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William Halliday oral history interview with Spencer Fleury and Todd Chavez, July 23, 2007

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(voices in background testing recorder)

Spencer Fleury: Okay, I'm here with Dr. William Halliday, here at the National Speleological Society meeting in Marengo, Indiana, on Monday, July 23, 2007. My name is Spencer Fleury, and I'll be conducting this interview. Dr. Halliday, welcome.

William Halliday: Thank you.

SF: Thank you for agreeing to participate in the Karst Oral History Project. Most karst enthusiasts can trace their interest in caves and karst back to a specific event or a moment early in life. What was that moment for you?

WH: It was pseudo karstic. There's sort of two things I can remember from when I—(coughs) excuse me—when I was three years old, visiting Alaska. My parents took me on a trail alongside the Mendenhall Glacier out of Juneau. They saw the entrance to an ice cave. Long way down the trail—down from the trail—for a three year old; probably all of ten feet. They went down to look at it and left me on the trail, and I remember screaming my head off I was so mad they wouldn't let me go look into it with them.

SF: (laughs)

WH: And four years later in Yellowstone National Park my father took me into the Devil's Kitchen, which was a major attraction of the Park. Subsequently, it was closed on what now appears to have been an erroneous claim [of] dangerous levels of carbon dioxide. But it's still closed.

SF: Okay. Did you ever get back into that ice cave in Alaska? Did you ever go back?

WH: No. Never been back to that glacier.

SF: (laughs) Okay. So, generally speaking, where did your childhood take place?

WH: I grew up in Seattle, which is not the greatest cave region in the world.

SF: (laughs)

WH: But it was a wonderful place to grow up otherwise. When I was in my teens I was transported back east and went to a boarding school in Pennsylvania, and then went on to college in Pennsylvania.

SF: Okay, so what was your childhood like? What do you remember most about that time?

WH: Hmm. Mountains, Puget Sound, the lakes. Everything was green—except the mountains, there were glaciers on them.

SF: Were you more of a school-oriented kid? Or were you one of those kids who liked to cut out of school and go play in the mountains?

WH: No, I was strongly oriented toward doing as well as I could in school. [That] always paid off.

SF: Sure, sure. So, when you eventually chose a path for your own higher education—you know, going to college. And well, in your case, to go on to medical school—um, why did you make the choices that you made? And, as you're answering that, if you could work into your answer, how these choices might have affected the development of your

interest in caves and karst?

WH: Yes. Seeing such a wide variety of outdoors features—forests, mountains, oceans, lakes—turned me towards science quite early, and increasingly specifically towards medical science. Medical science led me to the NSS [National Speleological Society]. One thing led to another.

SF: (clears throat) Excuse me. Okay, so where did you end up going for your undergraduate work?

WH: Swarthmore College.

SF: Swarthmore, okay. And then from there I think your packet said you went to George Washington?

WH: That's right, in Washington, D.C.

SF: Okay, so from what I've read, this would have been about the time that you first went into Clark's Cave. Is that right?

WH: Yes. It was 1946, which was [our] first summer off after World War II and I'd been going something like twelve semesters straight without any break. I worked at a boys' camp as a counselor that summer vacation, and the camp electrician was a Mr. Clark, who invited us to come over and see the cave on his property about ten miles away. And it was absolutely marvelous. It was everything a cave should be. [It was a] network of passages, it smelled old and musty, just enough mud to get your attention, stalactites and stalagmites, old artifacts. We didn't know at the time, but I found out much later [the carpentry was] ladders and other—not machinery, but construction [by] saltpeter miners.

SF: (speaking to Todd Chavez) Do you have anything you want to [ask]?

Todd Chavez: Yes. I wanted to go back to something you said earlier, Dr. Halliday. You said that there was a connection between medical school and the NSS. What was that for you?

WH: Yes, that was the summer vacation in medical school, and Mr. Clark knew about the NSS, but he didn't know how to contact it. It took me just about a year to find the NSS. I

finally found it through an article published in Safeway Stores' monthly publication, *Family Circle*. It included the address of the NSS.

TC: So at that time, it was very difficult to find. But was it a particularly active group at the time?

WH: Oh, it was very active. It wasn't at all difficult to find if you were in scientific circles. Leading people of the National Museum in Washington were members of the NSS. I just didn't know the right channels to follow.

SF: Okay, so you said that the first time you went into Clark's Cave, it was summer vacation immediately following World War II?

