NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT
ORAL HISTORY TRANSCRIPT

H. MORGAN SMITH
INTERVIEWED BY REBECCA WRIGHT
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WRIGHT: Today is October 31, 2002. This oral history with Morgan Smith is being conducted for the Johnson Space Center Oral History Project [at the Selwyn School] in Denton, Texas. Interviewer is Rebecca Wright, assisted by Jennifer Ross-Nazzal.

Thank you for allowing us in your home today to talk with you about your association with the United States space program. Tell us how you and your survival training program became involved with NASA and its first astronauts.

SMITH: Thank you very much for being here, and I consider it a privilege to have you folks on board. You're most welcome [here at the Selwyn School in Denton, Texas. I serve here as professor of Environmental Science.]

My career in anthropology started at Florida State University [Tallahassee, Florida] and if anything good has come out of my career, it's probably the fault of Florida State University and some of the professors there. My career in anthropology really, if I'm to be honest about it, started because I was not a good student in chemistry. Anthropology was much more to my liking, because there are fewer exactings there. Human behavior is a thing that goes in all directions.

So I was [studying and] working at Florida State University [in] the Anthropology Department, and one of the graduates from Florida State College for Women [Tallahassee,

Florida] 1935, had a collection of artifacts, pottery and historical things, from Peru and Panama. She was living in Panama with her husband, [Mr. John V. Carter] who was a contractor to the Panama Canal Zone. They invited the head of our Anthropology Department, Dr. Harold G. Smith—no relation—to come down and see the collection, and did Florida State want it. Well, they did want it.

In their conversations, [the Carters] agreed to pay the expenses of a student to go to Panama for the whole summer of 1952. And when [Dr. Smith] came back, I was [selected to go. I was] an undergraduate student, but was the oldest, having been in the Coast Guard and the Navy in World War II. And [Dr. Smith] said, "You're going to go to Panama for the summer and do archeological and ethnological field work."

… I said, "Well, for an undergraduate student, that's quite a privilege, [really an honor]." I spent the summer in Panama, and met the Choco (Embera) Indians in the Darien rainforest of Panama. As a wild student, you might say, I took my clothes and shoes off and put on a loincloth, because [the Choco] adopted me. I ran the rainforest areas with a man named Antonio Zarco, [and although] I didn't know [it] at the time, he is the senior elder of the entire tribe of some 30,000 people [in Panama and Colombia]…. I hunted, fished, swam, did all those things that they do, with them, to learn about ethnobotany from their standpoint, how they use the plants. [Really] it was ethnobiology, because animals were also involved [in the entire rainforest environment].

So I did that for [one month of the] summer, and then during the second month I was joined by a graduate student, Tiazo Miaki, a Japanese graduate student in the Art Department, who came down to assist. He was a good photographer. We were working [in various locations], and we had an old World War II ambulance which Mr. John V. Carter had made

available to us. He was the contractor that was paying our expenses there. We were in a remote area near the canal zone [doing some preliminary ethnobotanical work. As we were driving out on the primitive road], there was a pickup truck parked in our way [as] we were trying to [leave the area]. [We had] been in the [rainforest for many hours and wanted to leave. The truck] belonged to the U.S. Air Force. We followed a trail and found a "survival [group"—they] had tubs of ice and beer and shotguns and all kinds of accouterments. So we asked them to "Please move your truck or we'll push it off the road." And they did [move the truck. We worked a while with them pointing out balsa trees and edible fruit.]

I had met the provost marshal of the U.S. Army, because [there] was a big archeological site on an [Army] base in the canal zone, and we talked about preserving [the] Panamanian antiquities. [The artifacts were being plundered by U.S. personnel. As] we talked to him, I criticized the Air Force's survival training. Survival training with shotguns and beer and Coke and everything, hey, that's pretty good duty. And I didn't think anything about it. [I] went back to the university and did my work. [We] did an [extensive] report. [Miake] did a museum exhibit of the trip [with] the artifacts [collected throughout Panama].

I graduated in '53, immediately went to Cuba, did archeological and botanical work in eastern Cuba. That led to some interesting interludes in what was to turn out to be terrorism and banditry and that sort of thing, which gave me somewhat of a beginning of a background in security aspects of living in today's world.

[I] came back, and I was a motorcycle rider and had a [B5A] motorcycle [at that time]. I wanted very much to go back to Panama. I came up with an idea that perhaps would work [to get back to Panama]. So I proposed to the motorcycle shop man, [Floyd Frazine], in St. Petersburg, Florida, my hometown, that I would ride a bike to Panama, a new Zundapp Enduro

model, the first Enduro ever made [was] from Germany, and the International Motorcycle Company in New York wound up loaning me the bike through the Department of Anthropology at Florida State University. …

And then I approached a friend of mine, who had just graduated in geography. I said, "If we get another bike, will you come along? The two of us [can get to Panama]." He spoke Spanish at the time. At the time, all I knew how to do was ask for a loaf of bread or a drink of water. Oh, I take that back, a drink of beer.

So two of us left Florida State University mid-December 1953, and I got to Panama Canal Zone in August of 1954. It was a nine-month trip, and we did work. He left about midway, because it was a pretty arduous-type trip. But I had been to Panama and I knew what the rainforest was and the people, so I had more motive [to continue]. It's not heralded at all, it was the first gas-driven vehicle to ever go from the United States to the canal zone. The trip involved a lot of living in jungle hammocks and sleeping in culverts and all kinds of things, surviving various ailments, malaria, amoebic dysentery, and other things, things that [were almost] routine in those days. But at least I have a lot of antibodies in my blood now.

[After] arriving in Panama, a reporter for Time Life magazine—oh, back up a minute. We did a discovery in southern Mexico on the Pacific coast [at] an archeological site, which moved the Guatemalan Highlands [influence] way up into [Oxaca] Mexico, unknown until that time. So *Time* magazine put a picture and played it up, and that made the president of Florida State very happy. So, we were somewhat heroes [at] Florida State.

[We] then went on [and visited] every country [in Central America]. Every nation had a write-up in Spanish of the trip to tell about what we were doing and why, and about conservation, ecology and [national parks], and encouraging each nation to ask the major

supporter of the Pan American Highway, [the] United States, for money to establish national parks along the highway to [form nature] preserves. I had seen that in Panama in the canal zone, a park and rainforest [on a major highway]. That's basically what we did. [The newspapers in each capitol city printed articles about the trip. These articles resulted in a great deal of publicity for Florida State University.]

In Costa Rica, I met the president [Mario Echandi "Pope" Jimenez], and [had] two hour-long meetings with him to discuss [nature preserves and national parks]. And I'm very proud to say that Costa Rica today has more national parks per capita than any other country on the globe. That was 1954.

In Panama, [the Time Life correspondent] wrote a story about the [motorcycle] trip. My G.I. [Government Issue] Bill [had run] out. That $65 a month ran out about down in southern Mexico someplace, and by the time I got to Panama, [I] had traded most of my clothes for meals and lodging. But I still had my black leather jacket, boots, and a pair of Levis, and a couple of shirts, [and a] jungle hammock.

[I] met a gentleman there who I had known in '52, an amateur archeologist [and] Panamanian. He took me in. Olive Brooks was the name of the stringer for Time Life magazine. She did the story for local papers, and she invited Army, Navy, Air Force people to her apartment for cocktails. I was helping her. I painted her apartment and did menial jobs and something to have a couple of dollars, and I met all [of the armed forces public information officers].

In talking to a Major "Mickey" Roth, who [was] the Information Officer for the Caribbean Air Command, I told him I'd been there before and so on. And the next day, [Ms. Brooks] got a call to give me a message that a Colonel "Max" Sansing wanted to talk to me and

that I'm invited to Albrook Air Force Base [Panama Canal Zone] to see this colonel. And I went out there. He's a wiry, hell-for-leather type of guy, and he says, "You're the guy that criticized my survival training a year ago or so before."

And I said, "Well, yes, sir, I did." And I said, "I think it's a waste of taxpayers' money for you guys to have a party out in the woods, and you're not learning any survival."

And he says, "I accept your challenge." And he said, "You're hired." Just like that. And I went all through the rigmarole of civil service hiring and all that stuff. I was new to it.

I wrote my mother up in St. Petersburg, [Florida], and said, "Mama, I have a job, and all I have to do is pay them 25 percent of my salary."

