cover a few things in a little more detail.

BERRY: Sure.

BUTLER: In fact, going back quite a ways, you mentioned that you weren't allowed to say the word "space."

BERRY: That's right.

BUTLER: What was the motivation behind that?

BERRY: There was a big battle that was going on about who was going to do anything with space. Obviously, the Air Force was—I mean, if we're flying aircraft, the Air Force felt that space should be their environment, and that it ought to be their responsibility. That didn't end very fast, as a matter of fact. [Laughter] It went on for quite a while. There were people in the Navy who thought, well, they flew airplanes, too, and that they thought maybe they ought to have that role, too. So there was some battling going on within the services, then also with, at that time, early the Space Task Group and then finally NASA, as to who was really going to have that role.

The Air Force, the first two years that I was there, now when I was in training there and was gone for the three years, and then when I came back, for the first year I was back there, we still weren't allowed to use the word "space." You couldn't call anything "space." We were doing some space—well, we couldn't use the word "space," but what we were really doing was using sealed cabins, and we were exposing people, so you put them in sealed cabins for like twenty-one days and see could we supply everything and what was the response to that. So there were things like that going on.

Of course, we'd been involved in the Air Force with the U-2s, and with pressure suits. [Dr.] Stan [Stanley C.] White at that time was at Wright-Pat, and I was at the school. He was dealing with suits and things of that sort, more with the hardware end of the program. So the people in the Air Force felt, okay, we ought to have space, but the Air Force Command people and clear up to the chief of staff level said, "Well, there isn't any space activity within the thing."

There was also a problem because they were trying to assign the mission to NASA. As NASA was created, then that mission was assigned to NASA. When that happened, then it sort of broke loose and you could still, because you were going to contribute to that mission, then they even set up a Department of Space Medicine at the school. That was set

up in the latter part, the last two years I was at the school we had a Department of Space Medicine. Paul [A.] Campbell was a guy who was very active in that. We had Dr. [Hubertus] Strughold there, who we had brought at the time that [Wernher] von Braun—when we captured von Braun and all the guys from the Paper Clip Operation at the end of World War II and we brought a bunch of German scientists to the School of Aerospace Medicine in San Antonio [Texas].

BUTLER: Interesting.

BERRY: So that was the group that was involved in that at the time.

BUTLER: When the space exploration area was given over to NASA and actually the Space Task Group to begin with, was that a surprise or had you kind of expected that that would become, or had you even thought about—

BERRY: I think some of it was a surprise to people in the Air Force that they were doing it as a civilian operation. I think there was some surprise initially at that time. It made a lot of sense, though. Afterwards I think it made a lot of sense, but the people that were—it's like they took this old NACA [National Advisory Committee for Aeronautics] group, you know, and they had been out on the research edge of aviation all the time, and it was very engineering oriented. This wasn't a medical program. This was an engineering-oriented program. I think that was done very well. But there were battles that went on clear up—what was the program? Dyna-Soar. There was a Dyna-Soar Program.

When they finally wiped those programs out of the Air Force and we ended up in NASA taking some of those people, Joe [H.] Engle was one of the guys who came from that program, as a matter of fact. I can't remember. [Richard H.] Truly, I think, came from that

program, too. I think he was transferred. The battle went on for a long time about, "Okay, who has what role here?" And it didn't end.

As a matter of fact, I still had problems with that battle down at the Cape for a long time because we had, at Cape Canaveral, at the Air Force base there, they had provided a lot of the support then to the launch operation, and so then we had a battle going on all the time as NASA was—we were trying to be a little bit self-sufficient in the NASA operation, and we did that, but you could never do all of it. We always had to borrow people from the military services to be out at the sites around the globe for recovery operations and that sort of thing.

So a lot of people got involved. You'll find a lot of people around the world who say, "Oh, yeah, I was at NASA. I did these things at NASA," and they were actually in a military operation where we were using them at some of these places. Indeed, we needed them and they spent some time at—we would brief them, spend a lot of time briefing them for the operation that we were going to do for a particular flight. So a lot of people got pulled in to participate because of that.

BUTLER: That's good that even though there was some bad feelings about where things would go, you were still able to work together.

BERRY: Well, we did, and we had to do that. I think if you look at any of the things, if you look at pictures of us giving press conferences before and after missions and so forth, you'll always see some military people up there. You know, a lot of military people were brought in and were assigned to positions, as I was originally a military person, and we never explained that, I guess. But when I came down to NASA on a supposed three-year tour then, I was leaving the Surgeon General's office. At that time General Ollie Neese [phonetic] was

the Surgeon General. I thought it was all pretty clear that that's what we were doing and that I was going to be there for a three-year tour.

After a year, I got called in to Washington [DC], and Jim [James E.] Webb, the NASA administrator, said he and George Low and Bob Gilruth had been doing a lot of talking about they needed to make this thing permanent, and they would like to not keep borrowing anybody. So Webb said, "Look. You've got to stay here. I'm being called by General Neese about getting you back."

I said, "Well, why is he calling you about getting me back? I've been here a year. Why is he calling?"

He said, "Well, he calls me almost every week saying that he wants to get you back."

I said, "Well, that's not what the agreement was."

And he said, "I know, but we really need to get it decided, and you have to stay here."

I said, "Well, when do you have to let him know?" I was in his office. He called that morning and we flew up to Washington [DC]. I was in his office about four o'clock in the afternoon.

He said, "I need to know by nine o'clock tomorrow morning."

So I'm in Washington, so I called my wife and I talked to her, and I said, "I don't think there's any question about what we've got to do." I mean, the problem was now instead of fifteen years, I had sixteen years of service in the Air Force, and I obviously couldn't retire from the Air Force. That's a lot of service to have to toss down the drain, but I did.

So I went back the next morning and told Jim that, okay, I was going to do it. So he had twenty-five positions that President Kennedy had given him that were accepted positions, accepted from the Civil Service positions. So he gave me one of those twenty-five accepted positions at that time and so I left the Air Force and then became a civil servant for the rest of the time. [Laughter]

BUTLER: And it turned out well for you.

BERRY: Turned out well. Turned out very well. I wouldn't change a minute of it, not a minute.

BUTLER: That's good.

BERRY: But they were big decisions at the time, and difficult ones. Strangely enough, Bob [Robert C.] Seamans [Jr.], who was the deputy administrator of NASA, with Jim Webb, Bob became Secretary of the Air Force later. I was in Washington [DC] as the Director of Life Sciences for NASA, and he was the Secretary of the Air Force. We talked all the time. If I'd had had any sense then, if I'd had time to think about what was going on at that time, I would have worked out some deal with them to where I would have gotten credit for NASA time some way from a reserve standpoint, and I'm sure we could have worked that out. I've talked with—in fact, I just had a meeting up in Boston [Massachusetts] a few months ago and was talking to Bob Seamans. He said, "You know, that was really crazy. We should have done something about that." I said, "Yeah, we probably should have." [Laughter]

BUTLER: Hindsight's always 20-20.

BERRY: But hindsight is great, yes. It didn't, and it doesn't matter really now. It would have made a difference money-wise, retirement-wise, and a lot of things like that, but that's gone, so there's no point in talking about it.

BUTLER: Going back, I know it's been covered in some detail, the selection process of the original astronauts, but if you could share with us some of your thoughts at the time about

what you were selecting these men to do and how you could even test them, since nobody had done it before.

BERRY: Well, of course, that was the difficult part of it, was trying to decide what do you do for these people. One of the things, of course, was by the decision that they would be graduates of the test pilot school, that meant that right away you had a group of people that you were selecting from, who already had been exposed to a lot of danger, which they were going to be. They were going to be exposed to a lot of danger. These people had already been exposed to a lot of danger, had accepted that exposure, and had accepted it with their families. Their families had accepted or not, one way or the other, but at least they'd been exposed to it. So that was an important thing for us, I think, in the selection, and it made the selection easier from that point of view, because you weren't taking a group of people, people who applied, which is going on now, as you know. I mean, you can apply to become an astronaut, and so you have an entirely different group of people.

The first time we faced that was when we did the selection for scientist astronauts, and took the first scientist. That was an interesting selection we did. Totally different kinds of people. Totally different kinds of people. So I think that was the first thing that was important to us.

We actually found out that the things that we had set up there for trying to do—we called it stress testing, which in a way it certainly was. You were trying to recreate some of the stresses of space flight environment, because we were running them on a centrifuge, we were exposing them to altitude, to heat and to cold and all that sort of thing. So we were doing a bunch of that.

However, when we looked back after the first selection, as I tried to set up the second selection session, and we looked at the data from the first one, it was pretty clear that it really

hadn't, that that portion hadn't really helped us in culling out people any better than we had done with interviews and background checks.

Background checks turned out to be a very interesting tool for us, where you had information from background checks and from FBI [Federal Bureau of Investigation] checks and so forth. If an applicant that you're interviewing, you could set that up to where you find out, "All right, tell us about any episodes that you've had. Have you had any times when you've been in difficulty? Can you tell us about any time you've ever had any difficulty? Have you ever had an accident? Have you ever had a near-accident?" etc.