WH: Nineteen forty-six.

SF: Nineteen forty-six, okay. That just reminds me that you served for quite some time in the Naval Reserve, is that right?

WH: Yes.

SF: Okay. Could you tell us a little bit about that? How did you find yourself in the Naval Reserve?

WH: Well, at that time they had a special draft for doctors. It was probably unconstitutional, but nobody in authority was raising the question. So I had a choice of being drafted or going into a service that I [would] prefer. So I signed up for a year of active duty in the Navy, which I spent quite happily in Long Beach, California [in 1949-1950].

SF: (laughs)

WH: And then [I] spent maybe a dozen years in the Naval Reserve, I don't remember [exactly], and they called me back one time during [the] Korea[n] War, right at the end of Korea, actually. That time I got a free cruise.

SF and TC: (laugh)

WH: [I] got to do some caving in Okinawa and such places as a result of it.

SF: Oh, great.

WH: [I] started my work in Hawaii when my ship threw a rod on the way out to the Far East and had to put it in to Pearl Harbor, for repairs, for a week.

TC: Tell us a little bit about that.

WH: Well, the officers were talking about it only taking three or four days to fix, but I knew the chief engineer and I asked him what the scuttlebutt really was and he said, "It's going to take us a week to do this." So—(coughs) excuse me—I radioed my then-wife, who died of leukemia, subsequently. She came over in the second plane out of Seattle after that, and we spent that week based at the Fort DeRussy army hotel on Waikiki Beach for four dollars a night.

SF: (laughs)

WH: [We] drove all around Oahu looking for caves and talking to the [University of Hawaii] professor of geology. Got the Hawaii Speleological Survey off to a very good start. Did the first cave map in Hawaii that was not done by archaeologists.

SF: So is that when your interest in the lava tube caves developed?

WH: Yes and no. We had known for a long time [that] there were lava tube caves out west. I had been in several of them in Lava Beds National Monument right after finishing medical school, before I started my internship. The idea of unknown lava tubes—really big ones, nobody knew how long—got me really interested.

SF: Okay. So, I noticed from the packet you sent me that was one of your areas of expertise. And it looked like you had quite a bit of experience doing cave mapping, and you've also done some work with cave diseases, which I find interesting because I don't know if there's anybody else who's really doing a whole lot of work on that particular subject. How did you get started researching those sorts of questions?

WH: Let's see if I can get the timing right on this. Back about the time I graduated from medical school, there was a report of a new disease out of Arkansas that was called cave disease. It was a small epidemic. A bunch of people went in and were digging for buried treasure in Rocky Comfort Cave in Arkansas. It threw up great clouds of dust. Five or six days later they started coming down with what we now know as acute histoplasmosis.

And I suspected what it was at the time. I was always interested in chest diseases. And I wrote to the people who were involved and I followed along pretty closely on that. I wrote an article for *GP Magazine* to bring in a few dollars, and then a report for the *NSS Bulletin* at the same time. And the NSS has had a medical section for about fifteen years now. [It] doesn't attempt to do research but tries to keep people informed about progress and diseases encountered in caves.

SF: Were you involved in getting that started at the NSS?

WH: Yeah. I was one of the charter members of it.

SF: Okay.

TC: Tell us a little bit about—for those of us who aren't medically trained—what is histoplasmosis? How does it manifest itself?

WH: Histoplasmosis—(coughs) excuse me—is a fungus disease primarily in the lungs. [It] lives normally and happily in guano—bird guano, bat guano and just about any other kind you can imagine. And so caves are a very natural place for concentrations. It's pretty fragile. It has to have just the right concentrations.

There are some other diseases that have similar manifestations. Out in California**,** [there is] coccidioidomycosis, valley fever, for instance, the next commonest one in the United States. In other parts of the world there are some other fairly nasty diseases.

"Histo" affects other parts of the body, less often than the lungs. When it gets to the eyes then you can have a real nasty situation, but fortunately that doesn't happen very often. It's more a nuisance than a lethal disease. But if you treat it with steroids, there's been one death resulting from it.

SF: Okay, now I've read some references to you as the "Father of Western Caving" and I know that you are pretty deeply involved in the formation of several of the Grottoes out west, like Southern California, Denver, Salt Lake, Hawaii, the Cascades. Um, how did that happen?

