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2

Mr. George English

3

Oral History

4

Kennedy Space Center

5

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Interviewer: Dr. Patrick Moore

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Transcriptionist: Sharon Youngquist

1 Moore: Today is Monday, June 17, 2002. I'm Dr. Patrick Moore, University of West Florida
2 public history program and summer faculty fellow with Kennedy Space Center and I'm here today with
3 George English and we are going to talk to his experiences as the Kennedy Space Center Executive
4 Officer since 1964 when he started at NASA. Tell me a little bit about your background. Where were
5 you born? Where did you grow up?

6

7 English: Okay.

8

9 Moore: And, what brought you to Kennedy Space Center?

0

1 English: I was born and grew up in Georgia. Attended Lanier High School for boys in Macon,
2 Georgia and graduated with a Bachelor's Degree from Mercy University in Macon. Taught school for
3 a couple of years in Lake Worth, Florida, and then went to work for the Air Force at Robbins Air Force
4 Base for 13 years and then joined NASA Kennedy Space Center in 1964.

5

6 Moore: Now what was it, was it something that you did in the Air Force that brought you down
7 to KSC?

8

9 English: Well, yeah. I was Regional Personnel Officer for the Air Force. I worked the air
0 procurement districts and the Air Force plant representative offices. Before that I had been the chief
1 of recruitment and employment at Robbins and a number of the people that worked for me had come
2 to work for NASA in the personnel office and they asked me to come down so I did. That's, that's the
3 reason I came to NASA with the background. I then worked for a couple of years here primarily in

1 recruitment of engineers for NASA and then moved on to a couple of other jobs with Kennedy Space
2 Center.

3

4 Moore: Before we go into your positions tell me a little bit about the opportunity to come to
5 Kennedy Space Center in 1964, this is the heart of the cold war, we are now deeply into the Gemini
6 program pushing ourselves on to Apollo. Speak to that just a moment.

7

8 English: Well, of course it was a very exciting time. And I had wanted to come with NASA and a
9 former employee of mine called and said that there was a vacancy in the employment program here
0 and would I be interested, and, so I said that I would be. And so I actually took a change to a lower
1 grade from the job that I had with the Air Force and came then because I was interested in the space
2 program. There was a number of relationships with the Air Force and the space program but I
3 wanted to get in where the real space work was.

4

5 Moore: Now you were familiar with at least previously the protocol operations of being,
6 obviously this was a civilian operation..

7

8 English: Yes.

9

0 Moore: Exclusively by the time you came in 1964, but, the relationship still existed between,
1 obviously and does to the present, between the Air Force and here. Was that a catalyst in bringing
2 you down here?

3

1 English: Not really. No, it was really a personal, uh, personal relationship with people in the
2 program and my desire to get into the space program.

3

4 Moore: What was life like, just briefly as well. Very different than it obviously is now.

5

6 English: Well sure. I lived in Cocoa Beach. There was one north-south road. Part of it was not
7 paved. It was two lanes. There was a lot of excitement certainly. Living conditions were not the
8 greatest but it was a lot of fun. You know, it was just really great. Very exciting.

9

0 Moore: Tell me about your first position. When you came in you were hired first as the
1 Personnel Officer.

2

3 English: Well I was the Deputy Personnel Officer, and did recruiting of professional engineers for
4 the space program. We were then, as you know, building up for the Apollo program. And so, I did
5 visiting colleges, engineering schools which I had done some for the Air Force before I came here.
6 But I traveled quite a bit. I went all over the primarily on the east coast recruiting engineers for
7 Kennedy Space Center and helping to build up the work force.

8

9 Moore: Were there a number of individuals like yourself who were doing recruiting at
0 universities?

1

2 English: Yes. Uh, some of them I had worked with before. Several of them I had worked with
3 when we were in the Air Force, and uh, people who brought me here advised me of the position and

1 then I brought a couple more in and we went and stole engineers from every place we could including
2 the Air Force. I brought quite a few people from Robbins Air Force Base down here, some of them
3 who still work here. Not just engineers but professional administrative people also.

4

5 Moore: Well, you were saying that you predominantly covered the northeast..

6

7 English: The east coast primarily.

8

9 Moore: Okay, the east coast. So were you..

0

1 English: From the Mississippi River east. Johnson Space Center at the time and Ames
2 Research Center particularly recruited people west of the Mississippi and we recruited east of the
3 Mississippi.

4

5 Moore: How did you go about finding these individuals? Did you contact people within the
6 programs and say . . .

7

8 English: Oh yeah, worked very closely with the engineering placement offices at the universities.
9 I had known a number of those people from the days I was with the Air Force and had belonged to a
0 professional placement association and had established the connections with them which were very
1 obviously very profitable in recruiting.

2

1 Moore: When you went and recruited were you looking specifically for engineers to accomplish
2 specific tasks or were you looking for kind of general aerospace engineers or other types of engineers
3 who could come in and do a gamut of things?
4

5 English: Both. Both. We did city recruiting as well as college recruiting. College recruiting you
6 would look for raw talent and city recruiting you would look for specific kinds of disciplines that you
7 wanted to have available in the program. I'll tell you an interesting story about Dr. Debus who was
8 our first center director when we were (poor sound quality) we had all of our new graduate
9 engineers work as apprentices in the machine shop. (poor sound quality) and he remembered
0 that when he was a young engineer, student engineer in Germany he was given a stainless steel
1 cube that he had to make into a perfect sphere with a hand file and he wanted to know if we could do
2 that with our engineers. Our engineering recruit center said I don't think we have time to do that but
3 he was, shows you the kind of very meticulous person, a really excellent manager but also very
4 interested in the young people that we brought in.
5

6 Moore: That was the kind of nature of his, of working with him.
7

8 English: Yes, yes.
9

0 Moore: Was it a challenge to get the students to come here or were they enthusiastic about it
1 right from the beginning?
2

1 English: Well it depended. A lot of them were very enthusiastic just because of the space
2 program but we paid considerably less than private industry so it was difficult to get the, you know,
3 the 4.0s we just usually couldn't touch because they would be offered two or three times the amount
4 of money we could pay but those that were interested in the space program it was easy to get them
5 (poor sound quality) so it depended.

6

7 Moore: So there was even a challenge back in the early mid 1960s about competition with the
8 other industries.

9

0 English: Yes, absolutely, sure. Yeah because not only... I was recruiting for the government for
1 NASA but there were contractors in the aerospace business who were able to pay considerably more
2 than the government was able to pay even though the government was essentially paying those
3 salaries also.

4

5 Moore: Did you sense when you were going down there to recruit these people, and I don't
6 mean to belabor this..

7

8 English: No.

9

0 Moore: Was there an advantage to having the Cold War going, that there was kind of a national
1 responsibility at stake here.

2

1 English: Well, certainly as a result of the challenge from President Kennedy that was very wide
2 spread, the progress that had been made with the Gemini program, before that with the Mercury and
3 the Gemini.