She sent a message right back to me, "They're supposed to pay you for overseas duty."

Well, here I am in paradise, getting 25 percent over my salary. Holy smoke. Now [I understand it's] 15 percent. … So here I am in paradise, for me, as a graduate in anthropology and knowing the people I did. So that's how I went to work for the Air Force.

WRIGHT: And what age were you at this point? How old were you?

SMITH: About twenty-six, I think. Gee, I don't [really] know.

WRIGHT: That's close enough.

SMITH: Twenty-six, I think. And they wanted me to establish [a] survival training course. The first major I reported to was base operations. [He] didn't like civilian employees, and using

some four-letter invectives, he welcomed me aboard. But he was to later apologize when I spoke to his Rotary Club in Birmingham, [Alabama], thirty-some years later.

But, I went to work for them and did a staff study on how to establish the survival school, which required some nine or ten pages of written work. With this study, then the first class of so-called survivors [was organized]. The base commander went along, a full bird colonel, John Oberdorf. I haven't remembered that name in years. John Oberdorf. Colonel Oberdorf was the Commander of Albrook Air Force Base. Anyhow, he went along. They liked what they got.

We went into a virgin rainforest area. I took them in by boat, and they had to walk back out. They went up the Chagres River, and they had to walk back out. And as the course evolved, [they later] flew in by helicopter. We had some old H-19 helicopters, and the [helicopter crews] loved to do this, because it was their training. My first instructor, Gertrudis Arauz (Rule), Panamanian, one of the most unforgettable characters anybody ever met. He was the first one that we hired, and [he and I] went out into the rainforest, dropped down by helicopter, with chainsaws, axes and [rope]. [We were lowered] on the hoist [to] the tops of the trees and then went down to the ground [by ropes and vines]. We cut a landing spot for the helicopters.

By the way, a lot of these techniques that we did by opening these helipads in tropical rainforests were used later in Vietnam [for rescue operations]. In a big rescue attempt there, we had hilltops cleared where helicopters could land in case of fuel problems or anything like that, hopefully away from the enemy. And we had already done those things in Panama, up and down in the hilltops and so on. So a lot of that, even in the munitions we used and that sort of thing, and all [of] the [jungle] equipment [were developed in the "jungles" of Panama]. The survival instructors at the Tropic Survival School of the U.S. Air Force tested all the Army's jungle boots

and the steel plate you put in them to keep the bungee stakes [from penetrating the soles of the boots]. The first people to wear them were the instructors of the Air Force's Tropical Survival School.

Our school was adjacent to the Army's Tropic Test Center [Fort Clayton, Panama] so we established rapport [with] one another. We cooperated [and tested a lot of their new equipment]. When the Jungle Warfare Training Center [Fort Sherman, Panama] was established back in '54, I also worked with Lt. Colonel Goldoni back then to establish that. A World War II Colonel [Robert] Rourk, who was writing for the Army magazine, did an article about [the need for a jungle warfare training center]. I'm pictured as an Army survivor in his article. They don't know that was an Air Force civilian. But that's some of the background [that enhanced the Air Force survival school's reputation].

We had two Latin American officers go through the course, and by that time I did speak Spanish. … The Latin American officers liked what they saw in the course, and they asked if we could do it in Spanish, which we did. … And so we wrote all the material. The course material was put out in several small booklets [for the] different courses. TSS, Tropic Survival School, was our sign, and I think we had six formal courses. The [first] course [was] basic [tropic] survival. The next course was [for] the air commandos and Army special forces. We then started training everyone. [It included evasion training.] We took the Army special forces people, air commandos, we did a special course for them, which the basic course was five days, with three nights in the jungle. Their course was one full day of classes, the next day half a day, and then preparation. They went to the field and came back Saturday. So they had a full five days in the field.

It was a pretty rigorous thing, and that's why the NASA got involved, because this received good [publicity] in the DOD [Department of Defense] and outside of DOD, because the then U.S. ambassador to Costa Rica came down, went through the course, and the Air Force publicized that. He wanted to learn to use a machete. He could have run for president [of Costa Rica]. I can't tell you his name at the moment, but this guy was just tops. He was one of the finest diplomats I've ever known, and he spoke Spanish. He used to be mayor of El Paso [Texas] I think. But that is what led to our [NASA] people [to know] about the school.

Dr. Paul H. Nesbitt was [director] of the Arctic Desert Tropic Information Center at Maxwell Air Force Base at Air University [Alabama]. NASA went to [Dr. Nesbitt, director] of Arctic Desert Tropic Information Center, and asked him where they could get good jungle survival training for the Mercury [astronauts]. He and some of his staff had been down and gone through our school, and he was an anthropologist. … So he said, "We'll send somebody down to the Tropic Survival School to see what [NASA] thinks of that."

Someone came down. I forget who it was. By this time we were training Navy pilots as well as we trained the first cadre of Marine pilots that went to Vietnam. We trained the Farm Gate people, our first [Air Force] people in [Vietnam]. So it [was] just a gradual building of reputation, I guess. It was good training from the standpoint there were no nice things about it. It was good combat training for those people who were going to combat, good basic training for those people who just flew transport throughout Latin America or all over the world.

We covered the world's tropics. And a lot of people don't realize that the world's tropics includes arctic conditions. In the mountains, the Andes Mountains, that we used to fly over, under, and into on occasion are snow-covered, and their survival is compounded by a lack of oxygen for fire building, getting warm, and it's snow, year-round snow. So you have arctic

conditions in the tropics, people tend to forget that. And the world's most absolute deserts are the Atacama Plateau in South America in the Andes Mountains. They've never measured any moisture. I think El Niño changed that two or three years ago, [and] people saw flowers that had never seen them before, some of the Indians, the Quechua living up in Atacama.

So as we did this and then when the NASA people apparently evaluated and they were excited, they sent the Mercury people down, and I think Mercury and some of the Gemini people. You, I believe, have a copy of [the] letter [they sent expressing appreciation for the training].

WRIGHT: Yes.

SMITH: … Whatever year that was, they came down and went through the training and were great supporters of ours. And I will say this, that they had a press conference in the canal zone, and I said it then and I'll say it now, they asked me what I thought of our space program after the training, after what I had seen with our people, and here's what I told those people, that if our race to the Moon, to space, depends upon the human element, we will win. These are the best damn guys that I'd ever worked with, and I've worked with the best, both combat and non-combat. And I'll tell you that these astronauts that we picked are dedicated, hell-for-leather, intelligent. Golly, they were just [great] and we put them through a [real learning experience]. I know the Air Force generals were beside [themselves when briefed the astronauts were in the jungle without communication]. "You did what with them? They're by themselves and they don't have radio? You can't contact us? What if something happens?"

"Then they won't be astronauts."

"Well, we've already spent millions on them."

Well, they wanted this [realistic] training and they got it. What we did was pair of them off. Ironically and coincidently, John [H.] Glenn [Jr.] and Neil [A.] Armstrong were together. I don't know whether you've seen the picture. There's a picture that says "Choco Hilton" on a piece of parachute cloth. Well, see, they were in Choco Indian territory, and John Glenn and Neil Armstrong wrote a sign on their little lean-to and called it the Choco Hilton. They did it with charcoal on the white parachute cloth. [Morale throughout the training was excellent.]

It took some hard work, [and] all the instructors for that group were all Panamanian civilian employees of the U.S. Air Force. Those men were also the primary penetration team for rescue, in the event of a civilian or a military plane went down somewhere in Latin America. [They] had rescue packs [ready at] all the time. All they had to do was drop their training pack, pick up their rescue pack, and they were gone.

These men, I'll have to say this for them, would work eight days a week and twenty-six hours a day for the United States, and they were dedicated, absolutely. [I can't] say enough for them. And [I practiced a] kind of cross-cultural personnel management. The success of the school and why NASA was interested was because of [the professionalism of] those men.

Each two astronauts had one instructor who did not stay with them and hold their hand in the woods, but were there [close by] to offer instruction. Our school did not just throw them out there with a machete in their hand and say, "Go for it." No, we kept [up with] positive instruction at all times in the rainforest environment. And in this course, they also had a cross-cultural experience, where they had to meet and deal with [local Indians]. They were allowed to trade, not to buy, to trade items of clothing or whatnot, to see if they could get a banana from the Choco Indians. Some did, some didn't. And afterwards in the critique, we would [tell the

trainees] on what they did [right or wrong]. You will see pictures here, a picture here of two men, and it's real. The picture's real. I took some pictures candidly from the bushes, and they're real, of these men trying to convince the Indians who they were. And, of course, the Indians knew.