Then if they did not tell you about something that you knew, you could confront them with it and find out what happens as this individual is confronted with something that you knew and that they obviously were not going to tell you. So there were some interesting things that happened with that.

Interviews were very, very important to us and worked out very well. In the first group there was a lot of psychiatric and psychological testing done, with a lot of question by the astronaut, the would-be astronauts, and even then as we did the second selection and went on to each of the selection groups, we still always had a problem with that, because you're dealing with astronauts and with engineers who are not so sure about psychiatry and psychology anyway, and with some reason, I think, certainly. But we were trying to be very straight with the stuff that was done.

As we rated the people medically then, I was on the board as the medical member then, but we did the medical things and the interviews and things. When we brought them in, we'd bring them down to at that time the old Rice Hotel, and we practically took over a section of the Rice Hotel, but it was all very secret, still, like the first one, you know. They came in under assumed names and we got them into the hotel. Then we lived in the hotel for, gosh, I don't remember how long. [Laughter] How long it took us to go through the group.

We did all the interviews and things there. We had the medical data already, the testing and things that had been done, the physical exams and so forth.

So I think the interview portions of the thing were probably the thing that really made the difference after we were pulling from this pool of people who already—we were super selecting, if you will, pulling people out of a group that had already been super selected, because they'd been selected as pilots, they'd succeeded in all of that, they'd been through then a test pilot selection, got into a test pilot school. So here now we were even super selecting above that.

But we had guys like Chuck [Charles E. Yeager], who set up at the test pilot school, and those guys were saying, well, all we really needed was chimpanzees anyway and why were we bothering to have these guys, and these guys must be crazy to allow themselves to get into this program. But some of that was going on and was true. It was true, the way they were saying it, at any rate. [Laughter]

BUTLER: Once the astronauts were selected, what were your responsibilities at that point? You mentioned setting up the network and the monitors there. What else did that include?

BERRY: Well, at first we had a Medical Operations Office we set up. It was called Medical Operations. Walt Williams headed the operations side of the house, and Max [Maxime A.] Faget headed the engineering side of the house. Max is still a patient of mine, as a matter of fact. Walt and Chris and Bob Gilruth, too, all wanted to have this operations thing kept on that. They didn't want it—you reported a lot to Bob Gilruth, but they wanted it in the operations outfit.

Walt particularly wanted it to get in the ops [operations] side of the house, which was fine because the job was very, very difficult, because what we had to do was, we were charged with, okay, we were going to keep these crews healthy, and it was my role to do that

with whatever we could set up to do it, try it. You were going to select them, then you were going to keep them healthy, and then you were going to do everything possible to get them medically trained, whatever needed to be medically trained for a mission, any of the medical testing. Like if you were going to have to do centrifuge runs, altitude chamber runs, and eventually we got involved in, when we finally decided in the late Gemini Program that we were going to have to do underwater things, too, in the water facility, that we needed to have that. Then we had that kind of monitoring, too.

So you had monitoring for all of that activity, but I felt we had to take care of families at the same time that you were going to—so we had to have some medical care for the families as you were going to provide it for the crews, too.

Then, of course, you had a big role in that you had to do the monitoring during the flights. So we had to set up, have people that were going—initially it wasn't so hard, because they weren't very long flights. It wasn't a hard job at all from a length point of view, except that we set the Center in Houston. We used to go and we'd be maybe a month at the Cape prior to a flight, because the Control Center was at the Cape. So if you're doing simulations or anything, which we had to do a bunch of simulations, and when you're doing simulations, you had to have the Control Center.

So you'd go and live at the Cape for a month by the time you did the simulations, all the pre-flight preps and stuff, and then finally had the flight and the recovery and do the post-flight debriefing and everything. We spent a lot of time at the Cape. We began to wonder why in the world we ever had the Center in Houston when we were doing everything at the Cape.

So it was wonderful when finally, by the second Gemini flight, we had a Control Center in Houston. But that made my life difficult, too, because then we still had to have an operation at the Cape, and so I had to set up another office at the Cape and I had to keep staff at the Cape. Then I had to go back and forth all the time at the Cape, because sometimes you

had crews, as we got into Apollo in particular, it became much more difficult, because we had to have training. We then got simulators down at the Cape, so we had flight simulators, we had crews training at the Cape, and we were doing a lot of the last-minute stuff there. You had to keep a handle on that with what was also going on at the Center back in Houston.

It became a complicated thing. And then you're running back and forth to spacecraft testing and acceptance reviews, and then for the reviews that you would do before a mission, and we always did those down at the Cape. You know, it was arranged in a very sensible and, I think, extremely responsible manner at that time. I would say, from my point of view, I think that's one of the things that happened by the time the *Challenger* [51-L] event came around. I think that we did not have, from everything that I've seen with that, you didn't have the same kind of responsibility lines.

NASA had become very bureaucratic by that time and it had a lot of layers and things. It was pretty clear who was responsible for something in those days. When you had a flight readiness review at the Cape, I would have to make a presentation and say, "Okay, here's what has happened with this crew. Here are the people who are on the crew. Here's what we know about them medically. Here's what we know about their training. Yes, this crew is ready." And I had to sign that this crew is ready. Then Deke Slayton had to do the same thing, and he had to stand up and say, "Okay, here's the thing with the crew."

Wernher von Braun had to do the same thing about the rocket that we were going to use. You had to say any anomaly that had happened in manufacture or anything that had gone wrong in testing. You had to show what had been done to remedy that. And everybody there had to accept that or it wasn't going to happen. It was pretty clear who had responsibility for what. It was a lot of responsibility, but I think that was an important factor in keeping all that straight.

As things get bigger, it's hard to do that, but we were doing that certainly through the Apollo Program. Apollo was an expensive program, because I don't think you could do an Apollo Program in this country today. I really don't think you could pull it off.

BUTLER: There were certainly a lot of motivating factors back then.

BERRY: That's right. Exactly. You did. We were all absolutely, completely dedicated to that, and there was no doubt. I think any one of us would probably have given our lives, and we just about were, as a matter of fact, to make it occur. But it was a particular time where you had a President who had set the tone for it and said, "This is what we're going to do," and then we all became dedicated to it. We had the capability.

They started out selecting metal, you know, base metal, and then you made it into a part, and you followed that. You had quality control that said, okay, you put a tag on some metal and you follow that metal then to a part, and then you tested that part to failure. Then you put it into a subsystem and you tested that from mean time to failure. Then you put it in a system and tested that from mean time to failure. And the requirement of the program was that you had a .999 reliability for everything, and you wanted no single-point failure.

So one day in a meeting, we were in a senior staff meeting, and they said, "Okay. We think we have the .999 reliability." [Tape interruption]

Where were we?

BUTLER: You were talking about the .999 percent reliability.

BERRY: Okay. When we got interrupted. Well, the Apollo Program had this .999 reliability. So they said, "Okay. Chuck, what we want you to do is to give us a .999 reliability for the crew."

And I said, "Well, I tell you, you guys got to select the base metal at the time it was a base metal, and I didn't get to do any of that. We've got a finished product here." We didn't have anything with base metal. "Then you got to take each of the parts and the subsystems and the systems, and you tested them to mean time, to destruction." I said, "The first time I do that with an astronaut, then I will be in jail the rest of my life. So I don't think that's going to happen." I said, "Regardless of that, though, I will tell you that I would put our crews up against your hardware any time, and I think when we assign a crew to a mission, when Deke has picked the crew and then we both agree that they're ready to go on the thing, I think that the crew is going to do as well as the hardware." And I think we got some great missions to show that, like Skylab and Apollo 13, a few things we could show where indeed that was the case.

BUTLER: Absolutely.

BERRY: The crew has done as well or better, and survived in spite of the hardware. [Laughter]

BUTLER: That's right.

BERRY: So it was an interesting discussion. I like to say that from an engineering point of view, they really did have the capability to do that, and they were able to get a .999. I think that's wonderful, but that's an expensive thing to do for a program, but it's an important thing to do.

When we were doing medical experiments, we had difficulties, too, because they wanted everything that we had aboard the spacecraft, wanted space-qualified. Now, if every piece of hardware that you put on there, sure, you can't just take a stethoscope, if you really

lived by that rule, and that makes things—the minute you say something's going to be space-qualified, then a lot of money is going to go to a lot of contractors to say, yes, this piece is space-qualified to go on there. So that makes the experiments really expensive. So there had been a big move, and I think a lot of things now are done that aren't "space-qualified," and I think that's very sensible to do.

BUTLER: Got to have that balance.

BERRY: That's right. Exactly. Price yourself out of business is what you do. [Laughter]

BUTLER: We've talked a couple of times now, you've mentioned Deke Slayton, and you started to talk earlier about how you and he snuck in through the back way when he did start having his difficulty in Mercury. As you tried to help him through that, of course we know the outcome and that he, unfortunately, did have to be grounded for a while, then eventually did get to fly. But as you helped him through that, how was that for you, working with him and trying to work the situation out?

