J. WALLACE GWYNN

Bountiful, UT

An Interview by

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THIS IS AN INTERVIEW WITH J. WALLACE GWYNN ON OCTOBER 12, 2013. THE INTERVIEWER IS BECKY B. LLOYD. THIS IS THE GREAT SALT LAKE ORAL HISTORY PROJECT, TAPE No. U-3229.

BBL: This is an interview with J. Wallace Gwynn at his home in Bountiful, Utah. Today's date is October 12, 2013. This is part of the Great Salt Lake Oral History Project that is supported by the Utah Humanities Council and the Utah History Association. My name is Becky Lloyd. So Wally, let's start with when and where you were born.

JWG: I was, of course, born in Salt Lake City, May 30, 1940, to Raymond and Rosabelle Gwynn. I had one sister and one brother. I'm currently married with my dear wife; we just last month celebrated our fiftieth wedding anniversary.

BBL: Is that right? Wonderful!

JWG: We have five children and ten grandkids and quite a number of grand-dogs (laughs).

BBL: (laughs)

JWG: I've lived most of my life here in Utah. Born and raised in Centerville and since we've been married most of the time we spent here in this home, in Bountiful, Utah.

BBL: What did your father do for employment?

JWG: He was a mechanical engineer and he worked for twenty-three-some-odd years with Chevron pipeline, bringing crude oil in from Rangely, Colorado.

BBL: Right. Did you ever travel with him on any of his trips?

JWG: Not many, but he spent a lot of time telling me what he was doing.

BBL: Did your mother have employment outside of the home?

JWG: No. She was always at home.

BBL: Okay. So you attended local schools, public schools?

JWG: Yes. It seemed like every time I got through with, left a school, they would refurbish the school or build a new one (laughs).

BBL: Is that right?

JWG: Yeah.

BBL: Was there some connection with that, you leaving, and them re-fixing (laughs).

JWG: I don't know.

BBL: What high school did you attend?

JWG: Bountiful High school. I was the first graduating class from Bountiful High School that went there all four years. There was one class before me that went to a year at Davis and then three years at Bountiful. So it kind of marks me, way back (laughs).

BBL: So after you graduated from high school, what did you do?

JWG: Well, I went on up to the University of Utah. I spent eleven years up there and finally got my PhD in mineralogy and allied fields.

BBL: You say mineralogy and what?

JWG: Allied fields: geology, metallurgy. It was a smattering of a number of different disciplines, but mainly it was mineralogy. At that time they had two different departments. They had the geology department and the mineralogy department. The geology department was kind of a soft rock discipline and the mineralogy was kind of a hard rock discipline.

BBL: Can you tell me the difference between a soft rock and a hard rock?

JWG: Well, your soft rock would be your sedimentary type rocks. It was geared, a lot of it, towards paleontology and petroleum geology and this type of thing, where the

mineralogy was kind of focused on mining, minerals, metallic minerals and stuff like that as opposed to the energy minerals.

BBL: Okay. That's a great explanation. Are those fields now all more separate?

JWG: Well, about the time I graduated, they grouped it all into the geology department. The old Dr. Stringham, who was over the mineralogy department, he finally passed away and the mineralogy department just kind of went by the wayside and the main focus now is on geology and geophysics.

BBL: I see. Eleven years. You got a bachelor's. Did you get a master's, too?

JWG: No, I bypassed that.

BBL: And went right to the PhD.

JWG: Yeah.

BBL: What was your dissertation subject?

JWG: Tar sands in the PR Springs area (laughs).

BBL: Is that right?

JWG: Yes (laughs).

BBL: You're laughing. Why is that?

JWG: Well, for some reason, went into hard rock geology, winding up doing a thesis on tar sands, which is totally sedimentary (laughs). So that was kind of an interesting twist.

BBL: How did that happen?

JWG: Well, I was working with the Survey part-time at that time and that was the project I was assigned to. There were about four of us. They said go out and tell us what you find on PR Springs tar sands. We did that. We went there for two or three summers. There were about three or…I know two of us got theses out of that work, because then

the Survey would do all of the costly stuff for us and analyses and all that kind of stuff. It turned out as a publication for the Survey.

BBL: Yeah, so it benefitted everybody all around.

JWG: Right.

BBL: That's great. That's interesting.

You started working for the Utah Geological Survey, you said, during college?

JWG: During college.

BBL: Just part-time?

JWG: Yeah.

BBL: So at first, was that just hauling equipment for the…

JWG: No, they put me right in on projects. And we did a lot of drafting. I was part of their illustrations department, too. We did a lot of drafting and a lot of illustrating for different publications.

BBL: You just did that by hand?

JWG: Yes (laughs). That was way back when, using the old Leroy lettering sets and peel coat and pen and ink, stuff you don't even see on the market anymore. So that was an interesting time.

BBL: So you finished your PhD. What year did you completed that?

JWG: Let's see, it would be 1970.

BBL: Okay. Then you went right from that to a full-time position with the UGS?

JWG: No. The director opted not to bring me on. He said "you need to get some experience." So the first job I got was with the Phelps Dodge Corporation and we did some exploration for copper.

BBL: Was that in Utah?

JWG: Some of it in Utah and some of it up in Idaho, Montana. Then when I left there, I went with…and this is really when my experience with the Lake started, is I went with, that would have been Great Salt Lake Minerals. No, that was with, it was called Amax at the time, which is now U.S. Magnesium, the magnesium producer out here on the Great Salt Lake, south end of the lake. I can't remember; I was with them for a short time, and then I got an opportunity to go with Great Salt Lake Minerals up in the north end of the Lake, on the other side of the causeway. I worked there for a while. Then I was offered a job with the Geological Survey. That would have been 1974, something like that. I took that thinking that would be kind of an interesting aspect of it working with the State, besides the fact that I was tired of driving ninety miles a day (laughs) from here to the north end of the lake. Then I spent the next thirty-four years with the Utah Geological Survey—UGS.

BBL: So it ended up being interesting, how you thought you'd take it for a while to work with the state, maybe a different look at it from the other side.