WH: It was a result of Bill Stevenson's activities. [He was the father of the NSS.] Once I found the NSS, I got active in the D.C. Grotto—District of Columbia Grotto—and went caving with him and with other now-famous names: Bill Foster, Bill Davies and so on.

When it was time for me to finish medical school, and go west to intern in Pasadena, he said to me, "Bill I want you to carry the torch of the NSS to the West." That wasn't exactly what he said, but that was basically what he meant.

At that time there was no NSS Grotto west of the Mississippi. There'd been an attempt to form one in the San Francisco area, generally, but it never amounted to anything. And so I called people together in the Los Angeles area and there were some very good cavers there. Dick [Richard] Logan was associate professor of geography at UCLA. Denny Constantine, who became famous for his work in bat research later on, was another charter member, and so on.

I spent a year in Pasadena and a year in Long Beach, in the Navy. Then I went to Seattle to start surgical training. Started a Cascade Grotto there. It was a very difficult time there, however, and it died out after a few years and had to be restarted. It developed to the point where we had last year's convention in Bellingham, Washington, with the Cascade Grotto as the host. So it worked out fine in the long run.

After the year in Seattle, I went to Denver for a year. We got the Colorado Grotto started there. Not just me but people like George Moore, who was president of the NSS, later; John Thrailkill, who was a professor of geology at the University of Kentucky. These things are never done [by] one person alone.

Then I went on to Salt Lake City. I spent three years of my training there, interrupted by two more years in the Navy. Salt Lake Grotto, as far as I'm concerned, did exceptional work. And we even got deeply into conservation activism. Following the ol' tried and true Sierra Club model, we started a grassroots organization with a front name other than our own.

The Salt Lake Grotto was operating as a Utah Committee for a Glen Canyon National

Park, because many members of the Grotto had run the Glen Canyon, and were horrified at the idea that it was going to be dammed. And it went well enough that we spun off a National Committee for a Glen Canyon National Park, and I like to think that we stood off the Bureau of Reclamation for eighteen months. Several of us were memorialized as characters in [Edward] Abbey's [novel *The*] *Monkey Wrench Gang*.

TC: Which character were you?

WH: I was about a third of Doc Sarvis.

TC: Okay. (laughs) I read the book. I enjoyed it very much.

WH: Years later I met a ranger in Hawaii Volcanoes National Park by the name of Ericsson, who had been a particularly close friend of Ed Abbey. And he said that Doc Sarvis was one third Ed Abbey himself, a third Ericsson, and a third me.

TC: (laughs) That's great. So you mentioned, um, some difficult times with the Cascades Grotto.

WH: The Cascade Grotto, yes.

SF: What were those problems? What was going on there at that time?

WH: The problem was logistics, basically, and lack of information. Here we were in Seattle, fourteen hours' drive from Oregon Cave. We knew there were some lava tube caves around Bend, Oregon—that was a twelve-hour drive. We knew there was one south of Mount Adams, which was about a six-hour drive through Portland. These were the days long before Eisenhower built the interstate system. The roads up in the mountains where there was some limestone, were one or two lane logging roads—two lane if we were lucky.

And of course everybody knew [that] there were no caves on Vancouver Island, which had become the main Canadian caving area. The Paradise Ice Caves—everybody knew they didn't amount to anything. Eventually, we mapped something like seventeen miles of it.

And so, enthusiasm just dwindled under the circumstances. And about the time everything looked worst, you have to remember the Seattle mountaineer named Tom Steinburn found [that the] limestone—in what became known as Cave Ridge, a thousand feet above Snoqualmie Pass—had some holes in it.

One thing led to another. I sneaked out a trip up there when I was in the Navy and it started looking real good. Deep, jagged, vertical caves, none of them very large. It was just the introduction to what was to come later.

SF: Well, I know that you were, um, personally involved in the discovery of a lot of those caves up there in Washington State. Is that right?

WH: Yes. 'Cause we started going out and looking at the limestone deposits and the areas of lava. We kept turning them up almost by the dozen.

SF: (laughs) And this was when, exactly?

WH: The breakthroughs came in the late 1950s.

TC: What was the equipment like at the time?

WH: Well, when we descended Hell Hole up at Snoqualmie Pass through a triangular hole about a foot on each side, we had to make our own rope ladders out of some kind of wood with holes punched in it and knots tied in the ropes for the rungs to sit on.

Of course we had good belay ropes. That was never the problem. We didn't have anything to rappel on safely and comfortably. The racks hadn't been invented at that time. Rappelling was by no means not hard [not used in caves] anywhere. And when you descend a ladder under these circumstances, they would creak ominously with every step.