BERRY: Well, it was a very difficult thing, the situation with Deke. It was extremely difficult for Deke, because Deke could never accept the fact that he really had something that was—that it was an illness of any kind or that it was a defect of any kind. If he had had it, his view was, if he did have it, which he finally agreed he did have, then he had had it at the time he was selected, although it didn't show up then. There wasn't any history or anything of it, or any record of anything of it, and he didn't know that he had it. So if he had it, then, okay, he had it, and he had it for a long time. Therefore, he didn't think there was anything wrong with it.

As a matter of fact, we could have him go out and run. Early in the game, we'd have him run, and that would stop it a lot of times. It was very intermittent at the beginning, and it wasn't something that was there all the time. It would come and go. The first time we saw it was on a centrifuge run, and we were doing a centrifuge run up at Johnsville [Pennsylvania] for reentry G profiles, and he fibrillated. We didn't have really good electrocardiograms at that time, and getting him off a centrifuge that's going was difficult, so we got him off the centrifuge and looked at the electrocardiogram and you could certainly tell that, indeed, yes, he is fibrillating.

So the situation initially was with Mercury, then, was he going to get to fly at all in the Mercury. He was taken off early in the thing, as you know. He would have gone on the flight that [M.] Scott Carpenter went on, the flight after John Glenn. He was taken off of that flight. Then when in the program he was made the head of, at that time, the head of the Astronaut Office, was what the position was, and then he later got Flight Crew Operations, which had both an Astronaut Office and a training side, too.

That's a very difficult position, now, to be in. It was difficult for Deke because here he made the decisions about crews. Now, they had to be approved. He decided, "Okay, here's who I think we ought to have on this," and then he had to get that approved, of course. So there was review and so forth, but Deke was really doing that. It was difficult then for him and the other guys originally, only six of them to deal with, and then as we got more, here you have a bunch of astronauts who are going to fly, and Deke is assigning them and he isn't one of them. Now, it was harder for him, I think, whereas, you know, there are a lot of people making these decisions who aren't astronauts flying. But it was a hard time for him.

Medically it became a difficult thing because here you have a grounded astronaut that you're having to deal with to do things with the crews, and I think you know from having read some of the things and probably seen movies and other things, you know that there always are some difficulties with a flight surgeon, medical decisions being made about a

pilot or an astronaut. I have this every day here. We have difficulty making a pilot understand that our job really is to try and keep them flying. That's what the whole thing is about. I don't want to ever ground anyone. If I had my way, I would not ground anyone. But I'm going to have to ground someone if I feel that it's a risk to them or a risk to other people. And if it is, then I have to say, "Well, then we can't let you fly unless we can do something to fix this some way or other," and we'll do everything we can to try and fix it. But if we can't, then we have a serious problem.

So you had that kind of a situation going on, and Deke is having to make decisions then. He's trying to protect the astronauts. And the astronaut view, the basic astronaut view was, "Look, there's no reason why we can't fly. Why does anybody think anything's going to happen to us in the space environment? We know we can do this thing. It's going to be fine. Give us a jock strap and a white scarf and we'll go, and that's it."

Well, that was one end of the spectrum, and on the other end of the spectrum we've got, in particular, the editor of *Science* magazine at that time and the President's scientific advisors, and the National Science Foundation, and people like that who were beating me over the head, saying, "You don't have any data that says it's okay for man to do this. So it isn't safe. You don't have data to prove that it is, and you're not getting any data to prove that it is." And the astronauts say, "There isn't any question." So they don't want any data obtained. These guys are saying, "You don't have any data. You've got to do something," and shooting at the program all the time.

In fact, everything that was ever said, which everything was being said publicly because that was a decision that President Kennedy made at the beginning, that we're going to be public, we're not going to be like the Russians, so everything we did was public. As you know, we had a press conference after the shifts in the Control Center, and we were constantly being thrown out in front of the press people. Anything that happened, I always had the question that I felt like I was in a position where I had a whole stack of reporters out

here, and they all were like this, with the things ready, and they had the microphones all stuck up here and the TV cameras were all aimed. They said, "Okay, now, Dr. Berry, what did that astronaut do, and what does that mean to the future of the space program?"

And that's really the way that it was. Everything that happened, the question was, "Okay, man really isn't going to make it." And we were having to make decisions about can we go—as you know, on Mercury we only got about thirty-four hours as a max [maximum] time with Gordo [L. Gordon Cooper on *Faith 7* (Mercury-Atlas 9)], and now we're going to go to the Moon, so we had to get the time, the additional time, in Gemini. I think you probably read, I went through a lot of difficulties trying to make that decision and get it accepted, that, okay, we were going to go four, eight, and fourteen days, and we weren't going to fly longer than fourteen days in any lunar mission. So that would be okay if we could do that. But how many people are we going to have do that? Two people in each Gemini flight. We're going to fly two people for four days, two people for eight days, and two people for fourteen days, and then I'm going to say, "Let's go to the Moon." And we did that.

Now, the difficulty in doing that is, you don't know how much of what you're seeing is individual variation, because every human is different. We put us all in a category, but we're all different. So we have different ways that we respond. We say, gee, is that an effect really of the space flight environment? Is that really a weightless result or not? In fact, we had some concern about how much of it was confinement, because we were pretty confined in Mercury and Gemini, really confined. So it was a gutsy thing to do, to say, "Okay, this is what we can do, and we think it's okay." There are a lot of people who didn't think it was okay and that we were really being pretty cavalier about the decisions that were being made.

I have a deep and abiding faith in the human capability to adapt to almost—the human body is set up in a way that it will adapt to most anything within reason, within some reason. It's going to go through adaptive changes. Of course, then the big question, in my

mind, is, is what we're seeing an adaptive change and how far can it go and still be adaptive and not interfere with the performance of the individual involved. That was the real crux of everything that we were going to do.

When we got the people to go for those time periods and saw that they could perform and things weren't getting worse, we still didn't know at the end of the Gemini Program, we didn't know which way things were going to go. Had we reached a point where things weren't going to get worse? We certainly didn't know.

As we were facing Skylab, the Russians thought we were absolutely crazy. I was assailed at all sorts of things because we were going to do twenty-eight days and they thought we were out of our mind. They tried hard to—I think they tried hard to sink our program with all of the bad things that they were saying. And they'd had some bad results by then in some flights. They'd had an eighteen-day flight which gave them some terrible results, and that still was before we had done—we'd gone fourteen days, so here was an eighteen-day. Four more days. We thought, "Come on. There's something wrong with that flight."

In fact, that's an anomaly. It is an anomaly in the whole program, and I think it was an anomaly, some of it due to their particular spacecraft environment and some of it due to the individuals involved, too, probably. I know both of those individuals well. But that was a bad result, and they said, "Now, gee whiz, you're going to go twenty-eight days, huh?"

Well, we did that and we had some things happen, but we finally, with the Skylab Program, we were able to decide. We were able to put some end points on a lot of the things. The one that we didn't was a calcium loss. We still weren't sure where that bottomed out at the end of that, but we did with the red blood cell loss and those things, which scared us a lot at the beginning with the twenty-eight-day flight. But we got those things pinned down, but it was a hard thing.

I got way off from Deke. But what happened with Deke, trying to get data and then having the guy that you're having to make the deals with to get the data be grounded

medically is not a good position to be in at all. And it was worse when we had to ground Al Shepard. Then Deke made Al Shepard head of the Astronaut Office, and he's now Al Shepard's boss for the whole operation. So now we have two grounded astronauts to deal with. Al was even more bitter about it than Deke.

I had taken Deke—we tried to get him in the Mercury thing, and when I took him to Paul Dudley White, this was at the time of—it was just before Scott Carpenter's flight. It was after John Glenn's flight. So the question was, can we get him to fly at all in Mercury?

[Dr.] Gene [Eugene] Braunwall was the head at the National Heart, Blood, and Lung Institute in Washington [DC], and he was one of the cardiologists. He's a very famous cardiologist now, too. Gene was one of the cardiologists that had examined Deke earlier. So I got together with Gene Braunwall and I said, "Let's develop a plan of things that we can do to show that he would be okay to fly."

I can't remember if I went to him before. No, I guess I went to him right after we got back from Paul Dudley, so we'd better finish Paul Dudley first. We went up and we went over. He looked at Deke, and we sat and talked. Deke thought that he was probably going to say that it was okay, but then I got a call from Dr. White, Paul Dudley, and he said, "Gee, Chuck, you know, I really don't think that we ought to expose him to this environment that we don't know this much about," and he said, "I just really don't know for sure what would happen." And he said, "I just don't think we ought to fly him alone." He said, "I don't think we ought to fly him alone in a spacecraft," and that became an important thing to Deke, because it said, "Hey, sooner or later we're going to have more than one in a spacecraft." So he said, "Hmm. Okay." But he was pretty put down by that.