In our combat-oriented course, which was not for NASA, we had all these [Indians, that] was part of the publicity of the course, the special forces and air commandos had to move from A to B, avoid any contact. Not one man ever made it with his hat on. The Indians, for every hat they brought us, got a silver dollar. Silver is their color, and they didn't want paper. So every one of them got a silver dollar.

One man says he got through, Colonel Bob Gleason, the commander of the air commandos, but he took his clothes off and got in the river and [floated] down the river, and the Indians told me they saw this man without his hat on. So I give Bob a hard time. He just wrote a book, which is over here, *The Chronicles of Air Commandos*, and he has a whole chapter about that survival school.

So that's why NASA got interested in it. They went through the school, and you saw the letter that they wrote, which we're very proud of. Each Panamanian instructor got a copy of the letter.

Then I was called and sent on orders to Houston [Texas] two or three times, I don't recall [the dates], to help work out a survival kit, survival equipment with the weight and space limitations of the early [space] capsules. [The problem was:] what [do] we need to survive in a world environment. And, of course, at that time, most of the flights were between the Tropic of Cancer and Tropic of Capricorn. So that was my [environment]. We were able to brief all [of

the equipment] people while I was there at Houston [about tropical survival]. It was in the Manned [Spacecraft] Center [Houston, Texas, that developed] their survival equipment.

The names slip me, because it was such a busy time. I remember having dinner one night [in Houston] with [L.] Gordon Cooper [Jr.]. "Gordo" and his wife had me over for dinner. Every single one of those guys was worth millions, if you wanted to put a cost on it. I would get very upset at some of our people, politicians, yelling about the cost and so on. This was unimportant, as far as I was concerned. Damn it, if you can't take a joke, you shouldn't have joined up. Shut up and leave these guys alone and they'll do the job. And they did.

But at any rate, we had them come down [for the training. I] came up to Houston and worked with [the survival equipment people]. Based on their report, the Gemini people and the Apollo people [followed for tropic survival training]. In the training that they got, sure, they were a little special. There's no doubt about it. By the time you got through spending a million dollars on a man in training and all the technological devices, he deserved to have a few minutes and a couple of dollars of practical hands-on, dirty-fingernails, type of training.

They were in the field [in] pairs, and they did the work. They were issued a little twelve-inch-blade machete, a jungle hammock, because the jungle hammock would keep [a person] from getting wet at night and [and allow them to sleep. The hammock] had a mosquito bar, where insects wouldn't bother you, and a good [canvas] bottom. It was put up [off the ground] between trees. We let them do it. We did one at the school to show them how, and then they did it. I'll never forget Wally [Walter M.] Schirra [Jr.] put his on a tree that was less than substantial, and by midnight his butt was dragging the ground, and he was making noises in which other people have appropriate remarks for. [Laughter]

They're just a great bunch of guys. They saw humor. When one of them goofed, why, there was a humor bit in there. And Wally is a pretty good humorist anyhow. That was, of course, fixed before the next night.

They fished, they hunted, but mostly they cut into heart of palm. The heart of palm was the basic for all of these guys in training. And, after all, you don't have to shoot it and hunt it down. It's there, and if you have a pocketknife, which you should always have, you can scrape one out. Basically it was vegetables, [i.e. heart of palm]. The Indians use that. So I just followed what they did. But [the Indians] also [hunted] with blowguns, bows, and arrows, and shotguns. [Our trainees] were able to forage. [They had no firearms.]

WRIGHT: Before you sent them off in pairs, did you have some type of classroom setting with them?

SMITH: Classroom setting, yes.

WRIGHT: And how long did that last?

SMITH: Two days. Well, a day and a half, really, because the second afternoon is when we put them in the field.… They went through films and lectures that first day in the school itself. And the picture, which is with that letter, framed over there, was taken at the school.

We had a plant and animal demonstration area where plants were introduced that they would find, and they were from all over the world's tropics. They weren't necessarily just Panamanian. However, the Panama rainforest is like the rainforest in Australia. It's like the

rainforest in Africa. The type of vegetation is the same. Individual species and varieties and so on are different, of course. But basically we had a number of [world] plants there. The animals were those that could not be released, [or] had been modified. Somebody took their claws off or dulled their teeth. People would buy animals in the market, native animals, and keep them, and then when they left, they couldn't take them with them, and if they disposed of them, the animal would die. So we had a lot of them that we could not rehabilitate into the wild. Those that we could [release] were put in a helicopter and taken to these remote helipads and turned loose, all the snakes, [and] all the female iguanas with eggs.

The conservation legislation in the Republic of Panama was based on what we did with the plant and animals. Dr. Reina Torres de Arauz, anthropologist and professor at the University of Panama [Panama] she also helped us with [her] knowledge. Alexander Graham Bell Fairchild, Dr. Fairchild at Gorgas Memorial Lab, [Panama] was a good consultant on entomology, insects and that sort of thing.

So what we had done was muster a group of specialists who could give advice and lectures, and NASA liked that. The NASA people were very interested in some of the people that we leaned on for assistance. The practical knowledge is what we worked on with the guys in the field. After the films and lectures [in] the classroom and the demonstration area, we had them organize and put together [the military type order]. The ranking person militarily was put in charge of the group. We did not interfere with the discipline of the military. We were there running the training course, but as far as "Hey, Sergeant" or "Hey, Lieutenant," the ranking man took charge of that for the whole when the group was together in the field.

In the NASA astronaut program, it was a bit different, because we divided them in two and two. Neil was a civilian and John was what, a captain? I forget. Well, anyhow, military

rank. And they weren't all together. See, the regular training, we kept them all together. But for these guys, after all, the capsule at that time had one person in it. So we had to be concerned about one person.

I'll never forget John Glenn on the way out, the last day of field training at the Quebrada Fea, the mouth of it, [at] the Chagres River, he stepped off and it was quickmud. It was not quicksand. It was damn fast mud. And he stepped off in it and it's like the joke, don't make a wave. He's up to his chin in mud and water. And he said, "For god's sake, don't make a wave." [Laughter] But that's another humorous point, and I can't say enough for this guy. Great sense of humor when the joke was on himself. There were other words and things, too, which probably would not be appropriate to your across-the-board oral history.

They had to each get a heart of palm, and they had to do this as individuals. They had to each [eat] heart of palm while they were in the field. And then when we had given them, at the school, samples of iguanas and boa meat and that sort of thing. And then out there, whatever they found, if they cut it, they had to use it. If they fished for it, they had to eat it. Anything that they did that was take a life of anything, an insect or a snake or a reptile or animal or a bird, they had to eat it. There was none of this destruction of anything [without using it].

As a matter of fact, we enhanced the training area with all the—the mangoes are native to Central America, and so when the mangoes on the base would drop, and they weren't particularly real good ones, people didn't eat a lot of them, we'd load boxes of them in the helicopter and just dump them out. And so we had maybe 5 percent germination and trees grow and so on in the training area. But conservation was the mainstay. NASA endorsed that as well. They liked the side effects. In fact, I remember—I forget who the big boss was at that time,

saying they appreciated the Air Force's attitude toward conservation of the natural environment, [especially in Panama].

We were the only place that had a cross-cultural communication course, [as] part of the [training]. They had to meet and deal with the Choco Indians. It made the course different than any [other survival course]. And the fact that we introduced continuing experiential education all the time, rather than just give them a knife and send them out [into the field], we kept an instructor [with the trainees] all the time except at nightfall. They camped apart from the students, but they were there. And if some student broke a leg or an arm or something, they were there to evacuate them or for first aid, do what was necessary.

We had radio contact with our instructors, but we didn't tell the students that. The biggest criticism we got from the Air Force officers who went through the training was, there was nothing—what if an emergency had happened? There was no way to contact the base or anything. Well, one of the mainstays of good training is psychological, and if they knew all they had to do is press a button and talk to the hospital or dispensary at the base, there's no psychological [feeling of isolation]. So we cut them off. "You're on your own." And they didn't know we had contact all the time. We never let them know [before the field training].

WRIGHT: Did you give [them] a specific task or assignment to do while they were out on the field?