SF: (laughs)

WH: About every couple of years, one would break under you and you'd feel remarkably foolish spinning in midair, holding the broken end of the ladder—clutching it to you, and of course it wasn't doing you any good at all.

SF: (laughs) So, your official career, I guess you would say, was obviously in medicine. So how were you able to really balance the demands of a medical career—because I could imagine that's always a demanding career to be in—with your strong interest in speleology and the contributions that you were able to make to cave studies?

WH: It's a great relaxation from the pressures that doctors are under, especially surgeons like myself. You can't get further away from the telephone than when you're in a cave.

SF: (laughs)

WH: Of course that's not so true anymore, but it certainly was in those days. It [referring to medicine] provided enough funding for me to start traveling to caves around the world, too. That worked out very well.

SF: Now, you've also mentioned Bill Stevenson [and] talked about him a little bit. From your biographical material, it seemed like you were pretty close friends with him.

WH: Yes, he was my mentor and everything. He was the founder of the NSS. When they were dishing out numbers belatedly, they gave his wife number one and him number three. Yet, he always was number one in most people's minds.

SF: Okay, well, what can you tell us about your friendship with him? How did you meet him and—

WH: Like I mentioned before, he was the one I contacted through the *Family Circle* article. When I wrote in to the 510 Star Building, Washington, D.C. address, he kind of took me under his wing—made sure I had what was considered proper equipment in those days: a cloth hat with a lamp bracket on it, a carbide lamp—all those good things.

SF: (laughs)

WH: He started taking me caving with him.

SF: Okay. So you also—as you'd mentioned before—the Glen Canyon Reservoir with the Rainbow Bridge National Monument?

WH: Yes, indeed.

SF: All right. You'd touched on that before, and I was hoping to get a little bit more detail about what exactly was happening there. What were the issues at play? You'd mentioned holding off the federal government for about eighteen months. How did you guys go about doing that?

WH: It wasn't the federal government, per se. It was specifically—(coughs) excuse me—it was the Bureau of Reclamation.

SF: Bureau of Reclamation, sorry, of course.

WH: And the liaison between the Bureau of Reclamation and the dam construction lobby is a very intricate and unsavory one that I don't think we have the time to get into here.

SF: (laughs)

WH: But we basically started making as much of a nuisance of ourselves as we could, with no money. There were five or six of us cavers and one middle-aged truck driver who ran boat trips down the Colorado River when he wasn't driving a truck for the Army.

And [writing] letters to the editor turned out to be a very good source of public support for us. Basically, being cavers—I guess effrontery came natural to us.

SF: (laughs)

WH: It wasn't long before I—two of us, in fact—had an appointment to go in and see Governor J. Bracken Lee—one of the most controversial governors in the state's history. [He was] very conservative, yet he gave us a very cordial hearing and he did what we asked him to do. That was, in his support of the upper Colorado Storage Project Act, which he was committed to already, that he not give any favorable mention to the Glen Canyon Dam, which was a key part of it. And he kept his word to us.

The [next] governor who threw him out of office [George Dewey Clyde] was a tool of the

Bureau of Reclamation and the dam lobby. He tried to overwhelm us with words. That was kind of a standoff. But we received very favorable reception throughout Salt Lake City, although not the parts of Utah where they were going to spend these enormous sums of money.

SF: So how did it all end up playing out in the end?

WH: In the end, we couldn't get the Sierra Club to support us. They were committed to saving Echo Park and Dinosaur National Monument [instead]. They came into it too late, and while Dave Brower finally came around to our side very strongly, he was the only one in their leadership who understood what we were talking about.

SF: Well, you also had a role in creating a wilderness area up in the North Cascades—the Cascades Wilderness Area?

WH: The Glacier Peak Wilderness Area came first.

SF: Okay.

WH: And then the Sierra Club was working toward a North Cascades National Park that would have been a mere enlargement of the Glacier Peak Wilderness Area. But their key people had come in through the east side of the mountains and Seattleites were much more enthusiastic about the regions that you could easily get to from Seattle on the west side. That eventually became the North Cascades National Park—up in the area where we had our convention last year. And I am proud that I had a chance to make a political breakthrough on that.

SF: How did that breakthrough come about?