JWG: Uh-huh. It was interesting to look at the state, because then you could look at all sorts of things about the lake. I was kind of in charge of their lake research.

BBL: For all those years?

JWG: Yeah.

BBL: So you started out right from the get-go working with Great Salt Lake?

JWG: Right. And that kind of expanded into any…well, I did some on industrial minerals, such as limestones and dolomites and sand gravel. I also worked a little bit in tar sands, a little bit in geothermal. Those are the three main areas, three or four main

areas that I worked in with the Geological Survey. But the Great Salt Lake was always kind of foremost in my mind. It was a very rewarding experience. You were able to kind of decide what you want to do for the year and did it.

BBL: Is that right?

JWG: Yes.

BBL: Tell me how that would work.

JWG: Well, at the first of each year they'd say, well, "we want a work plan." So I'd say, "Okay, I'd like to work on this aspect of the lake and this one and this one, or a particular project. I mean, where else can you get a job where you tell your employer what you want to do, and then you get to do it (laughs)?

BBL: Right. So how would you decide what you want to do in a given year?

JWG: As you worked along in the lake realm, there, you'd see different things pop up that this needs to be looked at, or this needs to be looked at, or we need to finish up this job from last year or expand on it. It was kind of an interesting way to have a job (laughs).

BBL: For sure. Yes. That would be good.

JWG: So, then it got to where an idea popped up in my mind, well, we need to look at this, I had the opportunity to do that.

BBL: So did you spend a lot of time physically out at the lake?

JWG: No, I didn't. It was interesting, we had a fellow who kind of ran our little navy there; we had several boats available to us. He and I would talk and he'd go out there and he'd collect a lot of information.

I remember one time we decided, gosh, it would be neat to have a tower out there where we could have a permanent working station. And we built one. Put it out there and got some good information off that.

BBL: Really. Where is that? Is it still there?

JWG: No. That one, actually there are, one, two three, four, actually there had been four towers put out in the lake. Two of them were put out there by the Amoco Oil Company when they were doing their exploratory drilling. Then we built, I believe, one or two. But you know, during the wintertime, we get pretty good ice floes out there on the lake, not from frozen lake water, but your tributaries come in, your Jordan or these and they'll form thick layers of ice and those move around. They kept knocking the things over.

BBL: Is that right?

JWG: Yeah. They would hit one of those towers and just push it right on over. So the first tower we put out there finally got knocked over and I think during one of the lake low periods, I think somebody actually bumped into one of the legs of this tipped over tower. So we had to bring in a diving unit. They cut that tower up in little pieces. It's still down there (laughs).

BBL: Oh, is it?

JWG: It's still down there in pieces.

BBL: So those towers, were they anchored into the floor? Or were they just floating?

JWG: They were sitting on the floor. This one particular tower that we built had large barrels on the bottom so that it wouldn't sink into the sand, but it kind of held it in place. The towers are fairly heavy, so they would just stay put, but when that ice came it just pushed it right on over.

BBL: I'm trying to picture, when you were talking about ice floes. I'd read about the ice floes. I didn't think they were big enough to knock over a tower, but they are?

JWG: They are.

BBL: Holy smokes. I didn't realize that.

So you say Amoco built those towers and where were those located roughly?

JWG: There was one of them, it's about west of Fremont Island. Then there was another one in the north arm, not too far north of the causeway. Then they had another one on the land, clear up north of the lake, north edge of the lake. They used those to gather information for their drilling barges, wind and weather and waves, all that kind of information. They had to have that information for when they anchored their barge out there in the north arm to do their drilling. Then seemed to me we had another one up in the northwest corner of the south arm of the lake. So there were about one, two, three, four, five, somewhere around five towers that had been built.

BBL: So you say Amoco built some of those. Then were some others built by your department?

JWG: I think it was our department. My mind's a little bit foggy on that one on the northwest part of the south arm, who built that, but we probably did.

BBL: Did you ever get out on those towers?

JWG: Yeah. It was kind of interesting to get out on those. And it was interesting to go out on the Amoco drilling barge. That was fun.

BBL: You did that too?

JWG: Yeah.

BBL: Did Amoco petition for the rights to go out and do that while you were with the UGS? Or was that prior to you coming? Or about the same time-ish?

JWG: Same time-ish, maybe just a little bit after. I can't quite remember when they did their drilling. I know they did their drilling some place in the latter part of the 1970s, early '80s. They finally gave up the project. They drilled quite a bit, ten, fifteen holes, something like that. They had defined an oil reserve out there, but the oil was a very black, sticky, stinky stuff, about eleven percent sulfur. Local refineries couldn't use it. The economics of drilling and producing offshore, I think a whole combination of things, shut the project down.

Not too many years ago, another company tried to revive that and that's another whole story (laughs).

BBL: Really? You can tell that if you want. Were you involved in that?

JWG: Well, just from the outside. But I think it was Pearl Exploration wanted to…they went out there and they got some leases over the area that they potentially would be drilling on. Then some of the environmental groups got hold of that information and they said wait a minute, wait a minute, wait a minute. So they petitioned the state: don't let them have any more leases. So when the state finally said, okay, there will be no more leasing in this area, well, that did exactly what Pearl was trying to do in the first place, is to protect themselves. So they still had the leases in the middle, but this large protected area, which the environmentalists put forth for them (laughs), did the same thing. So that was kind of an interesting tidbit I kind of enjoyed seeing (laughs).

BBL: That's interesting it worked out that way.

JWG: Yeah.

BBL: So Amoco finally decided this isn't going to work; we're not going to get what we need out of here?

JWG: Right.

BBL: Is it your thought that any oil that would come out from Great Salt Lake would be of that same sort of quality?

JWG: It would all be of the same type of quality. It would have to be produced offshore. Of course, there are a lot of concerns by various groups that you might spill and pollute the lake, which, because of the nature of the oil, I don't think that would be the case.

BBL: What do you mean by that? It wouldn't spread?

JWG: I don't think it would, no. I mean, you had to pump the stuff out.

BBL: So it would be a heavy kind of a sludge thing that's not going to travel?

JWG: Yeah. It looks like roofing tar.

BBL: So you actually saw some of the stuff that came out?