4
5 Moore: That was very exciting.

6
7 English: So there were a number of people who were interested in talking to us when we would
8 visit the colleges or the cities or recruiting, but because of the nature of the program they wanted to
9 come to work here.

0
1 Moore: How long did you stay in this process of recruiting folk?

2
3 English: About two years and then I became the Executive Assistant to the Director of
4 Administration and spent about a year there and then was made Chief of Manpower office which had
5 an oversight then of building up the workforce and we started out, I can't give you the exact numbers,
6 but we started out when I came here with probably five or six thousand total civil service and
7 contractor people. The civil service work force never got more than about 2900 but by the time Apollo
8 11 went we were at 26,900 so we were in a rapid growth area and we more than, more than tripled
9 our number of civil service people during that time but never got more than 3000, I think around 3100
0 was our top civil service work force.

1
2 Moore: What were kind of your responsibilities when you were involved in this manpower role?
3 What did you, what did you do?

1

2 English: (Laughs) Well there were primarily divvying up the manpower resources which were
3 allocated to us from Headquarters. I also had responsibilities for organizational development so I
4 worked very closely with the center director in setting up organizations and changing them as
5 requirements changed or as rolls changed. So that, oh, and we also had at the same time we had
6 employee ceilings we had average grade ceilings so you had to control promotions pretty closely.
7 There was great competition between the line directors, the technical line directors on their average
8 grades between their directorates so I had to set up a system to control the average grade and the
9 promotion rates, and um, things of that nature.

0

1 Moore: Once again going back to this Cold War structure, during this period you did this until
2 1969.

3

4 English: Yeah, yeah, about that time. Yeah.

5

6 Moore: About the time when Apollo 11 we successfully made it to the moon, Apollo 8 in
7 December just prior to that. In the allotting of resources was there a focus on giving greater credence
8 to those units which had lead to the success of the moon program.

9

0 English: Oh yeah. The top priority of course was with the operations directorate and we had
1 great people, absolutely great people, and so the emphasis always was on, was on the operations.
2 The administrative side, even though we had to have very good administrative people particularly in
3 the procurement area because we managed contracts for a workforce of about, you know, 26,000

1 people so we had to be very careful about those people because resources, accounting, was also
2 another area, but primarily the technical operations got the preference of everything.

3

4 Moore: During this period and right up through the end, 1969, there was a lot of anticipation,
5 NASA and its operations, the quest to the moon was now taking right around 3.5% of the federal
6 budget. To capitalize on it, to look forward to the future this was certainly especially from the views of
7 people like Von Braun, space station, moon bases, potentially space plane which became the Space
8 Shuttle. There are a lot of different projects in the work.

9

0 English: Right.

1

2 Moore: Did you, did you help facilitate some of those along?

3

4 English: Through organizational development, sure, establishing organizations, disestablishing
5 organizations, running specific reductions in force - not necessarily laying off people, we had some
6 lay-offs but you'd use reduction in force techniques, regulations, practices to move people from one
7 project to another. We actually reached our peak employment prior to Apollo 11. 1968 was our peak
8 year. We started going down before the launch of Apollo 11. There was, you know, we obviously
9 wanted to launch every vehicle we had and we wanted to stay on the moon but as you, we ran out of
0 money.

1

2 Moore: Did you sense that in 1968 that, that...

3

1 English: Not really in '68 but we knew that we had had our peak allocation of resources at that
2 time.

3 Moore: Why did it peak then if the anticipation – I mean we had yet to make it. We had yet to
4 succeed.

5

6 English: Well we had finished the infrastructure; that was a great part of it, facilities, because
7 there were a lot of people involved in building and maintaining the facilities. The VAB was completed.
8 The crawlers were here. The launch towers were all done so the construction aspect was essentially
9 over. And the, building of the ground support equipment was essentially over so there was a natural
0 time to reduce and try to be as resourceful as we could be with what was available to us.

1

2 Moore: Now from 1969 to 1975, as I'm cheating a little looking at your card, you changed to the
3 Chief of the Management Systems Office.

4

5 English: Management Systems Office that included the manpower office, the industrial
6 engineering office, space utilization - that is physical space utilization. Uh, so, that was a promotion
7 for me. It was a division chief job.

8

9 Moore: So you essentially moved up within the area that you were in.

0

1 English: Yes, yeah.

2

3 Moore: It wasn't a transfer to another area.

1

2 English: No.

3

4 Moore: It was....

5

6 English: No, I just swept up other functions - akin to the manpower function.

7

8 Moore: Now this was an important step here because between '69 and 1975 we see the bulk of
9 the Apollo programs, uh, the Apollo-Soyuz program, Skylab – all during this era.

0

1 English: Yes.

2

3 Moore: Tell me a little bit about this transition, kind of ending down. We had successfully
4 beaten the Soviets. How did you manage this process in light of changing political and economic
5 conditions?

6

7 English: Well we were, about that time we were scrounging for resources as you probable
8 remember so we were also trying to start new programs. You mentioned we went through Skylab.
9 We went through the ASTP the Apollo-Soyuz test program which was a very important step for us at
0 the time. It could have been better utilized by our government. It was a real step on the international
1 cooperation which never bore the fruit that it should have borne, you know, the cooperation with the
2 Soviets.

3

1 Moore: Tell me more about this. This is...

2

3 English: Well, uh, it was really scientist to scientist to be honest with you more so than
4 government to government, but it was an attempt by the government to better our relationships with
5 the Russians. We liked it because we got to use up some more of our Apollo hardware, you know.
6 We used some Saturn 1B's. We got to fly Deke Slayton who was one of the original seven who never
7 would have gotten fly if it had not been for ASTP. A great guy by the way, one of the really great
8 guys. So it was geopolitical, no question about that. It was a great thing for us to have done. We
9 would love to have established before that the permanent base on the moon but there was just not
0 enough funds to do that but we did have Skylab as you mentioned and Skylab was the very first and
1 one of the best space stations ever, and we lost that which was absolutely ridiculous because we
2 didn't have enough money to build a space tug which is a relatively cheap piece of hardware that we
3 were going to fly, attach it to the Skylab and keep it in a higher orbit. So we lost that opportunity and
4 I'm sure you saw, when you were a kid, saw what a great, great facility that was. It really was great.
5 So we had a lot of missed opportunities but two of the greatest ones were Skylab and ASTP.

6

7 Moore: Now you were involved in both of these and certainly..

8

9 English: Yes.

0

1 Moore: ...hinging upon your, your capacity of dealing with international affairs and dealing with
2 international people...

3

1 English: Yeah.

2

3 Moore: How might the Federal Government if not NASA coming down to a local level have used
4 the ASTP program to further the mission of the institution?