WH: Well, the governor of Washington, Dan Evans, at that time, had appointed me as one of three conservation representatives on his North Cascades study commission, and then as the conservation representative on a three-man subcommittee that was to make a recommendation as to whether there should be a national park in the North Cascades, or just wilderness areas.

And I was able to persuade the other two, one of whom was a well-known vice president of the Weyerhaeuser Corporation, and the other was the head of the Sportsmen's Council,

that [they] had nothing to fear from a small national park in the North Cascades. And once the dam broke, you might say, enthusiasm developed for what we now know as the North Cascades National Park and Recreation Area down in the artificial reservoirs—down along the Skagit River, where the peaks rise six and seven thousand feet above the river.

SF: Okay.

TC: In your experience, did being a physician and having the credibility of a physician help you in your approach to these political figures and corporate figures?

WH: I'm not real sure myself. Quite often I encountered the reaction from somebody who didn't want to be disturbed, "Oh, you're just a doctor. What the hell do you know about such and such?"

SF: (laughs)

TC: I was curious about that—if they would lend some credibility or not.

WH: And sometimes it did lend credibility. It really depended on whether people had an open mind or had their own agendas. If they had their own agenda, it was a threat.

TC: Ah!

SF: (laughs)

TC: Good point.

SF: Let's pause it for a second.

Pause in recording

SF: Okay, so we're rolling again. Okay, one thing that Todd insisted I ask about is the fact that you have your obituary already written.

WH: Yeah.

SF: (laughs) Um, what made you decide to do that and what made you decide to include the things that you included on there?

WH: Well, it was basically that my daughter is my executor, and she said that I'm getting old and one of these days she's going to need to send an obit around, and neither of us take death all that serious. And so I put it together for her. I don't even remember what I included on it now.

SF: (laughs)

WH: I'd probably write a different one every week—depending on what I was interested in at the time.

SF: Yeah, okay.

TC: Let's back up a little bit to what we were talking about during our break, and that's the issue of your interest in pseudo karst versus karst.

WH: Yeah.

TC: Talk to us a little bit about that.

WH: Well, like I said, I got started on pseudo karst with the glacier cave and then the travertine cave in Yellowstone National Park; it could be called pseudo karstic or karstic, one or the other. And then I had a long run of karstic caving. It was delightful.

But then I got interested in lava tube caves and as the logging roads opened up into two lane highways, they became more and more accessible throughout the West, and then in Hawaii.

And I could see that the same features that I was seeing in borehole caves in limestone

were reflected in borehole caves in lava, and many of the small features of limestone caves also were reflected in lava, although there are many differences. But it was surprising to me that there were so many basic resemblances.

And other people started looking at other types of caves, and even in dried mud, for instance. Stream caves and boulders, accumulations of boulders—all kinds of things. And then we found out [about] glacier caves, some of them so big also. And vertical caves were replicated and the vertical openings and glaciers that were enlarged crevasses where water poured in from the surface. And I started seeing some common features and other people started seeing some common features.

And I found out that a German geologist in Iceland had invented the term *pseudo karst* for underground drainage in lavas there, paralleling the karstic drainage that he had been familiar with in France and Germany. And more and more, the term became used and more and more controversial because there were, of course, people who didn't want to bother with having to learn a whole new science.

SF: (laughs)

WH: Or sub-science. And the International Union of Speleology organized first a working group and then a commission—a full-fledged commission on volcanic caves. And then a separate commission on pseudo karst as a whole. And I don't know—things just, one thing just led to another.

And this year, after I thought I had retired last year at the age of eighty, I found myself spending a week down in the Southwest—in Arizona, Nevada and thereabouts—differentiating pseudo karstic caves from karstic caves. It's not always that easy to tell one from another. Some of the things that even we thought were pseudo karstic lava tube caves turned out to be just pseudo karstic boulder [talus] caves, for instance.

SF: How would you determine that?

WH: Well, lava tube caves have very specific features that relate to their origin as a result of flowing lava. And when you don't have those you start looking around for other explanations, and in this case, we realized that they were right at the edge of a lava flow on top of limestone, where the acid water would carve out small karstic cavities and then the lava would fall down into them, forming the talus caves.

SF: Hmm. Okay, well, um, you have had quite a long career in speleology. It's likely that I've missed quite a bit of it. Is there anything that you would like to talk about that I haven't brought up yet?

WH: I could talk all day, that's the problem.