SMITH: Yes, they did…. They had specific things to do. The groups themselves had to assign different men to do different things. They had to practice signaling to flyover aircraft. Our NASA people had to do it as pairs. They had a much more severe time because there had to

be—see, if we had twelve people, then there were six different camps. If we had twenty people, there were ten different camps, and that kept us on our toes, too, running, back and forth. I visited all of them in the field. Then I was a young man, and so I could run around in the rainforest. I didn't smoke.

So early on, we watched them. But these specific tasks, they had to cut at least one tree to make a clearing that they could signal. They had to be able to read a map, because if they signaled correctly—and I don't recall any NASA group that did not. They all were very sharp, and they got a ration drop and a map, how to go home. We didn't leave them alone. On the last day we knew we'd get everybody. The people who kept watch were the Choco Indians. No one ever got lost, because the Choco—we were in their territory and they knew were every individual was all the time.

Our great technological machine in Washington didn't believe this. They were very upset that I turned the nation's astronauts loose in the jungle with all those big snakes and alligators. And I had all this Hollywood stuff heaped upon me. But, of course, we could not allow them to go into Panama. The State Department wouldn't allow them to go into Panama, because they figured, I guess, that other countries in Latin America would become jealous or something. Little did they know that most of the training took place in Panama. But that's been years ago. So I hope the statute of limitations has gone by.

Signaling, foraging, and getting clean water. The water vines, most all of them practiced cutting a vine and drinking the water out of the vine, which is the only pure water you could get without boiling it, which they could all do that. They had a canteen, a canteen cup. The basics to live were there to keep them healthy, but it was the same for everybody. The astronauts didn't get any special treatment from us. They had all kinds of protocols from the base commander, but

from the survival school they had nothing special whatsoever. They had to do what everybody else did, and I think that's why the guys [appreciated] the training.

WRIGHT: After their day and a half of films and classroom-type training, then you sent them out. How long were they out in the field in those camps?

SMITH: Tuesday through Friday. Friday afternoon [they returned to the base]. Tuesday night, Wednesday night, Thursday night, three nights, and they had a lot to do.

WRIGHT: Did you have a debriefing?

SMITH: Oh, yes, afterwards. The critique afterwards is how we were able to improve the course. All the time. All the [people] that went through the courses are the ones that made it. After each group, from the first group on, at the critique, the debriefing.

Would you like to have a story of one colonel? It's not particularly germane, and it's a little shady.

WRIGHT: It's your story.

SMITH: I had a colonel from the mission chief in Ecuador. His name was Morganti. And I assigned him as the commander of his group. He had, I think, thirty, thirty-three, thirty-five people in that class. We always gave a lecture to the regular classes. We gave it about prison camps or someplace where you're on your own, and as it proved, that was true in [Vietnam] and

places. And I said, "Sometimes the only water you'll have is urine." And I said, "If the people are healthy. What makes urine repulsive is its waste materials, and most of it is salt. It is not poisonous unless somebody has some disease."

Well, that's rough for our society to take. But Colonel Morganti rose to the occasion at the critique afterwards. He said, "Mr. Smith." He said, "I'm so glad that you made that lecture about first aid and about the use of water and source of water." He says, "when you assigned me to organize this group, I had these sergeants doing this and that and the other thing." And he said, "I overhead one sergeant say to the other, 'Well, piss on the colonel,' and I didn't know he was looking out for my welfare." [Laughter] That was a common thing to say about your commander.

WRIGHT: I can imagine.

SMITH: You probably won't be able to use that. But, anyhow, that's the type of humor, and as long as we had that going, you didn't worry about the morale. The groups always were quite good, and these NASA people [were outstanding] and they did hardship things [i.e. mud, steep hills, thorns, etc]. There were some rough hills to climb to get out. We took them in by helicopter and they could go down for a while. There's no way they could get out of there without learning something. They learned that every palm tree they reach out to grab when they slip is full of spines.

Mostly it was an orientation that the tropical rainforests are friendly places. It's how the human reacts that makes them dangerous. For example, they learned that you cut yourself there, you're going to infect fast. Well, the converse is true. All biology goes faster. Heat, light,

moisture, that's the tropics. You heal twice as fast as you do here [in the temperate zone]. All biology is working faster and better. … They learned facts such as that.

In other words, what the basic thing I think they came out of, and in talking to them later, is that, "Hey. If we get there, we're okay. We'll wait for rescue." And that's exactly what we wanted to establish. A little bit of good knowledge, positive knowledge, was our philosophy, positive training, [experiential education], none of this real rigorous hardship-type thing. … So that was our basic goal, and I believe the [people] came out with that, from [the] critiques, [and] what they told us. The critique was private. [However, their confidence in self and their survival ability climbed to an awesome level.]

Then of course, [after the NASA field training], the press corps was there. When we got through talking to the press people, they, too, were very patient and tolerant. There was none of this, kick-butt-type thing. It was talking to them, "Hey, we've got a thing here we're trying to do. [Please don't interfere.]" One of the Air Force [survival] training centers had made it into a circus, and we didn't want that. Everybody was very cooperative [and serious].

There is a thing that happened. They weren't allowed to go into Panama. Do you want me to tell you that?

WRIGHT: Sure.

SMITH: One of the people came to me on Friday afternoon, after all the hullabaloo was over. They stayed in the Tivoli Hotel in [the] Panama [Canal Zone], and they could look across the street and see Panama. One of them came to me and said, "Morgan, you have to do something. We all want to experience a bit of Panama." State Department wouldn't let them.

So I recruited another driver, another car, and I had a Nissan Patrol, which you could put six people in the back and two up front with me. I think at that time I was married. My wife had the other car. She had made some comment about, "Who is that good-looking guy?" And guess what I did. I put him in the center in the front with her. She turned red as a beet. [Laughter]

So we went out. We had dinner at a restaurant in Panama. Of course, "Gordo" had flown. So had John Glenn. They were spotted. And that was probably one of the finest evenings of United States diplomacy in Latin America. Guys were coming up, said, "Would you please dance with my wife?" and girlfriend and so on. The Panamanians were just absolutely gregarious, nice, fine, respectful, and we made more headway than [a handful of ambassadors]. Of course, [the friendly rapport] was destroyed later years. But, ah, it was just beautiful to see. I guess everybody got back by midnight, well, maybe shortly thereafter. But we did that. Didn't tell anybody till just now. And you know who asked the question? John Glenn. He's a mischievous guy. [Laughter] A wonderful guy.

What the Choco Indian did down there, Antonio Zarco was so wonderful with all the training. If anybody got disoriented or lost, somebody with a radio would be there and we'd ask Antonio to bring them in. They did. And he was especially nice with the astronauts, because we told him, "These people are going to the Moon." Well, the Choco spirit goes to the Moon when they die. Put those two facts together, and these guys were being trained by the people whose spirit will be there. John Glenn, for some reason, became—I forget what was the [specific] relationship, but the Choco chief, Antonio Zarco, and John became acquainted, and so John would try some Spanish and so on. But there was great respect [shown] between the two of them.

A year ago, I was in Panama. The Choco, [Zarco], was the same age as John, born in ’21. I was in Panama and I had two 1921 Morgan silver dollars. My name’s Morgan, so I have some which I give to special friends. And so I gave Antonio two of them. And in Spanish he said, “Well, why do you want me to have these two?” Because silver is their [favorite color or metal]. He did that [beaded] necklace [with silver coins] and gave it to me. The men do the beadwork [in] the Choco [society]. He gave [one silver dollar] back to me and said give it to his friend John Glenn. Well, I put it in an envelope and sent it to the John Glenn Institute [for Public Service and Public Policy] at Ohio State [University, Columbus, Ohio]. … But that’s the rapport with the [Choco] people, [that’s important]. All of them established a good rapport [with all of the Panamanian people they met; Indians in the jungle and folks in the city].

When Pete [Charles] Conrad [Jr.] came back for a reunion with the Choco in Panama—have you seen that film?

WRIGHT: Yes, you sent that to us.