5

6 English: Which institution?

7

8 Moore: Of ours, of KSC of NASA as a whole.

9

0 English: Well I think we did everything we possibly could. I don't know what else we could have
1 done.

2

3 Moore: So it's really more at the higher up level.

4

5 English: Oh, absolutely. Yeah. It was a State Department, DOD, administration kind of, kind of
6 thing. Yeah.

7

8 Moore: Why so much resistance? Why..

9

0 English: Well..

1

2 Moore: Why didn't they capitalize upon this to a greater extent?

3

1 English: Again, the support of the public and the congress because of funds being needed for
2 other things nationally just didn't provide for additional funding. Uh, we couldn't build any further. We
3 had actually 2-1/2 Saturn V's that we could have flown that we never got to fly because of funds. So I
4 think it was, again, essentially a funding, funding kind of thing.

5

6 Moore: Did you think this was an issue about the public losing support or was it congress not
7 recognizing the inherent value?

8

9 English: Both, both, both. The excitement was not there for the public that it had been for the
0 lunar landing and the congressional support and the support of the administration was just not there.

1

2 Moore: So it, did it hinge upon the public's enthusiasm?

3

4 English: Oh sure, it always does.

5

6 Moore: Would there have been any way, looking back and certainly hind-sight being 20/20 and
7 you can never play the what if game, but had there been an opportunity to do something differently, to
8 further cultivate public enthusiasm or was – once you made it to the moon how can we top that kind
9 of scenario.

0

1 English: Well we could have built a lunar base which we should have done – and we would be,
2 you know, 30 years ahead of the game now instead of having the Space Station which is very limited
3 in what it can do and very limited in support, uh, we could have gone to other planets from the moon.

1 You know, we could have done so much more if we had continued with the lunar program and
2 developed a lunar base.

3

4 Moore: Do you think there would have been some way we could have communicated that to the
5 public to garner more support?

6

7 English: Well it was very difficult. Again, NASA was criticized a number of times for its PR work.
8 Now you will have to talk to the PR people about that, but we weren't allowed to lobby, of course, and
9 there were members of congress who criticized NASA for self-aggrandizement of, you know, publicity
0 that we were trying to generate. We could have done it but there was just – Americans unfortunately
1 are faddist, you know.

2

3 Moore: Are what?

4

5 English: Faddist, with a "D" not fascists, with a "D" (laughs). I'm sorry about my southern accent.
6 But, you know, the attention span – we have so much that lends itself to short attention spans in the
7 American public.

8

9 Moore: Sadly youths kind of have the argument now that that's a more contemporary
0 occurrence in society but it sounds like that was going all the way back.

1

2 English: Yes, yes.

3

1 Moore: Nobody plays with their hula-hoops anymore, right?

2

3 English: That's right. (Laughs)

4

5 Moore: You changed positions in 1975 and became the executive director.

6

7 English: Right.

8

9 Moore: It's a huge step. You're up on the 4th floor now and you were playing a very key role.

0

1 English: Yeah.

2

3 Moore: Talk a little bit about that transition into that role from the important role in its own right
4 just prior.

5

6 English: It was a position transfer but I had been working with, very closely with the center
7 directors, with Dr. Debus and with Lee Sherra and then when Dick Smith came then I was taken up
8 there. But heading up the management systems office put me in direct contact because I built the
9 organizations, articulated policies for the center and distributed those. So Jerry Griffin who was the
0 deputy center director at the time, when Dick Smith came as center director, asked me to come up
1 and become the executive officer and in addition to the policy formulation and the dissemination I also
2 had some line functions, congressional liaison, ran aircraft operations. I was interface with the Air
3 Force on the east and west coast and had an office down at Patrick Air Force Base and an office out

1 at Vandenberg that reported to me. So I had some line functions as well as the policy functions. As I
2 said, I had worked with all of the center directors very closely.

3
4 Moore: And you, in some respects and as people have commented on, you kind of were that
5 vein of consistency from director to director..

6
7 English: Right, yeah...

8
9 Moore: ...that you maintained...

0
1 English: The thread in the fabric. Yeah. In fact I have used the simile before because, you
2 know, I was here for a long time. In fact General McCartney who was as I said is a good friend of
3 mine, was the center director and he used to tell people I was older than dirt (laughs) because I had
4 been here for so long. It turns out that he and I were both at Robbins Air Force Base at the same
5 time. He was there as his first duty station as a Second Lieutenant and mine as a Management
6 Assistant in Government, entering Government. Didn't know each other at the time, but we still
7 reminisce about that.

8
9 Moore: Tell me more about this position. When you first started it what were your expectations
0 in it and what were the challenges that faced you right from the beginning? I realize you could be
1 here all day, but uh...

2

1 English: Oh, God. Well it was very interesting. The combination of line functions which took up
2 some of my time and essentially being the chief bureaucrat which I was, it was fun. It was very time
3 consuming. I traveled a lot. I went to the west coast because an office out there reported to me. I
4 was in Washington a lot because I was on a number of Agency committees on the administrative
5 side. In fact that is where I met Shannon Roberts whom you know. She was on one of the
6 committees in Headquarters. And I traveled to the other centers for liaison but then, and also during
7 that period I became the interface with the public government agencies from Secret Service because
8 of the interface with them when we had Presidents and Vice Presidents visiting. I interfaced with the
9 Department of Interior because we had a very close relationship with Fish and Wildlife Service. I'm
0 sure you know the history of how that got started. Well I was the liaison with the Fish and Wildlife
1 Service. In fact when I retired I formed the Merritt Island Wildlife Association which is a supporting
2 association for the refuge. We now have more than 340 members of which I'm very proud. And then
3 also I interfaced with foreign visitors. I traveled to some of our foreign counterparts at launch sites,
4 visited China in 1985 - there was a delegation of five of us; the Center Director, Dick Smith; Launch
5 Director, Bob Sieck; our Director of Design Engineering, Jim Phillips; and our Director of Payload
6 Operations, John Conway and I in 1985. We were the first foreigners ever to visit their launch sites.
7 They were very interested in having us come and comment on the progress that they were making
8 and see how we thought they could improve their progress. And of course, before we went we were
9 briefed by other government agencies here. Uh, and we couldn't have been treated any better. It
0 was really a fascinating visit. We were there two weeks visited their factories in Beijing, Shanghai,
1 Chengdu, went to their launch site in the Sichuan Province and never did really figure out exactly how
2 they were organized. That's what I was supposed to be looking at, you know, and of course the other
3 guys were looking at their specialties. But, it was just fascinating. The first factory we went to in

1 Beijing, it was really pretty dirty, in fact our feet would stick to the floor as we walked through the
2 plant. I could talk for a long time about the visit but I'm sort of cutting it down. But the interesting
3 thing was we'd give them a dump on our observations and by the time we got to the second or third
4 factory in say four or five days later the floors would have been cleaned and they reacted immediately
5 to that particular suggestion anyway. And so we just had a, you know, very good visit. Subsequently,
6 and this was when we had fairly good relations with China, subsequently they sent a team here and
7 we were discussing with them at the time about flying a Chinese astronaut on the Space Shuttle and
8 they were here and had to leave because we delayed Challenger for several days. They were here
9 for the Challenger launch and they left the day before we actually launched. And as you know the
0 Challenger accident happened.