SF: Go right ahead. (laughs)

WH: No, no, no. It's given me a chance to see some very odd parts of the world, both in North America and all of the other continents, except Antarctica. And while there is a geothermal cave and a volcano in Antarctica, it's much higher than I am able to climb these days at eighty, so I'm never going to do all of the continents. It's gotten me in some delightful experiences, wonderful friendships around the world, and also in some tight places.

I have used postage stamps as a cave hunting technique in several places, with particular results in the Republic of Mauritius, where the Paradise [Patate] Cave is shown, on the island of Rodrigues, is shown on one of their postage stamps. And an Australian caver and I got together to go check out the whole new cave area that had not been studied before.

But when I used that technique in Tanzania, maybe thirty years ago now, I took along a photocopy of the stamp, with the old Sultan's picture on it and the picture of the cave—Mangapwani Cave was a symbol of African liberation—[looking] upward to the light looking out of the cave toward the other light. But I didn't need to show it to anybody when I first arrived there. And [I] got to be good friends with a taxi driver who was taking me around.

And so just at the end as I was going back to my plane, I pulled it out of my pocket [and told him] I had this along just in case I was going to have to show anybody what I was after. And instead of talking like a taxi driver anywhere in the world, he shut up like a clam. And when he delivered me to the terminal, he went over and talked to this obvious government official in a very expensive white suit who had welcomed me there. I was the only tourist on the island there. It was at a time right after a Marxist revolution.

TC: (laughs)

WH: Nobody else was visiting there. And this very expensively dressed man of the

people of the Marxist revolution came over to me and says, “You tear that picture up into very small pieces. Dispose of it down the toilet, immediately. It is a capital offense to have a picture of the old Sultan in Zanzibar.”

SF: (laughs)

WH: And I say, “Yes, sir!” (all laugh) And did exactly that!

TC: Wasn’t worth the copy. (laughs)

WH: And I was very glad when the wheels of the plane lifted off.

SF: Oh, I bet. (laughs)

WH: Wasn’t near as tight when I was in Kamchatka [under the] Russian [Soviet] regime. That was a ball.

SF: What was that like?

WH: My friends, the volcanologists at the institute there, weren’t taking the Russian restrictions very seriously. Neither did I, because I went right along with—I’ve always found it best to put yourself at the hands of your new friends wherever you go and do whatever they tell you to do. And relax and enjoy the—

SF: Good advice, I think. (laughs) So, what other exotic locations stand out for you in the course of your travels?

WH: Well, the Ukraine, for one, where Alexander Klimchouk is practically God, of course.

SF: Right, right.

WH: He showed me a tremendous welcome. It turned out that the first book I ever wrote, *Adventure is Underground*, was not all that great a book. It was about caves of the

Western United States, something of what I had done, and a lot that others had done. But the Russians had done a pirate edition of it—printed 65,000 copies of paperback, which is the most my books have ever sold. (laughs)

SF: (laughs) I bet you never saw a dime's worth of royalties either.

WH: No, as a matter of fact, I got better than a thousand bucks out of it.

SF: All right! (laughs)

TC: And a nice welcome.

WH: Pardon me?

TC: And a nice welcome.

WH: Yes.

TC: (laughs)

WH: That was a story in its own. We played good guy/bad guy with the Russians on that. I expressed a great honor in being published by a leading geographic publishing house in Moscow. While we had a red-baiting congressman at that time—[he] was being as obnoxious to the Russians as he could be, using this as an example.

SF: (laughs)

WH: And all of a sudden a check came in from [the USSR] with[out] any explanation whatsoever, and [still] I don't know whether it was me being nice or him being a son-of-a-gun—(laughs)—that resulted in it. But they actually used the recommendations that I had put in the book for starting new Grottoes in the Western United States as a basis for forming new clubs both in Russia and the Ukraine.

SF: So that would have been during the old Soviet era, then?

WH: Oh, yes. I was there when it was just—well, the Ukraine was brand new at that time; it was an independent republic.

SF: Oh, okay.

WH: And they didn't work taking regulations very serious there, either. (laughs)

SF: (laughs) Did you get to go into many of the caves down there, Klimchouk's favorite caves?

WH: Not his real favorites; those are further south, in Georgia.

SF: Right.

WH: In the Caucasus, but we got to the Crimea and some of the wonderful gypsum caves, out or close to the Romanian border.

SF: Yeah, good caves in Romania. (laughs) All right, well, I'd like to move to a slightly different focus right now. Just to—I'd like to talk a little bit about your perspectives on just—the world of karst science, in general.