SMITH: … It was great for them to talk to somebody who’d seen where their soul goes, and I had warned him not to say it’s a bleak, desolate, ugly place. There’s beauty there. It’s bleak and desolate, but beautiful. Because they understand English, most of them. …

But that was an important part of what all astronauts had to do, [meet people]. And they agreed later. They didn’t understand [cross cultural awareness] when they first went into it. You saw that little film that John said he remembered that training, and that’s the one thing that he said made him feel more comfortable that no matter where he may have wound up in a remote area, the people were going to be great. They didn’t have to know anything about the space

program or about competition with the Soviet Union and all that. The fact remains that he thought that experience of meeting and dealing with those people—and we're very proud of that and so are the Choco. They realized that they had done [an important] thing. And then when Pete came back and went down and told them, they believed he had been to the Moon. As you know, a lot of people in the United States believe it was all done on film. …

The fieldwork people were interested in the simple task of becoming acquainted with a remote, highly publicized, dangerous environment, which they found out was not dangerous, the people who lived there would be friendly, with the proper approach, and the environment itself, sure, there are thorns on the palm trees and on some of the vines. Sure, there are ants and there are hornets. But it was no more dangerous than out in the yard at home, a wasp nest or something. And so that is exactly what we tried to establish.

We were dealing with intelligent, well-educated people in dealing with the astronaut corps, the Manned [Spacecraft] Center people. Those who flew, those who were astronauts, and also the people I worked with in Houston were topnotch. Everybody involved, from my standpoint, were topnotch people. There was no way we could fail. When President [John F.] Kennedy said, "Put somebody on the Moon," they did it. And it took everybody. People who were in positions like you two people are, everybody had to put in 110 percent, and they put in 110 percent and we won, I guess, the prize, whatever it may be.

I know all of the people and the people of Panama, even today, the Gamboa Rainforest Resort [in Panama, is where we staged the astronaut jungle training, and] the Selwyn School, where I am now as professor of environmental sciences. We're sending people down there, students, to learn about the tropical rainforest, following that same philosophy, it's a friendly

place and just to get rid of some of the folklore that it's full of snakes. Some of the Hollywood movies still don't help, *Anaconda* and these other things.

But in Panama itself, we staged the astronauts out of a golf course in the canal zone. That golf course today is the garden of one of the finest places I've ever seen for study and enjoyment, the Gamboa Rainforest Resort. I was just there six months ago. This man, [Herman Bern], Panama owes him the Treasury. This man, Mr. Bern, organized [the resort]. All of the astronauts staged out of that place. He's so proud of that, he has this letter [signed by our original 16 astronauts] in the lobby [of the hotel] and that does so much good for U.S. relationships.

We had an occupation group go there and do something, which I refuse to call it an invasion, but anyhow, they went in to arrest somebody, and it caused great damage, but a lot of the damage was caused by vandalism by the people themselves. My Panamanian friends tell me this, "You [U.S. people] got credit for tearing up a part of Panama City, but that was the folks that lived there who wanted more."

So today NASA still lives in Panama, the training of the astronauts still lives as a positive impact on our relationships with another nation and the fact that we did bring back some rocks from the Moon and subsequent Apollo flights and so on. They're very proud of that, and now they have one [Latino] flying—one Peruvian. … [Frankly I believe Panama should have a Moon rock exhibit.] And, of course, they're all, [Latin America], pleased about that.

The legacy of the astronaut training is very positive in the minds of the people there, and I think all of NASA, and I know sometimes we tend to forget it as a nation, the importance of this whole program in the United States and where it is in the world today. But we who were down in the trenches with this training realize what these guys accomplished far beyond flying in

space and landing on the Moon. They accomplished a lot more. They may joke about it, but I don't. It's very serious.

By going through a rainforest experience, for them to come out and say, "Where was something dangerous? You let us down, Smith. There wasn't a nineteen-foot anaconda there. We saw one at your school, but we didn't see one out there."

And I ask them, as the introduction to the course, "What is the most dangerous animal in the tropical rainforest, as you call it, a jungle? What's the most dangerous animal? I ask you right now. What is the most dangerous animal?" And I tell them, when you get up in the morning, look in the mirror, and you'll find the most dangerous animal anywhere on the globe, because that animal can destroy it. We go on from there, and that's what the training was based on. And we still do it with children [as well as adults].

But in Panama he has this all framed at the Gamboa Rainforest Resort, and we're sending children from the Selwyn School to both Panama and Peru to learn. The Peruvian Air Force has some of the finest jungle survival training in the world today, and that was based on the experience in Panama. And, of course, when the NASA people used it, everybody in Latin America wanted to send their aircrews there, and that was a big plus for the [U.S.] Air Force. They had a school, which everybody in Latin America—oh, we had ambassadors, we had governors, so many, the British ambassador, Venezuelans, [all] went through the school in Panama, and then we went to each country with a mobile training team. And a lot of that was based on the fact that NASA used the training.

WRIGHT: Well, before we go any farther, we're going to take a break and change the tape.

[Tape change]

WRIGHT: When the astronauts came to the survival school, did they come alone? You mentioned there were other people like the press corps. So tell us how you handled all of the extra people that came down. Did they go through survival school, too, or were you having to handle them outside?

SMITH: I will have to give you an answer, the first time you use "I" instead of "we." I prohibited anybody from even being in the parking lot. This is serious lifesaving training. It's not a sideshow, and the Air Force general I worked for at the time believed in that, and he put a security policeman [on duty to keep the place secured]. "There will be nobody here except the people immediately involved in training." He agreed with that, and that's the way we did it.

WRIGHT: Did you ever have any of the press corps volunteer to go through your survival training to understand it?

SMITH: All of them did. And a year or so later, I think all of them did. We had the Washington press corps down there, and they all went out into the rainforest, and we put them in a dugout canoe. We almost drowned them in rough water crossing the lake [on the way out]. They went through reality, and the press clippings that I have in my mementoes attest to the fact that they thought they went through a rough time and they survived and they were so proud of themselves. [Yes], we had them, and they respected [all of the Panamanian survival instructors].

I will say this, there was none of this business like the Princess Diana thing and so on, chasing. Oh, sure, they wanted to be there. But when I told them why not, we had no problem whatsoever.

SMITH: What about other NASA officials or NASA medical people that somewhat traveled with the astronauts? Did you train them as well?

SMITH: No.

WRIGHT: They had to go wait someplace else?

SMITH: They could go twiddle their thumbs and sit in the Officers' Club and drink coffee. The people who did come were very respectful, as were the press corps, [although they] were very interested. No, I was going to say we did have one or two people who went into the field but did not go through the training. They were nice people. I have no negatives at all.

WRIGHT: How many sets of astronaut survival camps did you have?

SMITH: Three. You mean how many times?

WRIGHT: How many times did they—

SMITH: Three different times. Mercury, Gemini, and then Apollo.

WRIGHT: Did you find any differences or do anything different?

SMITH: No. They all needed the same type of training. Mostly they needed to know that a tropical jungle or rainforest is a friendly place. If you treat it well, meet it as a neutral entity, you're fine.

WRIGHT: What were your observations on how well the astronauts worked together in that group? I know you said you split them up in pairs, but when they were all together, did you have any observations?

SMITH: Yes, we had observations there. Sure, there's competition, and it was all that we—and I say we because my instructors all reported to me about it. What we saw was cooperative competition. And I realize that there's different opinions and different personalities. We saw that. But I think we [coined] a term: it's cooperative competition.

WRIGHT: Did the critiques differ between the groups? Different comments?

SMITH: Oh, yes, sometimes. Some of them, yes. And a lot of them based their critiques on their personal experiences, Hollywood movies, and you could read that into the critiques, sure. I don't recall any negative critiques. There were different levels of positivity on the critiques.

Take Ed [Edward H.] White [II], for example. He was an outdoorsman and worked in South Florida in the Everglades as a young fellow. Oh, man, he reveled in [jungle training]. He

wanted my job. I did not want his. [Laughter] He was absolutely [great], so we communicated and stayed in touch and corresponded. So did Pete Conrad and I. Of course, Pete was a motorcycle rider, and I had been, too. But there was a lot of sameness in a lot of those guys and a lot of what I did as an individual, my personal life. But their competition, for the most part that I saw, was healthy, in my opinion.

WRIGHT: What did they say to you that they found the most challenging part of being out there for that week?

SMITH: Their previous "expert" knowledge of a tropical jungle. "Smith's right. This is a park. Let's have a picnic in the park." See, Pete Conrad went twice. He came with the first group, and he came also as the escort for the Gemini people, of which he was one, too. He went through it twice because he requested it. I thought that was a great feather in our cap.