1
2 Moore: Oh, this was with, the Challenger. . .

3
4 English: Yep. They, their delegation was here, they brought their medical officers to talk to our
5 medical people about the training the kind of medical conditions they should look for, for their
6 astronauts they were going to train and then subsequent to Challenger, Tiananmen Square happened
7 and then the relationships with China went down the tube. We never reestablished, so now, as you
8 know, China is preparing to launch their, their own astronauts on their own launch vehicles.

9
0 Moore: Do you think that the success that they had in preparing this stemmed from the visits,
1 the relationship that. . .

2
3 English: No.

1

2 Moore: we had?

3

4 English: No, No. They were, they were wanting to do that at, you know, that's been a long time,
5 that's been fifteen years since, actually seventeen years since we had the visit. And essentially the
6 father of their space program was a, was an engineer and scientist who worked and trained in the
7 United States and then developed, you know, developed their space program. They had, they had
8 pretty good technology when we were there. It was Delta quality, Delta level quality.

9

0 Moore: Now this may sound like a complete sidebar and it is. I recently had an opportunity to
1 speak to Senator Glenn, who spoke to his trip to China some time ago and, and kind of gave the
2 impression that the masses of the Chinese people, the bulk of them who don't live in cities, who aren't
3 educated in, in western type things, have no idea that the United States has accomplished what it's
4 accomplished in space exploration and travel.

5

6 English: Because of communication. Sure.

7

8 Moore: Did you sense that? Was there any kind of a connection there that you could sense that
9 this was something that they were accomplishing for the greater good of China or was it much more
0 an international collaboration when tensions were different prior to Tiananmen Square?

1

1 English: Well, course it was, it was for the, for the greater China. That's what it was and that's
2 what it is, but they were ready to cooperate. They were ready to fly with us and would have done that
3 had it not been just the loss of relationship after Tiananmen Square.

4
5 Moore: Let's go back a little bit. Cover. . .

6
7 English: Ok. Alright.

8
9 Moore: . . . some of these issues that you've talked about. When you became the executive
0 director, executive officer and you were in this new role and wearing a number of hats if you will, tell
1 me a little bit about, following the China discussion, what were you looking for in terms of your
2 international connections? What was your responsibility? What were you trying to cultivate?

3
4 English: Well, on it, since I was more in the administrative side I did briefings to delegations from
5 just about every country that visited, set up meetings with our technical people, did overall briefings,
6 tours. I toured a hell of a lot of people from just about every country you can, you can imagine. We'd
7 take them out to the, to the VAB and out to the pads. Delegations from France, from Japan, a
8 number of those, from France, particularly French Guiana. We made another trip to French Guiana,
9 similar group to the one that I mentioned before we went to China, a little larger group. And of course
0 we have still had good relations with them, even though they are a tough competitors with the, with
1 their space launch capability. They have a much bigger portion of the, of the commercial satellite
2 business than we have. But we started off with them, with them using part of our range, you know,
3 from when they launch from French Guiana, but, there was a long period and there still is to some

1 extent of good cooperation between the French CNES as well as the European Space Agency and
2 there was lots of relationships with the European Space Agency because we've flown so much of
3 their hardware and, you know, with the Italians have built a number of pieces of hardware that we've
4 flown, so we've had delegations from there. And, and a lot of, a lot of visits from Russians off and on,
5 that would be sporadic because of the political climate, but we, years and years ago we had, god I
6 can't remember when we had the first visit, but they were members of the Duma, who came, the first
7 delegation that came to Kennedy Space Center.

8

9 Moore: This was, this was in the 1970s when you first took the position or was it later?

0

1 English: It would have been, probably in the late seventies or eighties when we had that first visit
2 as I recall and then of course we, after, within the last ten years, the relationships have become much
3 closer and we had, even had Chernomyrdin here and I briefed and toured Chernomyrdin when he
4 was the premier I guess. And, lot's and lot's of Russians over the years, but the first one we never
5 heard of most of the members of the delegation after they went back because of, of the, I don't know
6 if you want to call it the revolution but, Gorbachev came back in. Those, those members of that first
7 delegation, we never heard from them, very interesting.

8

9 Moore: Hmm. That is interesting.

0

1 English: Yeah.

2

1 Moore: Now, you're, you're, I want to, you're dealing with international relations, when you
2 would get together with these countries, they're coming to visit or you would go visit there, how did
3 you see your key role? Was it to, to promote and illustrate what was going on, was it to cultivate a
4 friendship or cooperative? How did you see your capacity? What was the center directors looking at
5 you to accomplish?

6

7 English: Well, just to, you know, to try to establish good relationships, to exchange where we
8 could, but there were some things of course we were not allowed to exchange. Primarily by the State
9 Department, you know, we could not share some technologies. But that's very difficult not to do when
0 you have them visit here and you have guys on a person to person basis visit, you know, engineer to
1 engineer or scientist to scientist visit. They do exchange. Thank God for that, you know. We, and I
2 think that we both gain by that. I don't know that one side gained more than the other, you know. I
3 think the French are certainly well ahead of us, because in the commercial applications of satellite
4 launching anyway, because of subsidies from the French government, you know that, from the
5 European Space Agency, they're very heavily subsidized. But, I think that there was certainly some
6 just good, establishing good relations, nation to nation relations and that, that was very worthwhile
7 and I think that they looked at it that way also.

8

9 Moore: Were you always aware of the cold war context of which this agency was born?

0

1 English: Was reminded of it constantly, yes. Yes, by people from the State Department and the
2 NASA headquarters people who were liaison with the State Department. You have to be cautious,
3 but, you know. . .

1

2 Moore: Tell me more about that. Tell, how did that, it's an interesting line you had to walk,
3 you're meeting with Chinese, you're meeting with the Soviets.

4

5 English: No, as I said, we were briefed before we went to China and we were debriefed when we
6 came back. We were asked to be observant and see things that could not be seen from regular kinds
7 of ways that you looked at, at facilities. I know some of that I really can't talk about, Ok.

8

9 Moore: That's fine, that's fine. It's just, it seems fascinating in the fact that they would come
0 here the first time when the Soviets came, but prior to the collapse of communism if you will that it
1 must have been an interesting line to walk knowing that, despite the fact that we had had the success
2 with the, with the ASTP program, that worked, but it's still there.