JWG: Oh, yes. In fact, I've got some in a bottle out back. Well, the other thing is too, you know, around Rozel Point, which is up the north, up the east shore towards the north from the causeway, there are many seeps out there. They're constantly putting, bringing up this oil.

BBL: This gunk?

JWG: Gunk. And it gets into the water, but you don't see it collected on the rocks or anything like that. I remember a few years ago when Pearl was trying to get the leases for that, Pearl Exploration, the Dia Foundation raised a big question mark: if they produce this oil, is that going to affect the Spiral Jetty? The wind currents and stuff in the lake

wouldn't have permitted it in the first place, but it's just a lot of little historical bits like that that make it interesting.

BBL: Does that stuff when it comes out, does it just drop to the bottom?

JWG: It just kind of forms a mat on the bottom. But it apparently is disintegrated by the water itself.

BBL: Oh, eventually over time?

JWG: Yeah, uh-huh. So you really don't see it. But it's…way, way, way back they discovered that stuff and there have been about, I can't remember how many wells drilled out there, small wells, and I know the state had to go in a few years ago and cap a lot of those old wells to keep them from leaking.

BBL: I see. So when you say years long, long ago, is that like 1900 or 1950s or what do you think?

JWG: Oh, probably latter '40s, '50s. It could have been before that, I can't remember. There's an article in the book on that.

BBL: That's interesting. So when issues like that come up, for instance the Dia Foundation is concerned that the Spiral Jetty's going to be ruined, are you called in at that point to make an analysis or issue an opinion?

JWG: No, it was just more or less they just expressed their concerns and, of course, that went all over the internet type of thing. I'm not sure whether the Survey would have liked it if I had piped up and said anything (laughs).

BBL: So that's not the Survey's job, to weigh in on issues like that?

JWG: No. And I never felt comfortable doing it myself.

BBL: Right. That's really interesting. So that was in the '70s, early when you were starting your career?

JWG: Uh-huh.

BBL: Can you think of any other issues, stories, such as we've been talking about here that came up during that early time, before we started having the big rise in the water and the big floods of the '80s? Do you remember other issues that came out?

JWG: Not right at the moment.

BBL: Yeah, it's hard to think of it on the spot. You'll think of it tomorrow (laughs).

JWG: Yeah.

BBL: I'm trying to think what else was going on during that time.

JWG: Well, there's always the concern of pollution of the lake coming in from the rivers, especially with Kennecott and the tailings. I know they were looking at building a jetty out there, or something, with the Kennecott tailings and I think that was experimented with, just to see what would happen and they would take samples around here and there, too, see if there was an adverse effect by building a jetty out in the water with tailings.

BBL: What was the upshot of that?

JWG: I don't remember exactly. I don't think there was much concluded that was adverse.

BBL: So during that time, in the '70s, the water, I think was reaching a low in the '70s. Is that right, it was tending to lowerness? Of course, I guess compared to the '80s when we had the big flood, anything is low.

JWG: (laughs) Anything is low, yes. I'd have to refer back to notes to remember that very well.

BBL: Sure. I was just thinking about that development along the beaches and what was happening during that time and peoples' use of the lake.

So I remember the huge snowstorms that we had in the '80s and then the consequent flooding out on the lake and the devastation that that created for everybody and everything that was associated with the lake: industry, the bird refuge, the recreation areas. All of that.

JWG: All of that, yes.

BBL: What do you remember about that time?

JWG: I just remember a number of different things. I know that Utah Power and Light was concerned about it because they had water up around some of the high power transmission lines. They finally built a berm between towers in the lake to keep the ice from coming in, to keep the ice from knocking their towers down.

BBL: From toppling their towers, like they did your towers?

JWG: Yes, exactly right. So there was that in the early days. Of course, the flooding was really a big concern. I think it got within a quarter of a mile of the Salt Lake Airport, very, very close. You'll have to spark my memory a little bit here.

BBL: I know the Bird Refuge; you wrote extensively about that in one of your articles, about the damage the Bear River Migratory Bird Refuge.

JWG: Right. A lot of flooding there. Of course, the industries were heavily hit. What was Amax, was probably U.S. Magnesium, or U.S. Mag, their entire—it was in 1986—their entire solar ponding system was flooded. Everything. They were then buying their

magnesium chloride brine from a number of other sources outside and they went out onto the West desert, just on the east side of the Bonneville Salt Flats there and built a very large solar ponding complex in a very, very short time and produced their magnesium chloride brine for their process out there. Great Salt Lake Minerals, their thing was completely flooded and basically put them out of business for a while.

BBL: I think when those ponds got destroyed, that also had an effect on the causeway, did it not?

JWG: Yes. The causeway going across there, after one of the major storms out there, it just basically annihilated the causeway out there. They've got pictures of it where the tracks come along and all of a sudden they're hanging in the air because all the rock had been washed out from under them. So that took them quite a while to rebuild that.

The Interstate 80 was flooded. They had to raise a good portion of that. The railroad, they had to raise a portion of their rails on the south end of the lake. There were a number of other things that were kind of interesting, too. The road out to Antelope Island, which was built in 1969, I think, that had to be raised to make it so…

[brief interruption]

BBL: So your work at the UGS, how did those floods impact your work?

JWG: It gave us something to do (laughs). We put out, when the…we had a program where we would go out there and sample the lake at different places getting the water samples, then we'd have those analyzed. Just before they opened the causeway, when the state…let me back up. During these high water years, the south arm became much higher than the north arm in elevation, to the tune of about three and a half feet. Of course, that was extending south out towards the airport and highways and everything else. They had

to, the state said "what should we do?" So they went out and build the breach out there on the west end of the causeway, which was about a 300 foot opening. That, over a period of time, brought the water levels down to a much more acceptable level.

Before they did that, we started another program where we'd go out and run the specific gravity of the water at these different locations and we were able to see the changes in the lake makeup. For instance, the north arm of the lake would be—before that—would be very uniform from top to bottom. But during, when they breeched that causeway, we had a lot of south arm water, which is much less dense, went north and pretty soon we had a two-layer system in the north arm. But at the same time, we also had a huge influx of north arm water going down deep into the south arm. So we had a lot of fresher water on top and much saltier down below. So we documented all of that and put out a small publication on the effects of breaching the causeway. So that was one of these things, you know, you grab the opportunity when you see it and record that for history.