WRIGHT: Did they have any suggestions for you on how you could improve or enhance your training, or did they all feel pretty well trained when they walked out of here?

SMITH: They thought it was applied very well toward what they understood their mission would be and should there be an abort or something over some of the areas of the tropical rainforest or tropical ocean, because you couldn't train in our training area without getting a lot of water training, besides what they had at the Air Force water survival school down in Florida. They recognized what their duties were and that this was just something to give them more confidence. They didn't have to worry about it anymore. We got that from their critiques. After they go

through the training, they didn't worry about that. "Let's get on with what our profession is," modular work and so on.

WRIGHT: Did the first group go back and tell stories to the second and third groups?

SMITH: Apparently so, because we were zeroed in on that. The first thing I remember the second group was, of course, Pete was with them, "When are we going to do Panama City?"

"Guys, keep quiet. We can't talk about that. You'll have the State Department down my neck. The ambassador's over there watching." Yes, I remember very distinctly. [Laughs]

WRIGHT: Well, the first group had no idea what they'd be going through. I was just wondering if that—

SMITH: Oh, yes, there was that back-channel intel [intelligence] type of things. What we did was change the exact spot. I'd say, "Oh, you guys, you're in for a real treat. You're going to virgin territory, virgin rainforest." And then they'd make some caustic jokes about that….

WRIGHT: Did the first group know that the Indians were observing them? Did you ever tell them that even at the end of the training?

SMITH: Yes, at the end of the training. And during the training, the cross-cultural communication thing was an essential part of the training, was they had to know that people of a remote rainforest area, depending on how you met them, it would be friendly. Because their

questions were, "Well, what about the headhunters? What about the cannibals?" And we got those questions and were able to, I think, satisfactorily resolve those questions.

WRIGHT: Let me take you to Houston. You said you helped prepare a kit, a survival kit, for the capsule.

SMITH: Well, survival equipment.

WRIGHT: Could you share with us what some of those items were and why you felt they were essential?

SMITH: Well, the main thing was the little machete with a twelve-inch blade, and it had saw teeth on the back of it for cutting through a lot of cables and fabrics and plastics that were in the capsules.

Excuse me, could you give me [a moment].

WRIGHT: Sure, that's fine.

[Tape interruption]

SMITH: Okay.

WRIGHT: We're talking about the kit that you helped put together.

SMITH: The survival kit. Really, rather than call it a kit, it was general equipment that would be placed in the capsules. A kit in itself would be cumbersome both in space and weight. And they came up with that, could we put these items different places, because they're so limited on space. If you mention, "Well, put a dime there," then that would cause a big consternation, "There's no room for a dime." So it was very difficult, because I'm used to doing it for transport planes and things like this, and so I had to learn as well.

But that main piece of equipment—and I don't have one of them, I didn't keep one, we let the Air Force have it for exhibit purposes—was that machete, which was made by one of our big knife companies. They got the contract for it. Which if they, [the astronauts], knew how to use it correctly, which they did learn, there wasn't anything they couldn't do. You can dig a hole. You can cut a tree. You can trim grass. You can cook a meal. Do everything with that one—and that was one of the main items that they—and I think in the letter they mentioned it, that I would come to Houston and do. Because of the training, they knew how to use it, and that was the thing that you should use, [a] general utilitarian [tool].

And there was signaling, something to signal with a small thing that would attract attention. And here again, what we emphasized in the training was improvising. Use what you have there. Take off your white longjohn underwear and use it to signal with. All these things, some of which were humorous, could be done in that manner. Improvisation was the name of the game in our training. Improvise. Use something for what it's not supposed to be used for.

Like I have people today say, "You must have been the tech advisor for that program where the guy could do everything with little. That's what we emphasize, that there's a hundred uses for each little item you have, but it's between the ears. The best survival kit in the world is

between the ears, and I really mean that, because you've had some experience, which they got, and then you could use different pieces of equipment for all kinds of things. If the machete blade was shiny, it's a mirror for signaling.

And pyrotechnics, very limited, and we later found out why. The disaster at the Cape [Canaveral, Florida] wasn't caused by pyrotechnics, but it brought out the fact that we're in a very delicate environment [for] those things. You can't have any [flammables]. Some of those things that were used for different things. What did you have in there that you could start a campfire with if you were out in the woods someplace? Something that wouldn't just ignite by itself in a certain high-oxygen atmosphere. So all of these different things I learned, too. I know what I thought they should have, but then I also had to learn what their environment could allow. So the sharp machete was a major item, which they learned they could use for a hundred different things. You could break your fingernails trying to open a can, but with that, you didn't have to worry about it.…

WRIGHT: You mentioned earlier that most of them had a good sense of humor. Was there any time during their training that their seriousness transferred to a little more humor? Did you find them playing practical tricks or any type of humorous events?

SMITH: It's a wonder that Morgan Smith survived their training, when they got through with their practical jokes. Their expertise was not only in the technology of a spacecraft, but they were damn good at pulling your chain. [Laughs] I can't think of any specific incidents now, but I remember that also one of the comments in the press conference, "Their morale is excellent.

Their morals are questionable." Not really, but I did that to get back at them for some of the things they pulled on us. [Laughs]

All of the Panamanian instructors—they were all Panamanians in that first group—were in love with all of them, and they just were—and I remember the grins from ear to ear in the debrief and the critique at the school. The best students we'd had. And the Panamanian people, and, of course, they, [the Panama people], went and talked at home. And, of course, it expanded the knowledge of our space program and of United States citizens.

WRIGHT: What was your responsibility to the government? Did you have to issue a report, some type of monthly or end of the training type of report to NASA and Air Force officials? How did you report what was going on down there with the astronauts?

SMITH: The astronauts did that, and apparently they thought they were getting their money's worth. They did that. If we had done it, it would have been nonobjective, subjective report that, "Hey, we did a great job." We let them do that. … They did. As a matter of fact, and because we just said, "Well, whatever you guys say."

And we had no idea that there'd be anything but the first group. No idea. And then [the] letter arrived, and then through channels came the other report, down through channels from Washington and Houston, that "We want all of the remaining astronauts, as they come into the program, we want them to go through the course." And so that would lead you to believe the critique was very positive about the training.

But, no, as long as no one got hurt, the Air Force didn't worry about it. But they were beside themselves that we let these men go out and really got their fingernails dirty out in the rainforest.

WRIGHT: Did you ever have an almost incident? Did you have any type of event that almost let to someone getting hurt, as far as the astronaut corps was concerned?

SMITH: In the astronaut portion of the training, I can't recall any. If you consider John Glenn dropping off in the mud, and he made that humorous. No, I don't recall. We had a few thorns. People got something in their finger or in their hand. But they were highly motivated and well behaved, and when you have motivation like they had, and intellect, they came there with some of the Hollywood ideas about a jungle, this tropical rainforest, but also there were some topnotch scholars.

WRIGHT: Several years later you heard what they were doing, because they were moving along in the space program and traveling to space and to the Moon. What were your thoughts of where they were then compared to where they were with you just a few years before?

SMITH: I was sitting in a mobile home of a friend in Alabama, watching the TV when Neil did his thing. Pride. "We did it." [Smith cries.]

WRIGHT: It was a different type of terrain than one you had helped him walk through, wasn't it?

SMITH: Yes. But they had worked in Bolivia in the Atacama in our territory, which I had made that recommendation that NASA try that, and they did.

WRIGHT: And what a great bond between the Indians, with their spirits going to the Moon and knowing that your training connected that.

SMITH: Oh, let me tell you, the pride I have and the emotion, every one of those instructors has the same thing. Yeah, they're great, and they all feel, as I know, that we all had a part of it. And it wasn't such a small part, because NASA wanted to know, "Is there anybody that you've observed that we shouldn't have in the program?" Because they were in real danger.

And I tell you who lived up to that, is Apollo 13. They weren't in a jungle, but they were surviving. The phone call I got after that was, "We didn't worry about it," because in the survival training you not only emphasize tropical rainforest that they were going to have an experience in, but also the general term in itself—self-confidence. "We can handle it." Most important in that was that they would be able to handle anything that hit them. I remember telling my wife and the other people around me, on Apollo 13's little adventure, "Don't sweat it. They will improvise." And they did.

WRIGHT: Jennifer, do you have any questions you'd like to ask?