To make a long story short, I took him to Paul Dudley White again when Gemini came around. Deke was sure, "Okay, now we've got two people. I can fly now." [Laughter] Well, we went to Paul Dudley White again, and the difficulty then, Deke was fibrillating a lot more often, and he was aware now of when he'd be fibrillating. You'd be in a meeting with

Deke, and you could tell when he was fibrillating, because you'd see him sneak over and feel his pulse. He finally got to where it was fibrillating all the time.

So when I took him to Paul Dudley at the time of the Gemini Program, we came out of there, and Paul Dudley White said, "Gee, you know, he's getting worse, and I just don't think we can fly him."

Let me back up. I had gone to Gene Braunwall and we tried to develop a plan that would allow Deke to fly, and we were going to take him in fibrillating, let him fibrillate. When he was fibrillating, then we were going to put him on a centrifuge. We were going to run him to altitude, we were going to put him in heat.

At that time, which is very commonplace today, but a big risky business then, we were going to catheterize his coronary arteries. Nobody knew why—we could never figure out why he fibrillated, and so some of the people said, "Well, he has a shunt between the right and left heart." Some of the other people—I mean, they didn't know that, but they said that's probably it. Some other people said, "Well, it's probably coronary artery disease." So we were going to look at his coronaries and do this thing.

So we did this plan and I took it to Jim Webb, and I said, "Okay, Jim, I want to know. We want to do this on Deke."

He said, "No, that's risky."

I said, "Yes, it's risky, but Deke is willing to take the risk."

And he said, "I don't think we ought to take the risk, because I'll tell you honestly, politically I can't risk flying him." He said, "I can't risk it in this environment when we might be risking the whole program if we flew him and had a problem." So he said, "I just can't do it. So, therefore, I'm not going to okay you doing all this. It's for nought if you do it."

So now Gemini comes and we go back to Paul Dudley, and we came out of there, and it was clear that he was not going to change his mind. Deke and I went out to the Boston Airport, waiting for a flight home, and sat and cried, both of us. You don't see Deke cry very

often. It was a very difficult, difficult time, but he knew that at least I was continually trying to do something to get him back. We broke a lot of things trying to get him back.

In the meantime, the Air Force had—have you read his book at all?

BUTLER: Yes.

BERRY: Have you? Okay. Well, Deke had gotten a deal. I had talked to the Surgeon General. Dick Bohanen [phonetic] was the Surgeon General then. I had a deal with the Surgeon Generals that, okay, I was the Surgeon General for these guys as long as they were assigned to NASA, and that the services wouldn't take action on anything that happened to them. In short, if I said they're okay, the services weren't going to say anything about it. Unfortunately, that had not been done—you need to stop?

BERGEN: You've got a couple of minutes.

BERRY: Okay. That had not been done originally when Deke was seen. He was an Air Force guy, and the Air Force really punted that. I was at the Surgeon General's office at that time just when this decision was being made, and they punted Deke back to us at the Air Force. So a lot of examinations and things were done then, and that was a bad mistake. That's one thing I knew then. So I got an agreement that, okay, I could act as a Surgeon General. When I qualified people, that was never going to be second-guessed by a Surgeon General of one of the services.

However, it happened that General [Curtis E.] LeMay—and why, I do not know, but he got concerned, that he felt that Deke was going to have to be grounded. So General Bohanen had to come and tell me that, "Hey, you know, the chief of staff is telling me that we're going to have to ground Deke."

So I said, "Well, okay, let me—" So I talked to Deke, and Deke said, "Okay, I'm going to get out of the Air Force, then." So we had a press conference the next day, and Deke said, "I'm resigning from the Air Force." [Laughter] And he did. He resigned from the Air Force.

Then I said, "Fine. Okay. Now I'm going to allow you to fly, but you're going to have to fly with somebody else." I said, "You're going to have to have another pilot. I'm going to put you in a Class III status."

Then Al Shepard came along and got grounded, so I did the same thing with Al. I allowed them to fly in the T-38s. So we'd be at the Cape and Deke would say, "Hey, Chuck, I need to get back to the Cape. Come on. You can go with me."

I said, "Sure I can, but I'm not going to do that, Deke."

Then Al and Deke would come to me and say, "Hey, we want to go back."

I'd say, "No. This sounds horrible, but two half-pilots don't make a whole. I'm sorry. You cannot do that. You've got to have another qualified pilot with you." [Laughter] And so that was Deke's situation. There's a lot more to it.

I don't know where you are on that tape. You're okay still?

BUTLER: We can stop now and change.

BERRY: Okay.

[Break]

BUTLER: It eventually did work out.

BERRY: It did. After that time, I don't remember, because I'm not looking at any dates right now and I can't tell you for sure the timing, but I think it was still during the Gemini Program that Deke had begun to fibrillate pretty constantly, and, as a result, I had done some things. One time I set up a thing. He was fibrillating and so we put him on a bicycle ogometer and did a cardiac output on him while we had him running on the bicycle ogometer at full bore. Then we ran a cardiac output on him not fibrillating. I could show that Deke didn't have a great deal of difference in his cardiac output when he was fibrillating versus when he wasn't fibrillating. But I just had that data in my pocket without being able to do anything with it.

So I decided, finally convinced Deke that we ought to treat him and we ought to stop the fibrillation, and we could do it with medication. So we brought him down to the diagnostic center, hospital, and hospitalized him for a few days and put him on Quinidine and converted him, stopped the fibrillation with Quinidine. So we kept him on his medication, changed him to Quinaglute finally, which is longer-acting, and he was doing okay. He was going along on the medication and not fibrillating.

Then he went on an antelope hunt. He went on an antelope hunt, I think in Montana or somewhere, and he ran out of Quinaglute, so he wasn't taking it. Got back and he still didn't get any, didn't take it, and he started noticing he wasn't fibrillating. So he started keeping records and he meticulously had all these records with dates and times and heart rates.

He finally, after about three months, he came in and closed the door in my office, and he said, "Doc, listen. Really, I want you to know, I've been doing a thing here that I'm sure you're not going to be happy about, but I am not on the medication anymore."

I said, "What do you mean, you're not on the medication?"

He told me the story, that he'd run out. So he said, "Now look at these records. You know, I haven't been fibrillating at all. So what I'd like you to do, I would like to be able to

fly again, alone. I'm not talking about going into space. I'd like to be able to fly an airplane by myself."

And I said, "Well, I tell you what that means. Are you willing to take the risk then of—let's go. We're going to have to prove that all these people are wrong." This is now several years, obviously, had passed. I said, "Now I think what we have to do, we need to look at your coronaries and we need to show. We may find that you do have a lot of coronary arteries. That's possible. I can't swear that you don't. But we're going to have to look. So the risk is, if you do, you'll be the only astronaut that we know about his coronaries, but anyway, if we do that, it's a double-edged sword here. It could be good or it could be bad. The other thing we've got to prove is that you don't have a shunt."

So I had met and talked to Hal [T.] Mankin from the Mayo Clinic some time before that. I think I was at an AGARD [Advisory Group for Aerospace Research and Development] meeting in Turkey. So I said, "I'm going to call Hal Mankin and see if we couldn't do this up there."

So we took Deke, under an assumed name, to the Mayo Clinic, and we set it up. We catheterized him, put a catheter in his right heart, his left heart, and also in his coronary arteries, and we ran him on a treadmill with the catheters in, and showed that he didn't have a shunt and he didn't have any coronary artery disease, which was really sort of amazing, because we got a lot of people younger than Deke Slayton was then who had coronary artery disease. But he did not have any.

So it was a very neat thing, that here, okay, now we had this data. So I wanted to put him back. Now we're at the—in fact, we were getting ready to announce the first Skylab crew, and we were going to have to announce the Skylab crew about—I don't remember, it was a month or something from then.

Jim [James C.] Fletcher was the NASA administrator. So I went to him and I said, "I'll tell you what I want to do. I want to get Deke. I want to qualify Deke. If I qualify him,

he's going to be qualified to fly and he's going to be qualified to fly in space, too. So whether he's assigned a mission or not is something else, but that's what the situation's going to be."

He said, "Well, gee." Fletcher was a guy who worried a lot about what the President was going to say and what who else was going to say, to the point—to show you another reason for that—in Skylab we had to have a meeting every Wednesday, and I had to sign a slip and Bill [William C.] Sneider had to sign a slip that it was okay to fly for another week. Those went over to the White House. Fletcher then took them over to the White House.

So here he said, "I'll tell you what. I want you to get a clearance from all of these famous cardiologists who had seen him before."

I said, "You're asking a pretty difficult thing. You're saying I have to get a clearance from all of them before I do that." So I took the data and I went to all these cardiologists, and the only one who wanted to see him was Paul Dudley White. [Laughter] And we took him back to Paul Dudley, and he said, "Okay." He said, "All right, I agree with you. I think you can qualify with the data you've got." But he wanted to see him, too. The other guys didn't want to see him. They looked at the data and all of them, except one, said, okay, they would agree, based on the data that I was showing them, that they would agree it was okay to fly him.