BBL: Right. So that might not have been on your to-do list when you started the year.

JWG: No. But it was one of these opportunities that we took to document something. That was a lot of what we did with the Survey was documenting things that would take place.

BBL: Was is mostly in the water, is that what you're mostly documenting is what's happening in the water?

JWG: Mostly. Within the confines of the lake.

BBL: So that was an interesting thing, that water exchange—I don't know what the technical term is.

JWG: It was a kind of bi-directional flow. And it was interesting, too, during the flooding years, I think it was up the Weber River, farmers used to draw water from the river to water their crops. During those high water years, a poor farmer found out that he was pumping salt water on his land, because the water in the lake being heavier than the water in the stream, you'd get a tongue of salt water that would go back up the river.

BBL: Kind of a reverse flow?

JWG: Uh-huh. You'd get fresh water coming down the river, but you had this tongue of salt water coming up the river.

BBL: Down low.

JWG: Yeah, at the bottom. He was pumping salt water out onto his ground.

BBL: That must have been disastrous.

JWG: It could have been, yeah. So little things like that are interesting.

BBL: Did you know it was happening or only when he told you "all my crops are dying. What's happening?"

JWG: We heard about it.

BBL: You don't document or test the tributaries.

JWG: No.

BBL: So it's only what comes in the lake.

[brief interruption]

BBL: That was probably a pretty exciting time to be with the UGS during that time, because like you say, there was stuff to do and it was so historic, really, I guess, kind of unprecedented in the lake's history.

JWG: Yeah. Well, last time it was that high was quite a while…'60 and '63 was the lows. It was many years before that that we had a historic high. It was shortly after the pioneers came. That's when Brigham Young was trying to figure out how to drain the lake because it was getting too high.

[brief interruption]

BBL: Is there a normal for Great Salt Lake? And then when these things happen, does it ever get back to normal? Or is there really no normal?

JWG: Well, you can take an average. About 4,199, 4,200 feet is the average lake level, statistically. But you know, it goes up and down, and up and down, the lake levels go up and down. Since the flooding period, our lake levels have been somewhat lower, maintaining something quite a bit lower.

BBL: Maintaining?

JWG: Well, no. Staying a little bit lower, even though it's still going up and down.

BBL: Is it trending down now or do you just see it kind of trending level?

JWG: It's kind of dropped a little bit. The ups and downs are kind of lower than they used to be.

BBL: I see. What about the salinity of the lake, too. Is there a normal for that? And I guess what I'm asking is when something like this happens, when you have a catastrophic event, is the lake ever the same again?

JWG: Not really. In my own research, it seems that the south arm of the lake is continually losing salt to the north arm. It's just the way it is. With the breach, you've got mostly water going to the north. I did one little study here not too long ago that suggests

that at a given elevation, about 4,196, the quantity of salt, or the salinity of the salt is dropped almost thirty percent.

BBL: Thirty percent?

JWG: Uh-huh. At a given elevation. I think that was 4,196. Back then it was such-and-such; now it's about almost thirty percent lower, at that given elevation. This is something you really don't see until you start putting the numbers to it.

BBL: But those sorts of changes must really have an effect on some of the industries.

JWG: Well, they do. The freshening of the south arm of the lake during the flooding years had a tremendous effect on, say, people like Morton Salt or Cargill Salt or U.S. Magnesium, pumping so much water into your solar evaporation ponds that it contains less salt and so it takes longer to evaporate it down to produce salt. The only way you can really maintain a certain production rate is to increase the amount of evaporation area that you have. It's interesting because the south arm of the lake, as it goes up, the salinity goes down and as the lake comes down the salinity comes up. It's kind of an inverse. But the north arm doesn't act quite that way. Its supply of water is from the south arm, so it's already salty when it gets in there, as opposed to the fresh water that flows into the south end. Then there's a slightly higher evaporation rate on the north end of the lake than there is in the south end. So the amount of salt, or the salinity of the north arm, maintains quite a bit the same, near saturation, near saturation of sodium chloride, where the south arm fluctuates all over the place. So the north arm industries have it pretty good and the south arm industries kind of have a fight. When the lake comes up, they have a problem with less salt.

BBL: Right. It's a hard business to be in if you're on the south side.

JWG: Yes. And, of course, the south arm industries, they had to build dikes, as did everybody else, the railroad and the highways and everything else.

BBL: So they've got more and more and more expense.

JWG: Uh-huh, more and more and more expense.

BBL: And then not a consistent income in terms of what they can produce.

JWG: Right.

BBL: That's got to be tricky. That's interesting. Then the other industries, too, the recreation industries, like on the south shore, built beaches and marinas and that sort of thing, that's a constant battle for them, too.

JWG: Uh-huh. You look at the old Saltair resort, of course, it was gone a long time ago, but the new building that they put out there, I've got pictures of that. The poor thing had water halfway up the walls and ruined water slides and everything else.

BBL: Right. Then the opposite problem for the beaches is when the lake really recedes and is low. Then it's miles, it seems like, to get to any water.

JWG: (laughs) Yes.

BBL: That's even out at Antelope Island. I've been there recently. That little beach they have there, you have to walk quite a ways to even get to any water, at least the last time I was there.

JWG: Right. It's come up a little bit now, but it hasn't hit 4,200 for quite a while.

But you know, the industries suffered during the high water years, as did everybody else. So you're kind of at the mercy of the lake out there.

BBL: No kidding. That's interesting.

You've written on a variety of topics—and this is just from your second volume—but some of the titles that you wrote are, "The Chemical and Physical Variations of the Brine and Effects of the Southern Pacific Railroad Causeway; you talk about "Water Surrounding Antelope Island"; The Extraction of Mineral Resources from Great Salt Lake"; "Railroads Proximate to Great Salt Lake." That was a great article, by the way. And this "History of the Bear River Migratory Bird Refuge"; then "History of Potash Production from Salduro", that's now the Bonneville Salt Flats. That's a really wide ranging scope of topics related to the lake.