ROSS-NAZZAL: I have a couple of questions. I'm wondering if you can tell us exactly where the tropical survival school was, because you had mentioned that you weren't allowed to go into

Panama, but much of the training was in Panama and they worked with the different native American groups. Was it on the Air Force base? Or did it change?

SMITH: The building where the in-town training took place was on Albrook Air Force Base. It was a building which we absconded, that used to be a base shooting range, and we added to it and improved it and so on and had a training school there. That was in the canal zone in Albrook Air Force Base. It was set apart from the base itself, but it was part of the base. But it was [like] an island in an area called Curundu. Curundu was called the skunk hollow of the canal zone. They were supposedly the roughneck workers and so on and so forth. Well, I lived there as well, and that's probably how it got its name.

But anyhow, the first day of training, it was obvious there were press people at different places, as you had mentioned, and they were watching. So I put all these guys in two or three vehicles, went around the block, and took them to the Curundu restaurant for lunch, which was known as the [skunk hollow] place of the canal zone, and they could not believe the United States astronauts ate in Curundu. The Curundu restaurant had a picture and a plaque from there on out. [We] sneaked them in and out without anybody knowing. We had survival school students, and I didn't tell anybody there who they were. …

Curundu was the geographic area, but our survival school and the demonstration area, plant and animal, was part of Albrook Air Force Base, was under the base commander's jurisdiction. All the support came from the base itself. And all around us there was second-growth rainforest. It was an ideal place. We had the Army's Tropic Test Center and the gas chambers. We all had to walk through the different gases and so on. That was just half a block from us.

All my survival instructors had a lot more training than just any other Panamanian citizen. They all went through the Army's Chemical Warfare Center. They were topnotch people, and by the time we trained them, they went further up the ladder socially. …

The training area, by helicopter it was fifteen to twenty minutes away. There's a place in the canal zone called Madden Lake, or used to be in the canal zone. Madden Lake and the Chagres River runs into it. It's a major source of water for the canal, and people weren't allowed to live or farm on the watershed. So it made an excellent place for them to do their training, because it was virgin rainforest. It was first-growth rainforest, and it was [also] a lot of second growth, too, which is all part of the game. It's thicker. You can't walk through it very easy. You have to have a machete and that sort of thing. You can get down and crawl though it, but how many of us do that? They all learned to do that.

As I say, fifteen or twenty minutes away, it would take a minimum of two to three hours by boat and by land and by car to get in and out of the training area where they were. And the Madden Lake was all in the canal zone, up to—I can't remember what the contour level, 685 feet or 855 feet or something was all considered canal zone, and beyond that, above that was, of course, Panama. But nobody paid any attention. It's remote and only Indians live there, and so if you had rapport with the Indians, you [could use the area].

The Choco, when I first started there, were greatly feared by the Panamanians, because they believed they were headhunters. They used to sell heads to the U.S. canal diggers, but the heads came from Ecuador from the Jivaro people, were traded up and then they were sold, so therefore the reputation was—and Antonio wanted to stop that. He thought that was—I said, "No, no. Leave it alone. Let people believe that. They'll leave you alone." And it worked. They did. They left them alone. …

ROSS-NAZZAL: Were you involved in any sort of negotiation with the tribe before the school began? Was there any sort of negotiation with the State Department?

SMITH: Yes. The central chief, as I had mentioned, this Antonio Zarco—by the way, he has the highest medal the U.S. Government gives a civilian. Because I had known him and he was a friend, and we talked about would they—we have a film, which I had mentioned earlier called *Land Survival: Ethnic Groups*. We did that back in '62 or '63, and, he had come to me and said, "In your training, please, your people are looking at my daughters like hunters." These are lovely young ladies with no tops on, only a wraparound skirt.

So what we did, we put it in this film, and we did the film, and they willingly played their role in the film, because to him it was real. And we brought Choco Indians up from the Darien, and they played their part in the field in which we talked about setting up the training program so that our guys would all respect them, no matter how they dressed. And we took care of this in the classroom prior to the training. In the classroom we covered that. We showed the film.

Margaret Mead, the great anthropologist, I showed the film in Washington at an anthropological meeting and gave a lecture on it, and she came up to me afterwards and said, "Smith, that's a damn good film. Every graduate student before they go in the field should see it." Man, I didn't even walk on the surface of the ground for months. Margaret Mead endorsed my film. Wow! You can't get better than that.

But, yes, we were very attentive to the local peoples, not only the Indians, but the *compasinos*, the farmers. We did some exercises which involved them, nighttime special operations-type exercises, which involved local Panamanian people, and we did it in such a way

they just joyfully participated. Of course, they got compensated. If we'd rent an old truck from somebody to haul our students at night from one point to another point, they got compensated for it, and they liked that. But they liked playing the game, and so did the Indians.

What we did was replace the [social event]. The Indians used to have [competition maybe even] warfare. … And we gave them something to do. They could chase people and get compensated for bringing hats to us. They liked that. And, of course, we did, too. [It was] good [cross-cultural awareness] training.

ROSS-NAZZAL: I just have one more question. We read an article about your survival camp, and one of the articles mentioned that the crews learned how to make Son-of-a-Gun stew. Can you tell us about this?

SMITH: What kind of stew?

ROSS-NAZZAL: Son-of-a-Gun stew. Do you know what that is?

SMITH: No.

ROSS-NAZZAL: Okay.

SMITH: That's new on me.

ROSS-NAZZAL: All right.

SMITH: The stew they made, that's not quite the word they used. Gun was not. [Laughter]

WRIGHT: Maybe that's why you don't remember.

SMITH: That's why, I'm sure, I don't remember it. [Laughter]

ROSS-NAZZAL: That was the polite term for it?

SMITH: Yeah. They would drop an old snake in the stew or something. It wasn't gun. But anyhow, I think that's probably what you're talking about.

ROSS-NAZZAL: Well, thank you very much.

SMITH: Well, thank you very much for coming.

WRIGHT: Before we close, I wanted to ask you, when you were working with this program or providing this program for the astronauts and for NASA, what do you consider to be the most challenging part of this program and its success for you?

SMITH: For us at the school?

WRIGHT: Yes.

SMITH: The most challenging part was administrative, getting the Air Force hierarchy to leave us alone. We knew our business. We weren't going to endanger those people, but they were not going to get any special treatment. And do you know what? I told those guys that. [They (astronauts) wanted no special treatment.]

[Tape recorder turned off.]

WRIGHT: So if you'll just walk us through a typical one and what you put them through.

SMITH: A day in the training.

WRIGHT: A day in the training and what type of equipment they had and the types of things that they had to go through during those few days out in the tropical rainforest.

SMITH: A day in the training at the Tropic Survival School is probably best done by starting at the days of classroom lectures, welcomes, administrative details. All the day Monday was taken up with lectures and films about survival in general, the mindset of a survivor versus the mindset of one who will give up, and not knowing how important it is, the mental preparation, just as important, if not more so, than the physical preparation for survival, the equipment, because with a certain amount of knowledge and self-confidence, you can improvise and go forward.

The second day we then had them organize their "packs." Whatever equipment we gave them to safeguard their health in training was the same that everyone had received: a jungle

hammock, a canteen with a canteen cup so they could boil water, insect repellent, (most important). They all had to have a small bottle of G.I. insect repellent. A piece of parachute cloth to improvise bedding. They all had to make an improvised sleeping [hammock], to try it out. Also, they all had to have a waterproof match container so they could build a fire to cook whatever they caught. This was part of their equipment to go in the field.

Other than that, they were allowed to carry a pocketknife—encouraged to, as a matter of fact. They were not allowed to take any candies, foods, rations, with them at all. Our instructors, who went in the field, all had foodstuffs, Air Force rations. They were, that second day, introduced to survival rations that might be in a kit, and the case of the astronauts that was, of course, capsule-type things that weighed next to nothing and would be nutritious, jelly bar candies and things like that that immediately give you energy and keep you going, because we looked at about a twenty-four to seventy-two hours for rescue.

Then as they went in the field, the afternoon or the early morning of the third day, the helicopters that we had available would take them from the base with their equipment as individuals and deposit them on the hilltops in a remote rainforest area of Panama. They could not possibly leave that area without an experience—positive, we hope. And we didn't even wait for them to get together as a group. They would disappear into the rainforest two by two with an instructor, and the instructor would pick a place he knew generally on the watershed of the Quebrada Fea, Fea being the Spanish word for ugly, but it was anything but ugly. It was beautiful. Fea, [ugly], because when it rained it was a gorge [of deep] dangerous water.