This one was the president of the American Heart Association that year. But he said, "I'll tell you what, Chuck. I don't agree. You've got other qualified people, and I wouldn't fly him because of that. However, I'm not going to make any fuss about it if you do."

I said, "Well, I'm going to, so I appreciate the fact if you're not going to raise a public row about it."

So I went back to Fletcher and told him, okay, we had an approval by everybody except one, but he wasn't going to raise a fuss about it. He said, "Okay."

So at the announcement of the Skylab crew, announced also that Deke Slayton was going to be placed on flying status, and so then that's when he got set up to go then on the Apollo-Soyuz mission.

BUTLER: It must have been very satisfying to be able to say he can go, and then to see him on that mission.

BERRY: Absolutely. Absolutely. There's a thing in my office there, that he gave me the electrode from that flight, with a strip of the EKG [electrocardiogram], which is a normal EKG. [Laughter] He had it mounted in a thing that you can see in there.

That's another interesting story. I left NASA just prior to Deke's flight. Now, I had to get a lot of people convinced with Fletcher. It wasn't hard to get Chris Kraft, Bob Gilruth, and George Low, but I had to convince them and then Fletcher. Well, I had come back here from Washington [DC] as the first president of the Health Science Center here, UT [University of Texas] Health Science Center in Houston. Lady Bird Johnson had talked me into doing that. So I was doing that job.

I get a phone call from Chris Kraft, and he said, "You won't believe what's happened."

I said, "Well, what has happened?"

He said, "Listen." He said, "We are getting the things ready for this Apollo-Soyuz mission. There is a hold at T minus two minutes, and they have presented some mission rules." And here we were, as I remember, something like maybe three weeks from flight. He said, "They've come up with a mission rule that says if Deke is fibrillating at the time of that hold, they're going to take him out of the spacecraft."

I said, "Who's saying that?"

He said, "That is not anything that you told us or you agreed to. That isn't something we should agree to."

I said, "No, absolutely not."

So he said, "Okay. Bill Sneider is going to call you from Washington [DC], but let me tell you what I'm going to tell them now. I'm not going to listen to any of the people down there. I'm going to cut off the communication to the Control Center with the other medical people at the Cape. We're going to set up a console for you, and you're going to tell me what we're going to do."

I said, "Oh, man. Come on, now. I can think of a lot of analogies about that, but you want me to go to the Cape and do that?"

He said, "Yes, absolutely."

I said, "Well, I tell you what. You tell the—" So people that had worked for me before and an outside cardiologist, they had had look at this. I said, "You tell them to bring the data and come down here. I'd like to see some current data on Deke. As far as I know, he isn't fibrillating or anything, anyway, and he attributes that to my vitamin therapy," which he does, and he's done. I can a phone call or a letter damn near every week from somebody around the country who reads that, and they want me to cure them. It's unreal. I've got a couple letters on the desk in there right now. But the vitamin therapy, I don't think cured him at any rate. I think it's fine to take—I agree with the vitamin therapy.

I don't know whether the names of those people are out or not, but Royce Hawkins [phonetic] was the doctor that was involved, and the guy that I had finally ended up telling them, okay, they could select to replace me at headquarters, Dave [David] Winter, was there. They had put this mission rule in. So Royce and Earl Beard [phonetic], a cardiologist from here in Houston, came down with the data, and I sat and talked to him in my office at the university. I had more data than they did. I told them about the data I had in my pocket

about having run him on the—when he was fibrillating and when he wasn't, and getting cardiac outputs and things.

So they finally agreed, okay, that's right. I said, "Now you're going to go back and you're going to go—" I said, "I'm going to call Chris before you leave here, and you're going to go back and you're going to talk to Chris, and you're going to tell him that that's okay, and you're going to withdraw this mission rule. Is that right?"

"Yeah, that's what we're going to do."

So they went back and told Chris this. He called me back and said, "Well, I'm not changing anything. I still want you to go to the Cape and do this anyway."

Then they got to the Cape. I had a special invitation. That means it was going to be the first launch I ever saw, because I never get to see a launch. I'm always in Control Centers. I said, "The first launch I'm ever going to see." Well, that went down the pike.

I arrived at the Cape, and I was met by this bevy of all of the hierarchy, Chris Kraft on up. They met me at the airplane. I got off the airplane and he said, "You won't believe what happened. I just fired that S.O.B. [son of a bitch] and I sent him home." [Laughter] He said, "He put the mission rule in again here at the flight readiness."

I said, "You're kidding."

"No, he did." He said, "I fired him and sent him home." He said, "You're going to monitor this thing."

So Deke did not know this. If he had, I don't know what would have happened, had he known it. He found out after the flight, but he did not know it at the time. We purposely didn't want him to know, but we had to tell the commander of the flight, though. It was Tom [Thomas P.] Stafford. He told Deke after the flight, what had happened. So he was dogged clear up until even when he flew, he had the problem, so it almost never ended. But then he didn't die of any heart problem; he died of a brain tumor.

BUTLER: His heart was strong through the end.

BERRY: Yes. Absolutely. And he didn't fibrillate anymore, either, and we still don't know why. I still do not know why. It's idiopathic, which just means we don't know why, we don't know the cause. We could not find any cause. All the common causes of fibrillation we had chased down a long time before. He didn't have any thyroid disease. It wasn't from smoking. It wasn't from alcohol. It wasn't from any of the things that you could possibly find.

BUTLER: Shows how complex the human body is.

BERRY: The human body is a very complex mechanism, it really is. Definitely.

BUTLER: You mentioned Al Shepard a couple of times as we were talking about Deke Slayton, how it was a similar situation but was a shorter time span, I guess.

BERRY: Yes.

BUTLER: Are there any future comments you wanted to make about him?

BERRY: Well, Al developed Meniere's Syndrome, and it is a syndrome that we feel is caused by increase of fluid pressure in the inner ear. In the inner ear, as you know, there are three semicircular canals that pitch, roll, and yaw, really, and that give us the primary balance sensor in the body. The otolith, then, at the bottom of those semicircular canals, which is involved in motion sickness and space motion sickness, but then there's also a cochlea, which is where it picks up our hearing. Those have a fluid called endolymph in them.

The increase in that fluid, overproduction of that fluid, and that pressure then on those organs, both in the canals and in the cochlea, causes three primary symptoms that make the diagnosis of Meniere's Disease. It means that you have ringing in your ears, or medically called tinnitus, and then it also produces a hearing loss, and it produces vertigo. You have spells of vertigo which can be severe enough, and were severe enough in Al's case, to throw you to the floor. You're unable to balance at all. This developed with Al.

He developed these symptoms, and he came to the clinic, to the flight surgeon's office, and said, "I'm having a problem," and it's got to be a problem if he's going to come in and say something about it. And it was a problem. It was a big problem, and it got worse. We tried medical therapy, tried some things to see if it would help, and it would help some, but there is no great therapy that does something for this.

To make it real short, this happened, I guess, just before—I think it was just in the very early Gemini, I think, right at the beginning of Gemini, because we had wanted to fly Al on another Mercury flight. I badly wanted to have another Mercury flight, because I wanted to get some additional time over that thirty-four hours. So we thought, gee, okay, we'll fly Al on another flight. So he was certainly all right at that time. This happened, then, I guess, early in Gemini, and it kept him out the whole Gemini Program, of course.

Then what happened is, as this got worse and we weren't doing very well with the medical therapy, it is a disease that sort of waxes and wanes. Sometimes you have it real severe and you'll have a lot of vertigo, and other times not as much.

But there was a Dr. Bill [William] House in L.A. [Los Angeles, California], and there's some question about it. Al says that he heard about this from Tom Stafford, and I'm not sure that's what really happened, but I won't swear that he couldn't have heard about it from Tom Stafford. I had become aware of Bill and the House Clinic, and I had known Howard House, his brother, from the time I was in practice out there, California being home. So he had a theory that this was due to the increase in pressure, and if he could relieve the

pressure by an endolymphatic shunt, he could drill a hole, take a little plastic tube, and put it into the saccule, which is at the base of the semicircular canals, and drill a hole then through the base of the skull and into the cerebrospinal fluid. This shunt then, this tube goes into the cerebrospinal fluid so it equalizes pressure all the time between the semicircular canals and cochlea and the cerebrospinal fluid. So it's like a drain. You'll never build up the pressure.

So he was doing this endolymphatic shunt operation. So it was set up then for Al to go out there and get this operation done and see if that would cure this.

Well, we had the operation done, and then I took Al down to Pensacola [Florida] and we ran him on centrifuges, and we took him to altitude. We ran him on slow rotation rooms, and we did everything, trying to create difficulty for this and prove that we couldn't move the tube, for one thing, and, secondly, to show that he did have some recovery here. I wanted to qualify him to fly again.