JWG: Well, I kind of ventured out from just the Great Salt Lake to anything (laughs) salt or salty in the state. Dealing with salt, you know, we've got it up around Pineview Reservoir, we've got it down in southeastern Utah, we've got Sevier Lake. I put out a short book on Sevier Lake. Bonneville Salt Flats. So we've got a lot of salt resources here in the state and I just kind of included all those; it was what I was interested in.

BBL: That's what your interest is is salt?

JWG: Yes. Salt. Salt products. That would include potash and all those things. I'm still dabbling in all those (laughs).

BBL: I noticed that you have a consulting firm. Do you still have opportunities then to work with groups?

JWG: Yes.

BBL: Who are your main clients? I don't mean by name; is it mostly government? Is it industry?

JWG: Industries.

BBL: Industries. What kind of information do they want from you? I'm not asking for secrets, but I mean are they asking, "What is the salinity of this?" Or, "What would be the likelihood of us finding this product here?"

JWG: Well, on one of the projects out there, you know, "How deep is potash? How thick is it? Would we have a chance of finding it here? And if so, how thick might it be?" That type of thing.

BBL: I see.

JWG: Some of the others is, "What's the nature of the brine? What's the chemistry of the brine? What can we produce out of it? How deep is it? How would we get it out of the ground? Different things like that. It's kind of a characterization of the mineral resource, is kind of the way I like to put it. So it's been very interesting. I put in an article on the salt brine resources of the state in a book that's called *From the Ground Up* edited by Colleen Whitman who has retired from BYU. That was kind of interesting.

BBL: So you said that your job didn't require that you spend a ton of time out on the lake.

JWG: Right.

BBL: But tell me about some of the times that you did spend out there that are memorable, that stick in your mind.

JWG: Well, I think one of the most interesting was the time when Amoco was drilling out there. It was an interesting trip to go out to their floating drilling rig out there and poke around their facilities and have it explained to us and just following that project, what they got out of it, what the oil was like and that type of thing. Been out on the causeway a number of times seeing what the conditions are out there, the working

conditions, what they're faced with. They had the two culverts out there. When they would get a north wind or something like that, it would pretty well fill those box culverts full of gravel, so you wouldn't get any flow through there. In fact, I've walked across the opening there on the gravel. So a few times like that.

I remember taking a trip out on Farmington Bay with a boat that we had at that time. I remember he kind of got stuck once. So he revved up the motor and it was just an absolute black, smelly stuff that we were in (laughs). Oh, it was rank (laughs).

BBL: Sulfur mostly?

JWG: Kind of sulfur, rotten egg gas kind of a smell.

I must make an admission right now, though: I can't smell anything (laughs).

BBL: Is that right?

JWG: Yeah. But, you know, we get these north winds occasionally and it will stink the city out, that rotten egg smell.

BBL: But you can't smell that?

JWG: I can't smell that.

BBL: So you just go by what other peoples' reactions are and say "that must be really bad"?

JWG: Yeah. I have to laugh because when we'd get a real bad lake stink, who would call me but Ed Yeates and do a segment on the stinky lake (laughs), knowing full well I couldn't smell it.

BBL: So did he have to preface his call by saying, "Wally, the lake smells. I need you make a comment"?

JWG: Yeah (laughs). So it was kind of funny in that respect.

You know, we built that one tower, and that was kind of a memorable experience. We built it here out around 27th South in Salt Lake City, or something like that, west of the freeway. I know they picked it up with a helicopter and took it out and set it down in the lake. Well, I wanted to be there, but it was a choice between going out and watching the tower be moved or being in the hospital with my wife for our second son (laughs). I couldn't see a thing from the hospital.

BBL: Oh! (laughs).

JWG: But getting out to the lake once in a while and looking around. One of my favorite places was going out on the north end of the Stansbury Island. There's a very cute, interesting beach out there, pristine. Just a very calm, pretty place. I used to get out there, oh, about once a year. Take a ride out there and just enjoy it for a few minutes and gather up some stuff.

So, anyway, those are some of the kind of memorable experiences I've had with the lake.

BBL: Have you been around the whole lake?

JWG: I have not done that.

BBL: Have you been on the west side much?

JWG: Not a great deal, no.

BBL: When you would get out to that beach on Stansbury Island, was that by car or boat?

JWG: Yeah, just a car, truck.

BBL: Do you have any other memories, or favorite spots, or a particularly favorite geologic formation or something out there?

JWG: No, not really. I think the causeway is an interesting place. I've been out there a number of times. Have driven clear across the causeway before. We took a field trip once and were able to go clear out on the west side of the lake out to Lucin and then ride the rail, ride the road by the railroad all the way up from west to east. That's kind of interesting to see the very, very desolate country out there.

BBL: That would be interesting. That would be really fun, I think.

JWG: Yeah.

BBL: Do you know, is the southern causeway open or intact? I'm not even sure where it starts, kind of by the airport, I'm thinking.

JWG: Yeah, about 5600 West and then goes out to the…

BBL: South end of Antelope Island. Have you even been out on that causeway?

JWG: Yes, once. I don't know whether it's still open or not, or whether it's been breached in a few places.

BBL: I looked at a Google Earth picture and it looked like it had been breached in a couple of places, but I didn't know if you could go through the breach or not.

JWG: That I don't know.

BBL: Of course, you're not supposed to be on the south end of Antelope Island.

JWG: (laughs) Right.

BBL: I'm just curious…

[brief interruption]

BBL: how your interest in salt came about. Do you know?

JWG: Well, having worked with the Amax people, and having worked with Great Salt Lake Minerals, I think that's kind of where my interest in salt came from. Having that

background, then I started working with the state. My director at one time told me, he said, "You can do your research on the lake, but I don't want you to extend it out beyond." In other words, where the industry starts, you stop. I couldn't see that (laughs). And, so, I think that kind of sparked my interest in all sorts of salts and brines. It just became a passion with me and I became a packrat of information (laughs). Currently I have quite a library. But it's just been a real interest, Great Salt Lake, and then, of course, Sevier Lake. Then I got introduced to the potash resources out in the Paradox Basin and it just kind of grows on you.