3

4 English: It is. It is. It was very interesting. The guy that, that came with the first group, as sort
5 of, and I was sure that he was KGB, and he now holds a very high position in the Russian Space
6 Agency and I know he's no longer KGB, but he was when he came with the group and I would swear
7 to it that he was. And I'm fairly good friends with him over the last four or five, no longer ago than that
8 I guess, seven or eight years. He, he transitioned so that he became a guy who is an integral part of
9 the, of the space program of Russia, but he was not, when he first, when he first came. He was like
0 the escort for the group from the Dumas where you essentially knew what he was. It, it did change.
1 There's some, just to give you an anecdote about a visit of one group of, of laboratory chiefs from
2 Russia that came here. This would have been in the mid-nineties, I guess, and they headed
3 laboratories throughout, throughout Russia and we had a session with them here and I did an overall

1 briefing of how we, what we do at Kennedy Space Center before they broke up. And I was talking to
2 one of, one of the lab chiefs and he was saying this is just to illustrate the difference and why we are
3 so concerned as a country about what's happening to these, to their, to their scientific people. He
4 told me that the week before he came he and his wife and mother-in-law had driven out into the
5 country to pick apples and that he had spent half his month's salary for gas. And I said, well how
6 much, you know, is gasoline that expensive, you know, and I spoke, that seems pretty high and he
7 said, well I make, I make 35 dollars a month, 35 US dollars a month. Well, of course, that, that really
8 was shocking, but since they have even less money now, I'm telling you this to transition into the to
9 situation where they have now, where the twenty million dollars that they get from a tourist to fly on
0 their Shuttle amounts to, you know, maybe twenty percent of their total budget for the year. So, those
1 guys, when people think Russians, they think peasants, but when I think Russians I think the, the
2 periodic table, I think some of the greatest physicists that ever lived and some of the greatest
3 engineers that ever lived. So, I don't know why I got off on that, but it just, it's a thing that still bugs
4 me. It really does, about what we could be doing I think to, to foster development in a way that's
5 safer for our government and safer for the world, to give work to those people. You know, it's. . .

6

7 Moore: Did you try and cultivate that up through your departure? 'Cause certainly you were in,
8 you were in this capacity for at least a few years after the change with, certainly a challenge that I
9 don't know if anybody could do on their own but. . .

0

1 English: No, it's, well there wasn't anything that I could do, you know. That's. . . I had nothing to
2 do with establishing any kind of national policy. I never had that kind of. . . my relationship with the

1 State Department was, you know, you take care of these people when they come and that was about
2 it. You know, give them feedback and that was about it.

3

4 Moore: So when the State, when you would have one of these visits and the State Department
5 would get together, just kind of the process, as much as you can speak to, they would say, they're
6 coming and would they meet with you with pretty much every visit, say it were from Britain or from the
7 Netherlands?

8

9 English: No, most of that was, was through the, the liaison people at Headquarters, the NASA
0 Headquarters people dealt directly with the State Department. I dealt very little directly with members
1 of the State Department. I dealt directly with members of the Secret Service and, but that was a, you
2 know, a different kind of thing. That was mostly heads of state or our own president and vice-
3 president.

4

5 Moore: What would you do for these people? I know it sounds very, very fundamental, but give
6 me a walkthrough on what a typical visit for them coming to KSC would be. How did you facilitate
7 this? What did they do?

8

9 English: Well, when it was the president or the vice-president of the U.S. a totally different kind of
0 thing.

1

2 Moore: Sure.

3

1 English: You dealt first with the secret service, always, they would come first. And I would have
2 people from security, from logistics, from supply, from all of our, all our administrative side, and set up
3 a time table, set up the requirements and then would come the advance team, the political advance
4 team and try to change everything. So it was, it was easy dealing with the secret service guys
5 because you did that over and over again, you know, a new, secret service people in Florida, both in
6 Jacksonville and Orlando, who would be the local guys and then I knew some of the White House
7 secret service guys that would come down over and over again. But the advance teams were always
8 political. They wanted everything different. They didn't give a damn about security. They wanted as
9 much face time as possible with the press and with people and they would ask you for everything.
0 They had no concern about what anything cost. So, that was a real problem. They wanted, you
1 know, the best of everything. They wanted, wanted you to spend lots and lots of money and I would
2 just have to tell them, "Hey, I don't have that kind of funds. If you want to fund it. . . ", of course they
3 never did, you know.

4

5 Moore: What, what kinds of expensive things were they looking for? Just. . .

6

7 English: God, I don't mean things like personal water or food or that kind of stuff.

8

9 Moore: They wanted personnel things, for people to be set up a certain way.

0

1 English: Yes. Yes. They wanted, they would, I remember, I remember when Jimmy Carter
2 visited. They wanted us to paint and we were at the very lowest time of our funding, very lowest.
3 And they went through and wanted us to paint every hallway that he would, that he would walk down.

1 It was like Catherine the Great sailing down the river with the, you know, in Russia with the facades of
2 the buildings. Stupid things like that as far as I was concerned, you know, big bandstands, big flag
3 draped platforms, there were just any number of things that they would want and you just had to tell
4 them, "We can't afford that." You know, but that was typical of a presidential or vice-presidential visit.
5 We had more vice-presidents visit obviously than we did presidents. Quayle was here several times.
6 Going way back Spiro Agnew was down here a lot. He would stay down at Patrick, play the piano,
7 play golf, and things like that. And Hubert Humphrey was here was probably one of the most loved
8 people that ever visited here. He would walk down the halls of the Headquarters building and people
9 would stand in their doorways and applaud when he went by. He was just a very friendly, very
0 interested, loved the space program, loved the people down here and we even named a bridge after
1 him in Cocoa. He got money for that for us, the Hubert Humphrey Bridge. So, but that was one kind
2 of, one kind of relationship for things that, totally different with the visiting foreign heads of state.

3

4 Moore: Tell me about that protocol. How did that process work?

5

6 English: That was generally just with, with the secret service people. They didn't have to bother
7 with the political folks except secondarily through the State Department. You would get guidelines
8 from the State Department on what you could, should or should not show them, very little constraints,
9 except some technical things, but generally very well done. You know we always tried to entertain
0 them. We would feed them Florida food like alligator and, and swamp cabbage, and things like that,
1 but they were always fascinated. But, give them a good tour and usually a luncheon or a dinner or
2 something.

3

1 Moore: What kinds of things would they be interested in seeing, just, the same things that
2 everybody is interested in seeing?

3

4 English: Well, yeah. If they were heads of state, very high level, you didn't talk any, much
5 technical stuff. You also, most of them were very interested in the fact that this was a wildlife refuge.
6 Particularly like Prince Phillip was just fascinated with the wildlife that was here. So we wanted to be
7 sure that he got to see alligators and things. I know a number of them that were like that. Some were
8 just interested in seeing the facilities. Particularly when the first few Russian delegations came, not
9 Chernomyrdin, 'cause he got just a very high level half a day tour of the center, but like the head of
0 the Russian Space Agency was here so many times that he could practically do the tour that we
1 would take him on. I would take him out and show him all the facilities, always. There was nothing
2 we ever hid from him. Told them they could take all the photos they wanted. So they were,
3 depending on the level of the visits would be the kinds of things you would show them, kinds of things
4 they were interested in. We never tried to hide anything. I'm trying to remember if there were any
5 directions from the State Department when we were told not to. I can't remember when we would,
6 when we visited China by the way, there were some places they wouldn't let us take photographs.
7 So when they visited us we made a point of saying you can photograph anything that we have. And
8 we generally made that same point, you know, and if you don't, we'll give you pictures, but we would,
9 we were pretty free and open.