So, again, we went through a lot of hassle about, "Okay, is this okay to put him back or not?" So I did put him back flying, and then that's how he ended up then with Apollo 14 as a flight. There was a lot of other intrigue with that, but, nonetheless, he got Apollo 14.

The difficulty with that was, there was a publisher named [William] Loeb. I don't know if you ever heard of him. He was the publisher of the *Manchester Guardian* in New Hampshire. It's a big New Hampshire newspaper. He was a big Republican who felt he was a President-maker, big in politics. He wrote a "Dear Dick" letter to President [Richard M.] Nixon and said that he'd had dinner with some friends the weekend before, and that they told him that President Nixon was risking his presidency if he flew Al Shepard on this flight, if he allowed him to go on this flight.

So I got a call from the White House that said, "Hey, we have a 'Dear Dick' letter here, and we want you to write us an answer for it." So they sent a courier with a letter. [Interruption]

I'm sorry. We were with Al.

BUTLER: We were talking about Al and the "Dear Dick" letter.

BERRY: The "Dear Dick" letter. Okay. Well, this publisher, Mr. Loeb, had written this letter, and I was concerned. He said he had had dinner with some ENT [Ear, Nose, and Throat] physicians on the weekend before, and they had said that this was a risk to the presidency if they flew him. I was concerned about writing a letter to a newspaper publisher and trying to explain something medically to a newspaper publisher, so I did a little arguing back and forth about, hey, I wasn't sure that we ought to do this, and I wondered if we couldn't say, "How about if we talk to the people that talked with you, and I think we could convince them medically that what we were doing was right." But that wasn't going to work. It turns out, that wouldn't work. [Laughter] They did want a letter to this guy.

So I put together a letter that said, basically, okay, he'd had this diagnosis, we'd had this surgery done, and obviously this is a new operation, and therefore it's controversial, still, and there's some people out there who don't agree with this, I'm sure. Okay. But, nonetheless, we had run him, all the testing we had done, and so forth with him afterwards, and was convinced that there wasn't any hazard or risk with this.

That letter went back, but that didn't really convince. That was sent by the President back to Mr. Loeb, but Mr. Loeb wasn't convinced, and he began to instigate people to write letters. So we'd get a new batch of letters every week that came through the White House, did this clear up until time of that flight.

After the flight we ended up at the White House for a White House dinner, and went through the line, and President Nixon said, "Well, I'm sure you're really happy that Al did so well on this flight, but I bet the thing you're happiest about, you don't have to answer any more of that damn letters." [Laughter] I said, "You're right. That's exactly right. I hope I never answer another one of those letters."

That was one problem with President Nixon. The other big problem I already had with him was on Apollo 11, was where he was going to have dinner with the crew the night before launch of Apollo 11. You probably heard that story somewhere or other. That was another President Nixon problem. He had just become President before that flight and he'd had nothing to do with the space program, of course. Prior to that, President Kennedy and President Johnson had had a lot to do with the space program personally and knew pretty well the kind of things we were doing. We'd had a lot of direct contact with them. So I think there was a lot of trust back and forth.

There was some concern within NASA when President Nixon became President, as to how that was going to go. Frank Borman had just completed Apollo 8, and so it was decided, okay, they would make Frank Borman the liaison to the White House, and he was going to try and get the White House up to snuff about space and getting them involved. One of the things, of course, he and the White House staff apparently tried to get involved, was to get the President involved in some way. Here was the greatest event that was going to happen to mankind, landing on the Moon.

I was just leaving for the Cape prior to—we were going down for the final big physical exam before the flight. I was just starting to leave the house and I got a phone call from an Associated Press reporter that was one of the guys that I knew that was following the space program all the time, was always at press conferences. He called and he said, "Chuck, I just got word that President Nixon is going to have dinner with the crew the night before launch in the crew quarters." And he said, "What do you think about that?"

I said, "I don't know anything about it." I said, "I'm totally unaware of that."

He said, "You haven't been asked about that?"

I said, "No, I haven't been asked anything. I do not know anything about it. As far as I know, that's not happening."

He said, "Well, how is that possible with your quarantine program? How does that fit with your quarantine program?"

So here I am in a very bad spot. I said, "Well, it doesn't fit with the quarantine program." And I said, "You know, there are possible ways that if planning were done and so forth, that something could have been done about that, could be done about that. You know we had a press conference for the crew prior to the time that we had them go to the Cape, and we did that press conference by having them come in with bacterial masks on, and we put them in with a laminar flow room in the front, so they had no direct contact. They had no contact with any air from any of you infected reporters."

So he said, "Yeah, I know."

I said, "That would be a big operation, but that sort of a thing could be done if it were necessary to do it, but I'm not aware of anything about that."

Well, I arrived at the Cape and there's already newspaper headlines, "Dr. Berry Prevents President From Having Dinner," and all hell broke loose. I guess that's as close as I ever came to getting fired in my life. I had phone calls from everybody. It was embarrassing to the President because he had been led down a primrose path, and he was madder than hell. There isn't any doubt about it, he was mad, because it didn't look very smart. And Borman was mad.

Bob Gilruth and Chris, George Low, all those people were afraid of what was going to happen, what might happen because of it. So finally Frank Borman came by and said, "Listen," even as mad as he was, he made a public thing about, "It was damn stupid," which showed he didn't understand what the hell was going on either. And here we were, I had been charged by NASA to say that we were indeed not going to bring back lunar plague. That was President Johnson's decision after we had tried to convince them that we didn't think any organism could survive in that environment, but the Academy of Sciences, in their

wisdom, said, "Well, yeah, but you don't have any data to prove that. You haven't anything to really prove that at all."

I said, "No, no, we haven't. All we can do is go on the basis of what the probes have shown about the environment and what we know about organisms."

They said, "Well, there might be an organism that you don't know."

I said, "Sure, there might be." [Laughter] "But we doubt that."

So then I'm given the responsibility, "Okay, you've got to develop a quarantine program then for an organism that we don't know anything about, and how do we know it will respond to anything that we use as a bactericide here or as a protective mechanism here for anything?"

So we ended up developing a program using a plague model. We were going to use plague as the model. Well, now we have this program all going and if any of us were having any contact, we know everything about us. We've had samples continually. We're sampling everything about us. We knew all of that, and we had very limited as to the people who were being seen. If they came down with anything, whatever it was, a cough, a sniffle, or anything else, we were going to have to prove that it didn't come from the Moon. So I think it would be pretty stupid to let somebody just walk into that situation. It would have been a total breakdown of the program.

So it was bad the way it came out, but I couldn't do anything about it. So Frank Borman came by and said, "Write a letter, handwrite a letter, and I'll hand-carry it to the President." And he did that. I didn't get fired, so I don't know. Then we ended up, we had a big White House thing. It actually didn't occur at the White House; it occurred in L.A., after the President had a White House dinner in Los Angeles, after Apollo 11. I went through the line there. He said, "Well, we had a lot of trouble here, but I think all of it was probably a bad misunderstanding that should never have happened." So he wasn't still mad, at any rate.

He went to the carrier, but he talked to the crew, as you've seen, through the mobile quarantine facility window, and not with any direct contact at all. So finally people—I don't know. People still didn't—I think a lot of the astronauts and a lot of the engineering people didn't really understand. It's like pregnancy; you're either pregnant or you're not. You quarantine or you don't.

Now, I could show you some places where we still had some breaks. The biggest problem, one of the biggest battles that we had with that program was, we thought you ought to lift the spacecraft onto the carrier deck and then you could connect a tube to the door and transfer the crew directly into the mobile quarantine facility. There was a lot of argument about that. It finally came down to a decision was made that it was not safe to lift the spacecraft onto the carrier deck. So we had to develop some mechanism to get the crew out of the spacecraft and onto the carrier deck and into the mobile quarantine facility.

If you've seen pictures of all that, all the stuff that we went through, you know that we opened the spacecraft and we had a swimmer in a biological isolation garment go up to the door, but we opened that door and threw in three biological isolation garments for the crew to get in. But he opened that hatch, and when you open that hatch, we had stuff come into the air, without any question about it. You know, if it had been lunar plague, I don't know what would have happened. I didn't believe we were going to have lunar plague, but I couldn't go on the basis that we weren't. I mean, a lot of effort was put into trying to prevent that from occurring.

So that was a very, very difficult time, and when you try and quarantine a crew for twenty-one days pre-flight and twenty-one days after flight, that's not an easy thing to do, just that procedure alone, with all of the testing and things that had to be done. And we had to prove that we weren't going to contaminate not only human beings, but we weren't going to contaminate fish and birds and animals and plants and you name it. Any of the Earth's

biosphere, we had to prove we weren't going to affect it. So we had to develop an amazing program that was carried off really for three flights' worth. A lot of trouble.