But, specifically, I'd like to start off by asking, from your perspective, how would you describe the relationship between professional karst scientists, the geologists, and, on the other side, the amateur recreational cavers? I think you probably fit more along in there since you don't have formal training in geology. So how do you see that relationship?

WH: Well, you're asking me to be a philosopher, which is something I definitely am not.

SF: (laughs)

WH: And, what you're asking about is quite different in the United States than it is in Europe and some other areas. The Russians and the Ukrainians, interestingly enough, follow our model much more, in that they give a great deal of authority to people like

Alexander, who came up as a caver.

And now in this country, it's starting to be that with two generations of sport cavers, now spawning professors, it's a bit—well, I guess you could say it's melding. When I deal with people in other branches of geology, the results are surprising and unpredictable at times. Some of the people in the U.S. Geological Survey like Don Swanson and—are very eager to learn what we have found using techniques that they are psychologically unable or unwilling to try, in many cases. Some of the others talk about our playing at being geologists. They give no credence at all to branches of science that we're very familiar with, uh, but are threatening to them.

TC: When you say psychologically unwilling or unable, what are you talking about in that case?

WH: Well, the average geologist doesn't want to go caving.

SF: (laughs)

WH: There's a selection process involved here. Same thing as in medicine, really. We talk about orthopedic surgeons as being the carpenters of medicine, urologists as being the plumbers of medicine, and so on. In medical school you start diverging into specialties long before you get into specialty training, depending on your interests and aptitudes. And the same thing happens in geology, I'm convinced.

But by and large the noted professors of karstology in the United States have started as sport cavers, sometimes second generation sport cavers, and moved up through the ranks; whereas in Europe, characteristically, the leaders in scientific speleology are the professors, who may not have done all that much caving. And that's not 100 percent by any means.

TC: Sure.

WH: But, I've seen a strong trend of that.

SF: So do you see that the difference in these two models has any noticeable impact on the kind of work that gets done in karst science—cave science?

WH: Oh, yes! The difference in the fieldwork is enormous.

SF: How so?

WH: Uh—in the—what should you call it?—professorial? I don't like that term, but I can't come up with anything better in the spur of the moment.

SF: That works for me.

WH: [In] the professorial model, modeling is the root of the future, I guess. And field work is so disdained nowadays that they had to even have a special session at the Geological Society of America meeting that emphasized—specifically emphasized current fieldwork of the geological sciences a couple of years ago.

SF: (laughs)

TC: To draw attention back to fieldwork?

WH: Yes.

SF: Okay. And you find—I guess the sport cavers, they tend to be more focused on that sort of fieldwork then, that's sort of model.

WH: Precisely.

SF: Okay.

WH: They're willing to try the damnedest things.

SF: (laughs)

WH: Even diving in caves, which I've always thought was too dangerous for me. I have a

high chicken factor.

(all laugh)

SF: Yeah, only crazy people do that. (all laugh) So do you think that the resources, I guess, that are available to people who want to study caves and karst—do you think that those resources have really changed over the course of your involvement in this field? And if so, how has that changed, really?

WH: Yeah, it's changed remarkably in one way, and hasn't changed at all in another. There still are unlimited opportunities for original discovery, but now the scientific basis for those discoveries is enormously different from what it was fifty, sixty years ago, when we were having to invent [even] our own terminology. We had to fight to find out what other people had done, if anything, along various lines.

The NSS has done a commendable job bringing people together, and the International Union of Speleology—[its] Commission on Volcanic Caves, for instance, has been a tremendous success because it has brought—the members of the commission are the people in the forefront of exploration throughout the world. When we find a void, we see if we can get some sucker to go fill that void.

SF: (laughs) Do you usually find one?

WH: Yes.

TC: (laughs)

WH: Greg Middleton of Australia was kind of flabbergasted when I appointed him to cover the whole Indian Ocean. But he rose to the challenge and went to places like—not the Mayotte islands, the other small islands off of Madagascar, and turned up some unsuspected but important lava tube areas.

SF: Okay, um—how do you think that cave and karst science might go about developing, I guess, a higher, more visible profile in the broader scientific community?

WH: Well, I'm not sure we want a broader profile because we are low profile people to

protect the caves. But you said you're going to put this on the Internet at the beginning here. I had some qualms there myself, because—

SF: No location, no cave locations.