0

1 Moore: Did you find that changing from the early years to the later, that the State Department
2 became more hands off?

3

1 English: No.

2

3 Moore: Less to worry about?

4

5 English: No. There were still and there still is to this day I think, some, more concern from the

6 State Department than there is from, from the NASA side, you know, about sharing of technology.

7 But that's their business. Department of Commerce is in it also.

8

9 Moore: When our secret service would come and help set up these foreign dignitary visits, did

0 they, did the countries themselves have representatives who would come too?

1

2 English: Usually. Yeah. Usually. Yeah.

3

4 Moore: Special requests, things that they wanted kind of thing.

5

6 English: Not usually not very much. Our security people took care of that. Most of the liaison

7 was with, with our security folks here and there was not, not too much. Some of them in fact, when

8 Mobutu visited on the weekend I think all I had was a couple of State Department people and our

9 local security folks and he had an airplane full of wives and little kids and . . . It just depended on

0 their. . .

1

2 Moore: Did you tour everybody?

3

1 English: Yeah.

2

3 Moore: Wives, children, the whole works?

4

5 English: Well, if they were small children I didn't take them, you know, into, and there were not
6 that many. When the first two Russian cosmonauts came here they had their wives and one child
7 with them and so I toured him, he was like twelve or thirteen, and he was a better interpreter than the
8 one that, that the State Department had sent, or not State Department, who sent him, I guess it was
9 some company I think. But, anyway, this little kid spoke better English than the interpreter did. So I
0 took them everywhere, I took him everywhere, got him, there're pictures in the engine shop right now
1 of, of the little kid standing in the bell of the, of the main engine of the Shuttle and then got the two
2 cosmonauts also, got their photos standing in there. So they were and one of them was Sergei
3 Krikalev who subsequently spent a year on, on Mir and has now, has flown on the Shuttle several
4 times, really a great guy.

5

6 Moore: Remarkable changes.

7

8 English: Yeah.

9

0 Moore: Where would these people stay? I know that kind of a stupid question, perhaps, but,
1 just, for future reference, they would come, you would feed them . . .

2

3 English: Yeah.

1

2 Moore: Would they stay in Orlando? Would they stay somewhere locally?

3

4 English: A lot of them stayed in Cocoa Beach at Royal Mansions. That's where the Russians
5 always like to stay. It's in the north part of Cocoa Beach. It's like a condominium, you know,
6 _____. Some would stay, in the early years, would stay in Orlando, but most of them,
7 subsequently, stayed here in the local economy.

8

9 Moore: You were completely, did you have responsibility on that end or would the security,
0 Secret Service take care of that, you were primarily responsible. . .

1

2 English: Oh, they would usually ask us to make arrangements for places for them to stay.

3

4 Moore: So in essence you were responsible from pretty much the time they arrived. . .

5

6 English: Yeah, yeah.

7

8 Moore: . . . until the time they left.

9

0 English: But, they also would want to like have a reciprocal dinner that they would sponsor, the
1 visitors. The Russians did that in the earlier years. They got so that they didn't have funds to do that
2 in the later years, but, and they would, they would make the arrangement for those themselves,
3 usually.

1

2 Moore: Remarkable changes in things that took place.

3

4 English: Yeah, yeah.

5

6 Moore: Now would they come for launches, more often than not?

7

8 English: Yes, yeah.

9

0 Moore: So is that usually when they would come?

1

2 English: Well, tried to, but, you know, like the Chinese, really wanted to come for the launch, but
3 the launch dates are flexible as you know and, they didn't always make it, but a lot of them came for
4 launches. They tried to schedule them around launches.

5

6 Moore: When they would come for launch, did you predominately take them out to the Banana
7 River area once that was completed?

8

9 English: Yes, yeah. Well, back in, before Challenger we would take them into the Launch
0 Control Center and then watch the launch from the roof of the LCC. Now we don't do that anymore
1 since Challenger happened. The only people up there now are the immediate families of the, of the
2 crew, but back in those days we would have one half the roof for our VIPs and then the other half for
3 the families of the astronauts, but now they all go to, to Banana Creek.

1

2 Moore: Did you find that there was a change in protocol for the way that you were handling
3 these individuals from the, from I guess the last round, I guess when you, you started so, really the
4 Apollo-Soyuz project, Skylab, you were in this capacity for those launches.

5

6 English: Well.

7

8 Moore: How did that change from then return?

9

0 English: Also I did that in my, in my other job during Apollo. Like I was, because I was a
1 relatively senior person in the non-technical side of the business I was given the protocol job a lot.
2 Like for Apollo 11 I would say escort for the NASA Administrator and the Secretary of the Air Force.
3 So I was starting in that role in the, in the protocol role from Apollo 11 on. So, and that was just an
4 additional part of the job and that also kept me in better touch with the Center Director, who was Kurt
5 Debus at the time. And so I always enjoyed a good relationship with him, before that because of the
6 manpower job and then subsequent because of the other jobs that I had. So I actually got into the
7 protocol business, you know, during the Apollo program and carried that on through the rest of my
8 tour.

9

0 Moore: We need to switch tapes, but when I come back I want to talk a little bit about your
1 changing relationship and the kind of changing attitude of Kennedy toward the rest of the world under
2 the different directors.

3

1 English: Ok.

2

3 Moore: Ok.

4

5 **(After the tape switch Mr. English is barely audible throughout the remainder of the interview.)**

6

7 Moore: Today is June 17, 2002. I'm Dr. Patrick Moore of the University of West Florida and this
8 is the second tape of the interview with George English and we're continuing to discuss his
9 experiences at Kennedy Space Center. We were just talking, tell me a little bit about the different
0 relationships you had and kind of the different views of center directors. You started under Debus
1 and then progressively worked through them. How did that change or was there an enormous
2 change from director to director?

3

4 English: (Poor sound quality) Yeah, yeah. Kurt Debus was a very charismatic leader. A very
5 _____ Had been a professor_____. Never called his secretary by her first name,
6 she was always Mrs. _____. I was certainly involved _____ when I first came here
7 _____ I developed a remarkable relationship with him over the years until he retired. He was
8 recognized in Germany and here in this country as a renowned scientist even though he was more of
9 an operations oriented person, but a very patriotic, became a very patriotic American. He took great
0 pride in chairing the bond drive and the United Fund Drive. We always outdid every other NASA
1 center as far as participation in the bond drives. He also took great pride in the fact that he brought a
2 wildlife refuge, a wildlife refuge to Kennedy Space Center. _____ reached several
3 agreements about bringing in the Department of Interior and the Fish and Wildlife Service to manage

1 a part of Kennedy Space Center. He was also very interested in educating the public about the
2 space program. He started the visitor center here at KSC, was very sensitive to the kind of
3 information that was given to the tourists. Very sensitive to keeping the visitor program free to the
4 American public. He. . .