BUTLER: A good example, though, of when you came into this, when you first became involved, it was aviation medicine, it wasn't even space involved. Then, okay, we're going to put man in space, but what's going to happen to him and how that's all going to work. And then go to the Moon. What's going to happen?

BERRY: That's right.

BUTLER: This was all a learning process.

BERRY: That's exactly right. No, that's true. We really felt that the organism thing was something that you shouldn't have to face, but when a decision was made, that you have to. Okay, President Johnson finally said—well, gee, here he's told by the Academy of Sciences that you don't—we all made our arguments, and so then he had to decide. He said, "I'm afraid I can't be responsible for bringing a plague to the Earth, and so if that is a question, I'm going to have to side with, okay, we're going to have to protect somehow."

So then that became a big, big, big problem. There were a lot of unknown things. You know, we had a meeting. We had a thing down at the Center, I guess it was at the twentieth anniversary of the lunar landing. We had a meeting, and those of us who had presented the data at that time, we'd had a meeting and we'd completed Gemini XI. We had one more Gemini flight to go. We were supposed to present where we were, where the capability for the lunar landing, what was our status at that time. So I had put down what the issues were from a medical point of view.

One of the big issues still at that time was, we had not been able to do extravehicular activity, that we had not been able to have one of the astronauts actually produce any kind of effective work outside the spacecraft. I don't know if you remember that whole series of what happened within Gemini, but it was a really difficult thing, and here we had one more flight left.

That's when we then were doing all this underwater business to try and—if you read [Eugene A.] Cernan's book, you'll get some idea about some of that. He really had a bad time outside. They all did. They could not do it. And here we were faced with, we had to have that capability, because they might have to transfer from the lunar module to the command module that way if we couldn't do a docking properly. That was a hazard.

We also were going to have people out on the lunar surface doing activity, so we had to know that we had the capability to do that. So that was a big hole in where we were at that time for getting the lunar landing done. But it was constantly something like that was hanging over us, and always the problem was, well, can the human do it anyway? We were always plagued with that.

We had people clear up—oh, gee, within two or three weeks of the actual launch of Apollo 11, I remember we had a meeting in Bob Gilruth's office, people were coming down there to say that the lunar dust was going to be explosive, and if they got back into the spacecraft with the lunar dust on them, which they certainly were going to do, and then we pressurized it with 100 percent oxygen, which we certainly were going to do, that we were going to have an explosion. So you were constantly getting stuff like that thrown at you, which you have no real answers for. I mean, we didn't have any lunar dust in our hand to say, "No, we know that lunar dust isn't explosive." They had all these theories about what lunar dust was going to do.

Every day that went by, you always had something else that was a problem and was new, as you say. It was new and you had to face it, so you faced the problem and you had to

make some decisions sometimes. You were always trying to make a decision that hopefully was going to get us to our goal, but at the same time was not going to unduly risk someone in the process. That was very difficult.

On the fourteen-day Gemini flight, the big problem was, I wasn't sure we could get people to go for fourteen days in that spacecraft, just due to the small spacecraft. The things that you had to do in that spacecraft, I don't know if you've ever been through some of that, but trying to have a bowel movement in that spacecraft is a real operation, with space suits on. And we had to face that. So one of the things I wanted to do was to get them out of the space suits. We had a rule that you couldn't do that. You couldn't take space suits off. George [E.] Mueller was adamant, we weren't going to do that, we weren't going to let them get out of the suit. I went through more hassles trying to get data to show that during the flight, to say, "Look, we've got to get them out of the suit. Look what's happening from—" I used heart rate data and temperature data and everything you could think of, trying to convince them.

We finally talked them into allowing us to get one suit off, so then I could compare the two and try and say, "Okay, now look here. We've got to get both of them out of the suit." But we finally did that. I don't think we would have made that mission had we not gotten them out of the suit. I don't think we would have completed fourteen days in that spacecraft. And that's not due to the fact that the human being can stand it, but it's a very confined environment, and then you put another confining thing with a space suit on, you've got two guys in space suits and they're sitting like this, your leg over in the other guy's lap. It's a really difficult situation, and I think that they made that is really an accomplishment.

BUTLER: Definitely.

BERRY: Definite accomplishment. If we hadn't done that, we would have been hard put to say, "Okay, we can do lunar missions." Really hard put. But we did.

BUTLER: Looking at the buildup, you mentioned earlier, President Kennedy's announcement, after only fifteen minutes of space flight, "Let's go to the Moon and let's do it by the end of the decade," and you've talked here now about the various stages of things to learn along the way. You mentioned that his announcement was a shock.

BERRY: Yes.

BUTLER: When he said that, knowing what you knew about space at the time, and the human body in space, which, of course, was limited, what was your perspective on getting to the Moon? At the time, did you predict what sorts of challenges you'd face along the way?

BERRY: Well, I think that, as I said, I really—I mean, everybody had different kinds of reactions. I know what the engineers were thinking: "Man, there's a lot of things got to be done here. We're talking about going to the Moon now. We're just going like this." They had a lot of—and we've talked sometimes about that.

My personal view about that was that I felt that, as I've said, that I had a great deal of faith in the human being and the capability of the human body to adapt. I personally did not believe that we were going to see a show-stopping physiological change. That was my belief, that I did not believe. That was belief. Again, I didn't have data to prove that. We were going to have to get some data to show that, indeed, we weren't having some show-stopper things. That was very important to do.

But then I think initially when that was said, it seemed very bold, but it also seemed like such a tremendous goal, and you knew that you were going to—he said "before the end

of the decade," and that seemed like a fair amount of time. At that time we thought it was a lot of time. Then we whopped two years out of it by the fire, and that wasn't too good. We had a lot of difficulty with that one.

I really, my whole attitude was, gee, there are going to be a lot of challenges here to do this. I would have to say that while somewhat startled and surprised, I don't think I ever thought in my mind that we wouldn't do it. And that's strange. I've thought back about that several times and I've wondered why did I not think that there was a possibility that we weren't going to be able to do that.

Now, as we started delineating, defining problems, we didn't know what we were going to have for spacecraft or anything else at that time, exactly what the spacecraft was going to be, that we were going to have two spacecraft or was going to have to dock, because there were arguments about were we going to go on a direct thing or were we going to go in orbit and then orbit. So there were a whole bunch of totally unknown things at that time. So any feeling that I think any of us had at that time had to be based upon just your own ideas about your particular area and then about the faith that people could probably circumvent all of those hazards and problems that you were able to uncover as you went along.

I don't know why, I really don't know why I didn't have more misgivings. I mean, I was in awe. It was a huge, huge endeavor to do. But I really, inside, felt that we were going to do it.

BUTLER: And did do it.

BERRY: And we did. We did, yes. We did. I don't know, it's hard to say why, because, you know, a lot of things—the doubters were always there and they were very vociferous, and they had a lot of power. Had lots of power. Politicians are very susceptible to that kind of thing. If it looks risky, you've got to decide, is that a risk to me? I could not believe that a

President would think that his presidency would be affected by whether you're going to launch a certain astronaut or not, but, I mean, that was the political arena, and I think those thoughts were real. It would seem unreal to me, but they were real.

We had some interesting things during the Kennedy administration. Deke and I both got a call from Bobby [Robert F.] Kennedy. This was when we were going to do—I can't remember if it was the second or the third selection. But we got a call, and he said, "We want to assure that there is an African American in the next selection." I did not know that he had called Deke at that time. I got his call and I said, well, at that time we already had a list of the people that were really going to be looked at. We culled the group down. I don't remember what the total number was now, but it seems to me it was something like sixty that we had culled it down to.

So I said, "Well, I don't know that I can—I certainly can't guarantee that, that we're going to have an African American. As a matter of fact, there are two African Americans, I think, in the group, in this group that we've done some culling already. But to tell you that we're going to select one of those, I can't do that. We're going to go down and they're going to be selected based upon the merit, the way we've been doing it. Whether there's going to be one of them, I don't know."

He said, "You did not hear what I said. I said we want to assure—and you will assure—that there will be an African American."

Then Deke came to me and said that he'd gotten a call. So we talked about this, and we ended up making our list. We'd always end up having to take the list, then after it was done at the Center, we'd end up having to take the list to Washington [DC]. So we took the list to Washington, and the two blacks were way down. You'd have had to take another—I don't remember, something like fifteen or something more to get to the first one, and you'd probably have had to take another thirty more or something to get to the second one. And we left the list as it was, with them graded.

Took it up and said, "If there's going to be any change in this list, it's going to have to be done somewhere else. We're not going to change the list." And the President didn't change it, wouldn't change, so that wasn't done. But there's a lot of political things.

BUTLER: Well, a lot of the motivations for Apollo itself was political.

BERRY: Absolutely. Well, I don't think people can really understand today, in our world today, the things that were going on in the world at that time and how important it was to have something good happen, something that was a human accomplishment, when we were doing so much to tear everything down. Gee, we were having riots.