BBL: Right. So I can see that maybe the early work that you did sort of helped to shape the direction that you eventually took and became an expert in.

JWG: Yeah, the early work.

BBL: That's nice to find a connection to something you really enjoy and find interesting and you can become expert.

JWG: Yeah. And the more you're in this business the more you realize that there are very few of us that are in that field.

BBL: I'm sure. So are you called upon to provide expert opinion or ideas, not even opinion, of other bodies of water outside of Utah that are salty?

JWG: I was called as an expert witness on, what was it, Cadiz Dry Lake in Nevada, California. That's the only time for that. I know when they were talking about interrupting the flow on the Jordan River, I think I was called in as an expert witness on that, what effect that would have on the Great Salt Lake.

BBL: Is the Great Salt Lake really unique in terms of a dead lake in how it performs and is? Or are other dead lakes similar?

JWG: Each one of them has their own particular characteristics. I don't think there's any two that are really exactly the same or fit the same mold.

BBL: I'm guessing the causeway is a huge factor in the life of this lake and its characteristics.

JWG: Oh, it is. Before the causeway was put in, they built the initial railroad crossing and they had solid fill out for seven miles from the west and about four miles from the east, but the center part was all that trestle. And during that period of time, we really didn't see a great deal of change in the water. You didn't have a north arm with a heavy brine and the south arm with a…it was still all one thing because it was able to mix. But after the causeway was put in, of course, in 1959 or so, we immediately began to see a difference in the salinity of the north being greater than the salinity of the south. Then a two layer system in the south arm. I don't know if there's another one like it or not. I guess another one that would be something similar to it would be the…there's a lake up in northwestern Iran. Lake Urmia. Almost looks like the same thing. Almost the same shape. It's a larger lake, but it's almost the same thing and for years they had an unfinished causeway across it. Then in the last ten years or so they have now put in a bridge structure and they are seeing similar changes there and similar worries because so much of the water is being taken up there for irrigation and Lake Urmia is shrinking. Well, you know, we're facing the same thing here in Great Salt Lake because now they're talking about taking more water from the Bear River, bringing it south to Salt Lake City. That could have a huge impact on Great Salt Lake. That's the main, the Bear River is our main source of water for Great Salt Lake, about sixty percent of it. If we tap

all of that for human consumption, we could impact the Great Salt Lake very heavily. The poor lake doesn't have any water rights (laughs).

BBL: Yeah, isn't that something.

JWG: It is. I'd hate to see it go that far.

BBL: Well, that would be devastating for just a lot of things. First of all, the Bird Refuge would be really impacted by that.

JWG: Oh, yeah. It really would.

BBL: Maybe this isn't a fair question, so you don't have to answer it if you don't want. What's your thought of that causeway, do you think it should be there? In terms of the lake?

JWG: Well, let's just put it this way: it's there.

BBL: (laughs)

JWG: Now some people say, well, we should take it out! Well, that causeway through the railroad brings in a lot of revenue to this state. Second thing, it would be practically an impossible situation to try to take it out again (laughs). Took about two years to put it in. If you ever want to see an interesting movie, you can get one called "Mariners in Hardhats."

BBL: What's that about?

JWG: It's the film that Morrison Knudsen put together on the construction of the solid fill.

BBL: Really. That would be interesting.

Would it be better for the lake…suppose they could go back and put it like a trestle system in, so there was a regular and more even flow between the two arms, would that be better for the lake, do you think?

JWG: You know, the causeway has served some very good purposes other than running trains across it. During the high water years, we pretty well lost the brine shrimp population in the south arm. It became too fresh. North arm carried on the job. So there are pros and cons as to the causeway, whether it's good or bad. Some of the industries would rather see a little more exchange, especially the south arm industries. The north arm industries say, "Leave it the way it is" (laughs). They're just as happy as a clam at high tide, you know. So there are a lot of pros and cons, I guess. If the causeway were not there, the overall salinity would be much greater and if the lake went down low, it may get too salty for brine shrimp any place in the lake, if the causeway wasn't there. So there are a lot of different pros and cons as to whether it's good for the lake or not.

BBL: So no easy answer.

JWG: No easy answer, no. But the fact remains, it's there, so we just deal with it as it is (laughs).

BBL: Right. And as you say, it is big economic source of income.

JWG: Your brine shrimp is a multi-million dollar industry out there.

BBL: Is brine shrimp something you would measure and keep track of as part of your work?

JWG: We haven't done, no. The Department of Wildlife Resources. They have their Great Salt Lake Ecosystem Project and part of that is maintaining a record of the brine shrimp, or at least the cysts. We have the brine shrimp harvesting. Actually, you're

harvesting the eggs or the cysts and they keep track of that during the harvest season and they determine how many cysts there are per liter and when it gets below a certain level, they cut the harvest system off. Then if the cyst count gets up above a certain level, okay, now we can harvest. So they're the ones that maintain, keep an eye on it.

BBL: Monitor that sort of thing.

JWG: Yes.

BBL: Before we started the recording, we had talked about if you had seen any unusual sightings in your experience with the Great Salt Lake. I've read about people seeing big fire balls and monsters, even. Have you seen or have your colleagues seen anything that you would call unusual out there?

JWG: I haven't personally seen any strange things. I think they've seen water spouts. Of course, you can get out there on a windy day and you can see a pretty angry sea. No, I haven't seen anything of that nature, personally.

BBL: I have to ask that question (laughs).

It was interesting in the second volume of your compilation, you included a section on, it wasn't explicitly called Arts, but it had to do with some of the art around Great Salt Lake. Do you want to talk about that?

JWG: Well, it was fun. When I was doing the book, I remembered the…what I tried to do in the book is Great Salt Lake and Bonneville Salt Flats, that whole area. I knew that Tree of Life, or whatever it's called out there…

BBL: Have you seen it?