But in this valley on the hillsides, each instructor, we had discussed this, had picked a place where they would be. Now, the instructors had radios. Even the astronauts had no idea that we had any radios. [There] wasn't any contact [with the outside world]. They were on their

own. The psychological impact was—and they did say that in the critique, that they thought there should have been something in case of an emergency. When we told them they were covered, they just made some remarks, which the words are [mostly] four-letter.

But anyhow, they went into the field. At a select place they would stop, and the instructor would then positively tell them and show them how to cut the poles, where to get the small saplings to build a lean-to, where to get the palm leaves, whatever kind were in the area, how those palm leaves—they would do one corner of the little shelter. The shelter was a lean-to. Everything was right there. The roots of philodendrons were used as the tie, cords for tying [the shelter together], and they were not allowed to use any string or anything they brought with them. This was all improvised things. And then if you have something with you, that's luxury. So that would take two or three hours, and then that was so you could build a fire under it, because in a tropical rainforest, when it rains, you're not going to build a fire. It's going to put the fire out.

They were shown where to collect dead wood, where to get the fibers from palm trees at the base of the leaf to start a fire, and that sort of thing. They were shown how to do that, and they got started. They had to finish this lean-to themselves. They had to finish putting the leaves on, and if it leaked, they had to repair it, they had to redo it. So they got that set up and they got a place, a fire going where they could cook whatever they got. Everything they had to cook except heart of palm. They were allowed to eat that raw. That's a safety-type thing. We didn't want anybody getting sick out there. But the heart of palm can also be cooked.

The aquatic creek-type frogs there were not poisonous. The land frogs are very poisonous. Mostly they ate fish, small little minnows and small fish they caught in the streams. For meat, once in a while they'd catch a lizard. If they got an iguana, they were very lucky.

What we did was make an iguana available. We had iguanas which were available. I think one group let the iguana go. They didn't eat it. Everybody else [prepared it] like you cook a chicken. [They] would prepare it and cook it.

They had to establish a signal area. By that, you had to set up a place where you could set fire to it in a hurry, because blue smoke from a fire under the canopy will go through the canopy, and the blue is in direct stark contrast with the green of the forest canopy. So you knew there was somebody down there that had a fire going [for] flyby aircraft [to see]. They had to do this to [get a ration and map drop from flyover aircraft].

The instructor would come back in the morning and check to make sure everything—and they'd say, "Well, what do we do now?"

I said, "Well, you go out foraging. See if you can find any snails or you can find any turtles, any lizards."

"Oh, we're not going to eat that stuff."

"Well, then you don't eat."

And so the incentive was a bit of hunger, and these people from NASA all wanted to know, they really were most inquisitive and they really wanted to know, "Can we eat this? Can we eat that?"

[Tape recorder turned off.]

SMITH: Where was I?

WRIGHT: Foraging for snails, and they said they weren't going to eat that.

SMITH: That's right, any animal life. And if they had questions, if we hadn't covered it and they caught something they had a question about or found a plant or a fruit, then they'd wait for the instructor to come back, because they knew he would be back but not exactly when. That's part of the psychological impact.

Foraging like that, I can sit here and tell you about it, but you can't begin to imagine the physical effort it is on a slippery, wet hillside in a tropical rainforest, and then it'll start to rain and you say, well, the first few minutes it feels refreshing, and then it gets to you. Everything is soaking wet and it gets cold. So this is the real environment.

Now, a lot of them chose to wear their long-handled underwear, which they wore underneath the flight suits, and that's all they would have. And you could imagine the ludicrous scene that was, these guys roaming around. The Indians got a big kick out of it. But always there were Choco Indians somewhere. Most of the time the trainees had absolutely no idea [the Indians were around]. The instructors all had a radio, which they kept hidden, and they never let them know that "Yes, we know what you're doing. Big Brother is watching." That was never done with the [NASA] trainees themselves.

So you say what did they do? Well, they tried to walk around, which was a great physical effort in that environment. These guys were superlative physical condition, so where they may slip and slide, they all took it in good humor. You saw in that little film you have. [It shows Pete Conrad], he's hauling the palm leaves and slipped. That was frequent where you slipped and went down, but it was just a butt bump, that's all.

But the foraging took a lot of effort. They learned that it's a great physical effort to exist in that. I'll tell you what it did. They all got a greater respect for the Indians who live there, and

that, of course, helped in the cross-cultural thing, because if you respect somebody, then you can establish a friendly rapport.

WRIGHT: How did you get them back out? Did everybody meet back at the original drop spot, or did each of them come in on their own?

SMITH: They had written instructions and a map, which they got dropped to them. They had to go to the river and meet at a certain point, and then they all went out in a dugout canoe, out to a dam. They floated down the river for varying lengths of time in improvised life preservers. Balsa trees were there, and they would cut a balsa tree with their machetes, and you make a donut-type [life preserver]. Take a piece of balsa wood about six inches around, six, eight, ten inches around, and about two feet long. You use the bark of the balsa tree and you tie it together in front and back of you, put it under your arms, and then it's almost like an inner tube. You have a piece of bark rope here in front of you and a piece of bark rope behind you, and you can float for days, if you will. It's the same stuff that the Kon Tiki raft that floated from Peru to Southwest Pacific was made of.

They do this and they had to float down the river in this makeshift life preserver, and then they were picked up when they went by the Indians' dwelling. Like the picture you saw there, those men got there with the underarm floats. They were allowed to bargain for a banana or something [else to eat]. Then they were picked up in [a] dugout, paddled or outboard motor, and taken to [a landing] on the way out. They did not get a joy ride. It was an open dugout canoe, very, very large, with a four- or five-foot beam and twenty, twenty-four feet long, and with an outboard motor, and that was the only luxury they had.

But in the week of training, that's how it went, and the days that they weren't having a specific task, their specific task was to find something to put in that Son of a "Gun" soup.

WRIGHT: We have heard from you what your goal was and the school's goal during that week. What did NASA tell you or the Air Force, but specifically what did NASA expect for their astronauts to have accomplished?

SMITH: They had pursued the school and knew what our philosophy was and knew what we attempted to instill in our students, and NASA people jumped through the hoop. They were so laudatory and excited and pleased. That made us feel good, particularly my guys from Panama.

At the later classes, we had the Air Force manpower people, because of the astronaut training, doubled our manning, sent us a lot of NCOs [Non-Commissioned Officers], Air Force NCOs, who did a wonderful job. They weren't near as good as the Panamanians. They came in with the "Well, if I work eight hours in the jungle, I get eight hours off." Well, my Panamanian employees, they had never imagined that. They were dedicated. So we kind of got into some differences on work hours and that sort of thing. But it worked out, just took a little [patience and compromise].

They had the idea that in the field the Panamanians would work for them, build their fire, put up their hammock. Well, that got changed right away. Quite the opposite. "You fellows are here to learn, and you learn also. We appreciate your being here, but these people are the experts. You learn from them, and then we [work] as a team."

And before the first six months was over, we had some excellent teams. The G.I.s and the Panamanian civilians were a wonderful team, and both of them did well. Both of them gave certain things [from] their cultures.

But as far as the goal, NASA had done their intel background on what our students—what came out of the training. And when Dr. Nesbitt recommended us, he said, "Somebody [should go] down [and look over the school]." I [am sure] somebody came down and didn't tell us who they were. They were Air Force uniforms, and they went through the training. I think, from what I understood—I can't think of the man's name who was in charge then of the Manned [Spacecraft] Center, and he indicated that they got more than they had bargained for, because the improvisation and the mental, the psychological aspects, they had not imagined that they'd get anything but a machete in the teeth and Geronimo. And when they got sophisticated [experiential education type of] training, they were very pleased.

WRIGHT: Well, we appreciate everything you've shared with us today. It certainly was a comprehensive understanding of the best that we can go through until we go for that training, but I don't think we're signing up anytime soon. So we'll just have to take all your words for it.

SMITH: [Should U.S. people need jungle training today they should use the Peruvian Air Force Jungle Survival School in Inquitos, Peru, on the Amazon River. Their training today (2002) is the finest in the world.]

[End of interview]