Before we launched Apollo 11, I was going to the Cape from the motel at about—oh, I think it was something like one in the morning. I drove up to the gate, and there were a bunch of African Americans marching back and forth in front of the—Reverend [Ralph] Abernathy and all his people were marching in front of the gate. I stopped the car. I went through the gate and then I stopped the car and got out, and I went back, walked back.

I saw Abernathy in this group and I went up to him and I said, "You know, I do not understand why you would come and try and demonstrate and say that we ought not to have this flight to the Moon. Do you have any concept at all about what this can mean to the world and to us as a nation, having the capability to do this?"

He said, "It's really not about the capability to do this, it's this money that's going to the Moon, this money's going to be on the Moon, and it should be being spent on these people down here on the Earth."

And I said, "There isn't a single dollar going on the Moon. Not one dollar going to be on the Moon. Every one of those dollars that's gone to this program, and a lot of this nation is involved in that, and every one of those dollars is going to somebody down here on the Earth. If some of your people wanted to be working on some of that, they could have done it.

I'm sure that jobs are there." So I said, "You could work on it, and you could be getting some of that so-called moon money, if you want to call it that."

"That's not what I'm saying," he said. "The thing is, that money ought to be spent on these people right down here."

I said, "Well, you obviously don't understand what is happening here, and it's being done for your good and for everyone's good. If a nation is great, it's my view that that nation ought to be able to do both things, and we ought to be able to do the things that are necessary here. We need the science and the technology on the cutting edge if we're going to be a nation that's going to progress. If you don't, you're going to die as a nation and you're not going to solve any of the problems here on Earth or anywhere else."

Well, he didn't believe that. I don't think I made any headway with him whatsoever, but I felt better, anyway, afterwards.

But that sort of thing went on. There were a lot of things happening in our world. I tell you, I was really privileged to see a lot of the things that President Johnson and—well, clear up—President Nixon understood that, too. All of those three Presidents certainly utilized the space program as a diplomatic tool for our country, and it worked.

President Johnson sent us on a good will tour after the eight-day Gemini [V] flight, and he sent us to Greece and Turkey and all around Africa. We went to all these places. I wondered at the time, I thought, "I do not—" When we started that, I thought, "I cannot believe we're doing this." [Laughter] They had Pete [Charles C. "Pete" Conrad, Jr.] and Gordo and their wives, and me and my wife, and they had people from the State Department, people from the information Agency, etc., and we went to all these places. Gee, you'd get out of the airplane and we were staying with kings and queens.

In Africa, you'd open the aircraft door and you'd be at the top of the stairs, and all you can see is a mass of nothing but black, as far as you could see, and people with spears and fur, animal fur and what have you. Amazingly, even in these places, people had radios and

things, and they knew what we were—and they were excited and thought it was absolutely wonderful. We were mobbed, absolutely mobbed, wherever we went. I saw that time after time.

Then President Nixon sent me, in 1971, as the chairman of a working group on space medicine and biology with the Russians, a joint working group. His idea was that he wanted to sign some agreements with [Union Of Soviet Socialist Republics President Leonid Ilyich] Brezhnev. He thought that space medicine and biology was a noncontroversial area, that if we were able to work out something with that, then it would be sort of a foot in the door to some other agreements. I was given really *carte blanche* to do the thing. They sent a SALT [Strategic Arms Limitation Treaty] Talk interpreter with me, and they sent a State Department guy, but I was told that I did not have to call back for decisions or anything. I could make the decisions there, which the Russians couldn't believe.

We had to come up with something in writing that said, "Here's what we have accomplished at this meeting," and then we had to come up with a second document that said, "Here's what we're going to do." Then when those were agreed to by us at that meeting, then I had to bring it back and take it to the NASA administrator and then to the White House. If they didn't disagree with it in thirty days, it became signed. And it was signed.

The first meeting, I knew that they were going to have trouble talking about—they didn't want to talk about rockets, and I understood that. At the beginning of the space program, one of the things that's clear is the Russians had big rockets. They couldn't build small nuclear warheads, so they had big rockets. We didn't have big rockets.

So their rockets were something they didn't want to talk about, so I wasn't going to talk about rockets, but, to my surprise, I found that they were even reticent and did not want to talk about spacecraft. I said, "Back to Mercury selection, we don't have this astronaut out here in space all by him or herself. It can't happen. They have to be supported by spacecraft.

You know that as well as I do. Therefore, we have to talk about the environment that they're in, because the data doesn't mean anything if we don't know what environment they're in."

And particularly that was true with the Russians, because from the beginning of the program, they had space motion sickness all the time. All the time. We couldn't understand that. They thought that we were lying all the time because we didn't have it. There was some lying going on, not by us, but by the astronauts, in that case. But we didn't have the capability to move around as much as they did, for one thing. That's the first thing. The second thing, they didn't have enough fuel to control all the time. So they were doing rolling all the time, and we weren't doing that, obviously. So the environment was an important thing.

At the end of that first meeting over there, they wrote a pretty flowery thing about what we'd accomplished, and I could live with that, with some toning-down about what we'd accomplished. So we exchanged that back and forth. Then the thing that they handed me for what we were going to do said we would continue to talk about man in space. We handed them a thing that said, "In thirty days we'll do this. In six days, we'll do this. In ninety days—" We had every month. "And the next meeting, the agenda will be," whap, whap, whap, whap. They sent it back every time and said, "We will continue to talk about man in space."

So after three days of this, and we'd already met for already two weeks, and then here three days we're exchanging and trying to sign it up, so I told my SALT Talk interpreter that I wanted him to be very careful about how he interpreted what I was going to say. He was very good, because he could tell me when their interpreter was misinterpreting and said something wrong, and he would tell me. So we would redo it and say, "We think your interpreter has told you wrong, and we want you to understand."

I said, "I want to make a statement here this morning." So I said, "Look. We've exchanged these things for three days now, and we haven't gotten anywhere. I am not going

back to the United States and take a piece of paper that I've signed that says we're going to continue to talk about man in space. If we're not going to progress, then I'd like you to make sure that we have flight reservations for tomorrow morning, and we're going to go home."

And with that, the KGB [Soviet Secret Police] guy, who was sitting with them on the other side of the table, slipped down in the chair, and his head was about even with the top of the table, and all his papers went on the floor. I thought, "Maybe we're going to get somewhere here," and they called a recess. They went for a recess for forty-eight hours, and we were sitting in the hotel. They didn't call us back or anything.

So forty-eight hours later, they called and said, "All right. We're ready to meet again."

So we went back and sat down, and they said, "All right. We're going to accept your paper and we'll sign it. We'll get it set up and we can sign it at a banquet tonight." But they wanted each word read back and forth, back and forth, that we could agree, make sure that we all knew what the words were. So they did that. We sent the people off to get them into the document, and then they said, "Now, we've agreed to that, but, Dr. Berry, you are being too hard on us. You do not understand our position."

And I said, "Yes, I think I do understand your position. It appears to me that you are really concerned about taking a document to Chairman Brezhnev and having him agree to some things that you're going to do at specific time intervals, because if you don't do those, I don't know, maybe you end up in Siberia. I don't know what they would do to you. But if you don't do that, I suppose that's something that I would be concerned about, and I think that you're concerned. But I think you will do them. I think you'll meet those goals if you do that."

I said, "You've got to understand. I'm not a free agent here. I have to go back and take this piece of paper also to some people. I have to go, first, I've got to take it to the NASA administrator, then I have to go to the chairman of our House committee and the

chairman of our Senate committee, and then it goes to the President. Our agreement is that if he doesn't say something's wrong with this in thirty days, it's fine. It's what we're going to do. And the same thing is going to happen with Chairman Brezhnev, so I'm not going to take a piece of paper that says we're going to talk. I'm not going to take that back. So we are going to do these things."

That's what started our joint exchange, and we ended up, we've met every year except during part of President [Ronald] Reagan's reign, when he felt that the Russians were really using us, and he was trying to get things changed about nuclear treaties and weapons and pin them to the wall. They still wanted to keep all these kinds of exchanges going. I was called and asked if what I felt. I said, "Well, for the first time they have more data than we do, unfortunately, but I agree with the position that the only way you're going to get anything done is to hold their feet to the fire. I think you need to cut it off. I agree. It's unfortunate, the timing of cutting it off, but I think you need to do it."

So it was done. They cut off every exchange, including that one. But then it was started again and now I think I'm doing too damn much with them.

BUTLER: A whole new relationship.

[Dr. Berry, I have marked the following section. At the end of this section, you make the comment not to print it. If you would like this section edited or deleted, please let me know. We will edit the audio and video accordingly. Thank you, Carol]

BERRY: I think we're selling ourselves down the river. I think we're paying their way 100 percent, and I think that's wrong. Don't print that. [Laughter]

BUTLER: Okay. [Laughter]

BERRY: But I do.

BUTLER: I think we're probably at a good point to go ahead and close out for the day. There's certainly a lot more that we can go into. I want to thank you for the time you have given us.

BERRY: You're very welcome.

[End of interview]