JWG: I have seen it. I haven't been right up next to it, but I've seen it as I've driven by. So I thought, you know, we need to include something in on that. I traced it down to Karl

Momen, who is the author of the tree out there. I think I located him over in Sweden. So I wrote to him and never heard anything back, never heard anything back. One day I get a call from BYU; it's Herman du Toit, who had done, hosted an exhibition of Karl Momen's. Karl had asked him to write up an article on the Tree. So that's the way I got that one. It was quite a history on it.

Then when we got the article on the Spiral Jetty, I'd been on the internet one day and I just happened to see something about a thesis on it. So I just put out an inquiry on the internet there (laughs), and the young lady who'd written the thesis got in touch with me and agreed to write a thing on the Spiral Jetty.

Then I knew we had some ancient rock art and I found a fellow that wasn't a full-fledged archaeologist, but he was very interested in it and he agreed to write a thing on rock art in Utah. So that kind of covered the three areas that I was interested in.

BBL: Have you seen the Spiral Jetty and the Sun Tunnels?

JWG: I haven't seen the Sun Tunnels. I haven't been out to see the Jetty personally, but I've seen a lot of pictures of it. It's an aspect that I thought should be included in there.

BBL: For sure. I think it's interesting. Hikmet Loe.

JWG: Hikmet, yes. We corresponded quite a bit.

BBL: Let's see. Can you think of any other…I think we've covered all the things we wanted to talk about. Do you have any other aspects that you think would be important to include in this?

JWG: Well, there's a couple of things here that I think really need to be looked at. We have people who would like to…for instance, Great Salt Minerals out here, they wanted to do an expansion of their solar ponding system. They had a desire to increase their

production, simply to meet the demand. So their idea was to lease up a lot of land on the west side and really expand their solar ponding capabilities. That has become a real fight between them and the Army Corps of Engineers and the environmental community and everybody. What should have taken maybe a couple of years is still ongoing. People have a real passion for the lake, and coming from a scientific background, I don't see a lot of problem with the thing, but there's just a real passion about the lake. People like Friends of Great Salt Lake would rather see very little development or expansion.

I've often thought, you know, we've got a huge ponding system of U.S. Magnesium out there. To give you an idea, if you take a map and you place a hand over their ponding system, for size comparison, then on the same map, you can cover Salt Lake City; that same area will cover Salt Lake City. I know for a fact now that if Great Salt Minerals or U.S. Mag, especially those two, if you tried to put those in place today, starting at square one, you'd never make it. The rules and regulations would kill you (laughs).

It's the same thing now. You try and develop something, a salt resource in other places in the state, and it's just a headache. There are projects that are in the works with some of the government agencies, trying to get permission from them, just absolutely going no place. It's just a different atmosphere now. Back in the '60s, they were able to do these things; now you can't. There's just too much red tape.

I think that's kind of the same thing with when Amoco first got their leases out there and did their work, very little opposition. Now you go out and try to lease something on the Great Salt Lake, people come out of the woodwork and say, "No, no, no, no, no, you're going to ruin everything" (laughs).

BBL: You say from a scientific point of view, you don't have a problem with it. Is that what you said?

JWG: Yeah.

BBL: Is that because you're thinking the work that they do, it doesn't harm the lake, it doesn't create a problem?

JWG: Right. On most of these, yeah. I find that the majority of people simply do not have a basic understanding of this lake and the way it works. I'm in the process of trying to re-write a paper now. It's called "Brine Movements in the Great Salt Lake." It's just amazing. People call it a dead sea or a dead lake. That thing is very much alive! There's just stuff moving all over the place out there (laughs). You've got any opening in the causeway, under certain conditions you're going to have brine moving north and brine moving south through the same opening.

BBL: I read that and I thought that was interesting.

JWG: Yeah. The example I gave of water going up the Weber River, salt water going up the Weber River. You get water that comes through the causeway and goes in the north part of the lake and it has to fill a depression there and then it will spill over and then it gets into the main part of the south arm of the lake. There's just all sorts of strange things going on out there.

BBL: Is that because of the characteristics of salt?

JWG: No, it's just the subsurface topography, and the way heavy water acts with lighter water.

BBL: So what would happen to the lake if nobody took minerals from it, took salt?

JWG: It would grow in salinity very, very slowly. We put in about two million tons of salt a year from the rivers. We take maybe two, up to three million tons out to sell. But we also, during that process of making potash, you also lay down a lot of salt that doesn't get back into the lake, at least immediately, as part of that process. So the way we're going now, it's just about what you sell out of the lake and what you put into the rivers almost balances each other out.

BBL: So if companies then say we want to expand our production of salt, that seems like that would affect the equation that we're taking out more than we're getting in. And is that bad?

JWG: Yeah, and the term is you're mining salt then.

BBL: Mining.

JWG: Yeah, you're mining salt then, because you're taking it out and it's gone. There would be a balance there. I think you'd start mining a little bit more. But, you know, that's only about .2 percent per year of the total salt load of about four and a half billion tons.

BBL: Out of the lake, you talking about, the total salt?

JWG: Right. The total salt load of the lake, you're only taking out about .2 percent, or I can't remember, it's .02 or 2 percent, but it's not a great amount. So there's enough salt in the lake to last for many, many years. So we're really not taking it out at an alarming rate.

BBL: And there is a replenishment going on so it's not totally gone?

JWG: Right. It was interesting because one of the biggest things is when we had the west desert pumping project, it was designed initially to take out south arm brine, pump it

out on the west desert, and then return it to the lake. That way, we'd take advantage of a larger area for evaporation. But in the final analysis, they had to take north arm water, pump it out on the west desert and a lot of it precipitated out on the west desert and we basically left about ten to twelve percent of the entire lake volume of salt out on the west desert.

BBL: That was not recoverable?

JWG: It's not recoverable.

BBL: I read about that, how it was originally designed to come out of the south and then they had to take it out of the north. What happened with that?

JWG: Just the economics of taking it out of the south.

BBL: It was just going to cost too much money?

JWG: Yeah.

BBL: So you're saying that if you want to talk about losing a lot of salt, there's a good example right there.

JWG: Yeah. A very good example.

BBL: They made the decision they had to make, I guess, in order to make it feasible, but there was a lot of salt lost.