5

6 Moore: Keeping it free, meaning no cost or open.

7

8 English: No cost and open, both, but it was difficult. To this day no tax money has been spent
9 on the visitor center, but we now charge admission which would I'm sure would have him spinning in
0 his grave because he would never ever do that, charge for. . . well did originally charge for the bus
1 tours, that's only way we could pay for the busses.

2

3 Moore: But it was a nominal charge.

4

5 English: A nominal charge and we had a very small gift shop _____ you visited I'm sure
6 the visitor's center. And it's world class. There's no question about it. The exhibits are just
7 outstanding. But it took a lot of money to pay for it so it's a different kind of operation. But, anyway,
8 the point being that he was respected. And with the people he was involved he was a very formal
9 person. Had a hidden sense of humor that he _____ (rarely exhibited) but really witty.

0 _____ And then after the Apollo program he retired because of his health. He

1 had high blood pressure and so he retired. Lee Sherra came in as the center director after Dr.

2 Debus. He was a totally different kind of person. Retired Navy _____. Had been the

3 director out at Edwards _____ the NASA center there. And was sort of a . . . he was in

1 between the Apollo and Shuttle program. He had been the project director for the, for the _____
2 (ALSAT) program that _____ which was nuclear systems that we left _____ he ran that
3 _____. It was out at Dryden Flight Research Center _____ (up at Ames) and then
4 came here as center director and stayed four or five years I guess. And. . .

5

6 Moore: How did he view the visitor? Dr. Debus had been very focused on it. Did he change it?
7 Did he push it?

8

9 English: Ah, he was, he was very supportive, not really a great, a great innovator as far as his
0 _____ was concerned. Very cordial, gracious individual, great politically _____
1 {inaudible period} _____ it was a period when there wasn't all that much technical
2 activity. It was before we were starting, we were just beginning, I guess, the renovations of the Apollo
3 hardware to convert it to support the Shuttle Program. That was a huge challenge. Trying to take
4 facilities that were built for one program and then make them so that. . . some of the design of the
5 Shuttle was made so that it would fit the capabilities of the Apollo infrastructure which was done to
6 save billions of dollars. So that was part of what he was doing was overseeing the change of the
7 infrastructure. Debus had started that. I guess _____ (Harry Preston) was the Space
8 Shuttle Program Office head before Debus retired _____. You'd have to check those
9 dates but I think that's correct. Then Dick Smith came after Skylab. Dick Smith had been the head of
0 S&E, Science and Engineering, at Marshall Space Flight Center and since Marshall had built the, the
1 Skylab when it came time for it to reenter the atmosphere since we couldn't boost it back up Dick
2 went to Headquarters to guide the Skylab back in so that it didn't hit a populated area. He did pretty
3 well. It mostly hit the Indian Ocean (laughs) but some of it hit Australia. But, anyway, then Dick came

1 here as center director _____ Sherra and Dick was, Dick was a real engineer. He was not
2 as charismatic, but he was, but he was a hands-on engineer. He loved to tinker with things. He is a
3 good friend to this day. We still stay in touch. And he did expand the visitor's program, built new
4 facilities out there, the outreach, still keeping it free. And was very interested in our international
5 relations, was a very good host to international visitors and _____.

6

7 Moore: Did he push a role in that capacity significantly? Did you sense an increase or?

8

9 English: No, not a significant increase because we always had _____. He was
0 more personally involved. He would like to meet with the and go on the tours with the heads of state.
1 He was the Center Director during the Challenger and it was a, it was just a terrible time for all of us.
2 Suffered a lot from the loss of friends and the crew and suffered a loss to the program. We were a lot
3 longer getting back into operation than we could've been. _____ a long time. And, Dick left,
4 he was not really _____ of any responsibility for the accident, but he left and Forrest
5 McCartney came in here as the Center Director. Forrest was a three star Air Force general. Had
6 been the head of the Air Force Space Division _____. Before that he had headed up some
7 of their _____ like Air Force _____ operations space related. And served his first
8 year as Center Director on active duty which was very unusual at the time, very unusual. We had
9 had back during Apollo a couple of Air Force officers. Sam Phillips was a two star general.

0 _____ (inaudible sound)

1 . . . never had a Center Director before who had been on active duty. But anyway he served one year
2 on active duty and then became a civilian retired from the Air Force. Very, very interested in
3 outreach. Also _____ expanded the visitor's center, the beginning of the Saturn V

1 facility. And always was sensitive to the _____(public), sensitive to our relationships with other
2 agencies. Very sensitive to education. Started _____ relationships to bring
3 _____ to summer programs that we had. Made a lot of speeches and he always ended up
4 his speeches with a challenge to his audience to go and find a teacher and look them in the eyes and
5 shake their hand and say thank you _____. That was a tagline in just about all of his
6 speeches and he still does that today. And then the next Center Director was Bob Crippen, an
7 astronaut, very active in the program. My last two years _____. He had a different
8 personality, but Crippen was relatively a private person but publicly he had a nice public façade. And
9 then after Crippen, Jay Honeycutt, I mean Jay _____. _____ (inaudible
0 sound quality). . . My last director that I was still working for was . . .

1

2 Moore: Did you sense that Bob Crippen kind of carried on the same vein, that he didn't really
3 change the status quo where things were going in the right direction? This was before or after the
4 Delaware North contract took place?

5

6 English: This was, let's see, I think Delaware North was already here. I think they were.

7

8 Moore: Okay. I'm having trouble with the dates in my mind.

9

0 English: Yeah. Yeah. He was not as active as Forrest was. I think that Delaware North was
1 _____ (here) because they've been here about, yeah.

2

1 Moore: So they had already come in. Going back to Challenger you had experienced, there
2 were really kind of three phases in the history of KSC and its public interface. You had the moon shot
3 years, which very focused. Then you had the early Shuttle years kind of up through Challenger. And
4 then you had the subsequent years. Between before and after the Challenger experience how was
5 that in dealing with VIPs, the public? Was it a more challenging job, what were they looking for, what
6 were you trying to communicate perhaps?