WH: Yeah, no cave locations—but we don't want everybody and his dog going in the nearest cave three times a month.

SF: That's—that's—

WH: We'd much rather have people who are serious about it join up with us, and if they don't know everything they would like to know, [we will] see what we can do to help them.

SF: So the sort of—I guess the sort of, uh—that would inherently, obviously, limit the spread of karst related knowledge, just by virtue of the fact that you're sort of advocating a much more selective process for who actually gets to do it. So you feel that that is—that it's worth it to protect the resources themselves?

WH: By the time it gets to the point where they can make a significant contribution, they have already been brought on board in terms of the need to protect the resource. Throughout science, the idea is that you protect the resource from which you draw your research and your conclusions. This is particularly true for caves.

SF: Sure.

WH: And it may slow it down. But we're doing very well.

SF: (laughs) Do you see the future of karst research going in any particular direction?

WH: I can't speak for the karst. Alexander can do that much better. For pseudo karst, I'm looking beyond. I'm looking especially at Mars.

SF: That's right.

WH: I was working on getting to Mars through a private venture, independently funded, using the French launching facilities down in French Guiana. The government couldn't stop us with their parent regulations here on private investigation.

SF: So, how serious an effort was that? I mean, how far along did you get in the process?

WH: It had gotten to the point where I was starting to think about the best way of raising fifteen million dollars.

SF: Wow.

WH: But then I started having trouble with my heart, so it wouldn't have worked out. I've had a couple of angioplasties.

TC: So fifteen million dollars would be the price tag?

WH: That was the price tag we were given by this aerospace manufacturer. I suspect it would not have been totally realistic.

SF: (laughs) It seemed a bit low.

WH: But it—

TC: Manned or unmanned?

WH: Manned!

TC: Manned! Okay.

WH: Sending a person to Mars is not all that difficult, nor that expensive. It's getting him back, and I had no intention of coming back. I was going to see what I could do to get oxygen and water out of the regolith, and if I couldn't do that within two or three days, I figured I didn't deserve to live up there.

SF: (laughs)

WH: And I was old then. Not as old as I am now, but it wouldn't have been any great loss to society if I didn't come back.

SF: Has anybody else picked up an interest in—in following along those lines—going to Mars and looking at the pseudo karst, since you've—

WH: Oh, yes.

SF: Yeah?

WH: Mm-hm. A couple papers here. Hopefully we can get them oriented on the right track. Some people who know nothing about pseudo karst or lava tube caves have been planning to do some things on the surface of Mars, and they say, "Here—" (coughs) excuse me—"Here's a lava tube cave we can use for shelter when we get up there." And it's not that at all.

SF: (laughs)

WH: For the first time they've got a—now they have a picture of a pretty round hole about 500 feet in diameter with nothing but blackness underneath it. And that's probably a pit crater, rather than any of the habitable types of caves. But at least it's a movement away from identifying crevice caves as lava tube caves, which is what they've been doing up to date.

TC: Are you aware of any information that's come back as a result of, I think, the *Spirit* [Rover] most recent explorations? The—

WH: Yes, I've followed those, though not the last couple of months. They put it down in a damn dull part of—the two rovers are [in the] damned dull parts of Mars, as far as I'm concerned.

TC: No lava tubes?

WH: No lava tubes. I didn't expect to find any [where the rovers were sent].

TC: Interesting.

SF: So what was it that actually got your interest going in the—in going to Mars? Where did you come up with that idea?

WH: Buck Rogers! (laughs)

No, seriously. Mars is going to be our first step out, and [there is] so much more that could be done by human than can be done by robotics, that the Mars society is going in this direction. But they're dealing with it on a governmental basis, and this is enormously obstructionistic to any person who's come the route that I have.

TC: Okay. Well, we thank you.

SF: Yes, thank you.

TC: This has been wonderful.

WH: It's been a pleasure.

TC: Very much so, and, um—

WH: Yeah, what I was going to say and got distracted is that when Man gets to Mars, lava tube caves are going to be the most available shelter in an unbelievably hostile environment and, as such, will be our first steppingstone beyond Mars—to whatever lies beyond.

TC: Interesting.

SF: That is very interesting.

Okay, well, Dr. Halliday, thank you very much for talking to us, and we appreciate your participation in the Karst Oral History Project.

WH: Even if I did bring in pseudo karst?

SF: Even if you—hey, it's got karst in there somewhere. (laughs)

End of interview