7

8 English: Well, before Challenger there was a great diminished interest in the Space Program.
9 So we were to an extent trying to generate interest as much as we could so we invited a lot of people.
0 We invited the public, we had great public participation. We would have fifteen-thousand people of
1 the general public on the causeway for a launch. We tried to invite people from different parts of life
2 to come and attend the launches. After the first few years of the Shuttle program the interest had
3 lagged so we were trying to keep that up. And then after the accident there was so much criticism of
4 the agency, so much criticism of the program, not the agency as much as the Space Shuttle program.
5 There were still good things recognized in the aeronautics side of the agency. So we sort of
6 _____ (lay in the weeds) for a few years during the time after Challenger. And then
7 of course the first launch after Challenger there was so much interest. You know much of that is like
8 people go to NASCAR races to see if there's going to be a crash _____. Was that what
9 generated the interest? _____ (I'm always cynical about that.) But, particularly with the press.
0 The questions were essentially how crisp would the bodies have been _____.
1 It was very unforgiving _____. We could not have as much public participation in the viewing
2 of the launches after the Challenger accident. The Air Force was responsible for range safety and
3 they set up much more stringent requirements for viewing of the launch. They reduced considerably

1 the number of people that were allowed on the Center. _____ you could not have
2 more than fifteen-thousand people on the Center because of potential fallout _____. None
3 of that ever happened. _____ happened with Challenger. _____. But
4 there was a spurt of interest after Challenger for a few launches and then they started sliding. But still
5 there's a great deal of interest in the general public. I have friends in Europe that follow the space
6 program, the Shuttle program very closely. And I travel a lot since I retired and there's always a lot
7 interest when people find out I worked for NASA they want to know what's going on. I always try to
8 spread the _____ (inaudible)

9
0 Moore: I want to speak to that for just a second. Domestically certainly the voyage to the moon,
1 the quest for making it to the moon, there was a lot on nationalism tied up into it. There was a lot of
2 prestige, pride, the success of our engineers, the success on a very important kind of Cold War
3 venture. Americans in many respects took an ownership in the activities that took place by NASA
4 and especially at this Center. It was part of who we were as a nation, a collective identity. You did a
5 lot of working with the international side and as you just kind of brought up people were interested.
6 Did you sense that there was, not just a domestic ownership, but a more international ownership?

7
8 English: Absolutely. There's no question about it. Particularly during Apollo it was just
9 unbelievable how much international _____. You know it was looked at as an
0 accomplishment of the world I think. If you go and look at the shows that are at the Saturn V facility
1 particularly the Lunar Landing film and the movies and photos that are outside while you're waiting to
2 go in to see the show, you see the people around the world with the tears streaming down their faces.
3 And it was not just America, it was everywhere in the world except Russia.

1

2 Moore: I want to ask a question that I've never asked anybody before because I hadn't really
3 thought about it in this light. You were here. You were a part of what was taking place. If the Soviet
4 Union had not had failures in a variety of sense, heavy lifting being probably the biggest problem, but
5 had they beaten the United States to the moon and it had been broadcast in the same, do you think
6 we would have had the same international fervor, euphoria over their success in doing something for
7 mankind?

8

9 English: No. No, because they were a closed society that they still are to some extent
0 _____ . But no I don't think there would have been because theirs was more
1 nationalistic or secret and ours was open. You know we've always tried to be open even at the worst
2 of times here we were always open. I think if they had beaten us to the moon I think that we would
3 have also gone to the moon and established a Lunar Base and we would be on Mars right now.

4 (Laughs)

5

6 Moore: So potentially it would have been better if they had beaten us to the moon but. . .

7

8 English: Well now I won't go there.

9

0 (Laughter)

1

2 Moore: Hindsight 20-20. It's all speculation.

3

1 English: I like that scenario.

2

3 Moore: It's an interesting way of thinking about it. Following along these lines, obviously similar
4 kind of ownership with the Shuttle. Do you sense the euphoria overseas, the excitement, especially
5 both in '81 when it first happened and then with the return to flight in 1988?

6

7 English: Yeah, believe it or not there's less cynicism about it overseas I think than there is in this
8 country.

9

0 Moore: Why is that?

1

2 English: I don't know. But that's been my personal, my personal experience. Even in small
3 towns in the south of France I ran into that, you know, "Oh, you work for NASA? You work for the
4 Space Agency?" (inaudible)_____ Same way in just about every country I visited
5 was that interest. Particularly in Europe because they're proud of their participation in the Space
6 Shuttle program.

7

8 Moore: Moving forward then to the ISS certainly this was coming of its own right at the time
9 when you were preparing to retire but certainly this was not a new idea. I know that you look back to
0 the early, the end of the 1980's when we were still referring to it as Freedom and lots of kind of Cold
1 War baggage associated with that. Did you see that this relationship internationally came full circle, it
2 became an international project? Is that the value of it from your view or was it something greater?

3

1 English: Well of course you have to say that's one of the great values. I'm, of course I don't like
2 where it's located. It's, the orientation of it's _____ (fifteen degrees north) so that we
3 give up a lot to have it so that it orbits _____ (into Russia). That's the biggest
4 downside to a second _____ because we expected more resource contribution from the
5 Russians than we got. But to be perfectly brutally honest with you as much as I dislike
6 _____ (inaudible). Because Congress was conned into thinking that this was going
7 to be a good way to do it, a cheaper way to do it. _____ (inaudible) but they have some
8 good technology, the Russians. We've sacrificed a lot to put it where it is.

9

0 Moore: And not much of chance of changing that anytime soon. (Laughs)

1

2 English: No. No.

3

4 Moore: Once it's there you don't just move it around.

5

6 English: That's something a lot of people don't understand. Why can't you move the thing?

7

8 Moore: It doesn't work that way.

9

0 English: The mechanics don't work that way.

1

1 Moore: Well good. Well I appreciate this and I know that you're time is valuable and your throat
2 has been doing well in going. I hope that I have some additional questions, which I have a feeling I
3 may well, that we can get back together and do some more in the future.

4

5 English: Yeah. I'm leaving the 20th, Thursday, and I'm going to take my grandson to England on
6 the QEII and I don't do cruises very well, I've only done one other cruise in my life, but anyway that's
7 where he wanted to go and we both are fans of John Cleese who is the entertainment onboard and
8 we both like Monty Python. . .

9

0 Moore: Oh, what a wonderful opportunity.

1

2 English: Yeah. And he wants to go to London. I took my oldest grandson to Alaska last
3 summer. This one's fourteen. . .

4

5 Moore: My goodness so you're going to take the QEII to London, going to cruise. Where does
6 it depart from?

7

8 English: From New York.

9

0 Moore: and how long . . .

1

2 English: Six days. So I don't know whether . . .

3

1 Moore: My goodness with John Cleese as the entertainment.

2

3 English: Four days in London. I go to London a couple times a year with several friends.

4

5 Moore: And then you fly back?

6

7 English: _____(Fly back.)

8

9 Moore: So we can get back together after your return.

0

1 English: Yeah and I get back on the 30th of June.

2

3 Moore: Ok. Well this has been wonderful and I certainly appreciate every piece of your time.

4 Time has flown in this sense so I appreciate it.