JWG: A lot of salt lost. And it evaporated out, precipitated out on the west desert before it was able to return.

BBL: So you're saying we need salt, we have to have it, it's here, why not use it? Take advantage of what the lake has to offer?

JWG: Yes.

BBL: Your thought is over time that's not going to kill the lake? It's not going to damage it permanently?

JWG: No. Then if you look at it, it's just like any other resource, you're feeding people, you're getting tax revenues.

BBL: So there are some good benefits to that as well?

JWG: Yes.

BBL: Are you called upon to get in any of these kind of fights?

JWG: (laughs) I avoid them.

BBL: Did you say there were a couple of issues. One was this. Was there another one that you wanted to bring up?

JWG: It may have been taking the water away from the lake that would normally go in there.

BBL: That's interesting. Are people more likely to "let's go ahead and take the water, but we're not going to let you take the minerals"? Water seems so every day and right there; a person wouldn't think that you use that many minerals, but you do, but it's not so visible on turning on the tap and there's your water.

JWG: Well, the need for water is very strong. Like out here in Snake Valley, Las Vegas wants to pull from that and there's been a real stink out there. But a lot of people don't see the lake as a thing of beauty and a thing of resource and stuff like that. I just don't think they think ahead and realize what can happen if we develop all the water resources from the Bear and the Weber and the Jordan and not let them flow into the lake. I don't think they…"Oh, that stinky old lake out there anyway. Who cares?" That's too bad to have that kind of an attitude about it, but people's thirst for water is pretty big (laughs).

BBL: I think you're right about the opinion people have about the lake, that it's a stinky, muddy place.

JWG: And the interesting part there is the lake stink. People say, "Oh, that lake is a stinky place, I wouldn't go out there." But actually, that's just Farmington Bay. That's where the lake stink comes from is Farmington Bay.

BBL: Why is that?

JWG: Well, for years up until about the middle '50s, all of the Salt Lake sewage was dumped in there raw. Then they finally got their sewage treatment plants. But all of that junk in the bottom, you get the anaerobic bacteria that create, that eat that stuff up and create the hydrogen sulfide (laughs). You don't have that same situation out in the main part of the lake. It's pretty well confined to Farmington Bay.

BBL: Even after all these years it still has an effect. What you do to the lake has an effect for almost ever, doesn't it?

JWG: Uh-huh. Yeah it does. It will stick around to haunt you for many years, or bless you, whichever way it is.

BBL: That's one thing I wanted to ask you about is your thoughts about the future of the lake or where you see things going. We've talked about it a little now, but do you have any other thoughts along that line?

JWG: Well, I think it's going to continue to be a source of recreation. I think it's going to be a source of minerals. I think mineral industries have come to the conclusion that we just can't go out there and do whatever we want to because we're going to have to deal with public feelings and stuff. I know Great Salt Minerals has pulled way back on their initial plans of another ninety-one million acres or ninety-one thousand acres or

something like that, and they're looking at other options: streamline their operation and make it more efficient. And I think that's what all of the industries are going to have to do is make things more efficient in order to survive, because it is very difficult, nowadays, to make expansions and more use of the lake itself.

BBL: Do you think there is room for greater efficiencies on the part of the companies?

JWG: There are things they can do.

BBL: So you think they'll be looking at that to survive?

JWG: I think so.

BBL: Do you think the lake would ever dry up and go away?

JWG: Well, there are times when it's almost gone. In parts of the lake, when it goes way down, we can see where we've had desiccation cracks on the bottom, which means it was dry at that level at one time.

BBL: That's pretty reduced.

JWG: That would be at a very reduced level. This lake has gone up and down, up and down.

BBL: Is there a point where it gets down so far that it just goes away.

JWG: No, but it will get down to a certain point in this area with the evaporation potential and stuff that we've got here, that it would pretty well stay at a particular level.

BBL: It would never be able to recover?

JWG: Well, it could when we start climate change.

BBL: If we had major floods or something like that?

JWG: Right. But you get it down so far and that reduces your evaporation potential, evaporation rate. It just won't evaporate under these climatic conditions. So there are levels where it would pretty well just stay as a pretty stagnant, real salty puddle.

BBL: That might benefit the salt produces (laughs).

JWG: Yeah. This is another interesting thing where you get this fresh water that comes into the south arm of the lake, so we don't have any salt precipitating on the bottom of the south arm now, but the salt that is transferred to the north arm, we're almost at saturation there, so we have probably somewhere—I'm going to make a guess—we've maybe got six feet of salt in the bottom of the north arm.

BBL: Is that mineable or accessible?

JWG: Not really, or nobody's thought about going out and getting it. I remember when Amoco was putting in their facility up there to drill on the north arm, they had their barge and then they had lines going out for almost 2,000 feet to an anchor and had that on four corners. I remember a core from one of those anchor locations, I physically saw a core of about five or six feet of salt.

BBL: Is that right?

JWG: Yeah.

BBL: Did you report that?

JWG: I think it's some place in the literature.

BBL: That seems like it would be fairly easy salt to get, wouldn't it?

JWG: Yeah, you could probably go out there and dredge it up.

BBL: But the companies haven't thought of that, you don't think, or they don't have the rights to do that?

JWG: Well, I imagine they could have the rights to it, but I think they're already set up doing what they're doing. So it would kind of be a new venture, having to harvest underwater and that type of thing.

BBL: That's interesting. What else. Have you got anything else that comes to your mind that you'd like to include with this?

JWG: Well, I've seen a real awakening in the last five, ten years. For quite a while there, there was very little interest on the lake. I didn't see anything from…a few interests from the University of Utah. I think the Great Salt Lake has been an interest to Utah State University and maybe a little bit from Weber, but it seems like everybody's on the bandwagon now. There's a lot of interest from Utah State.

BBL: Why is that?

JWG: I think it's just having its day. People are very interested in what's going on in the lake. A lot of it's from an environmental aspect of it, but a lot of it's from, well, we're discovering that this thing's got bacteria in it. Westminster College, Bonnie Baxter from up there, wealth of knowledge on microbes and stuff like that. She started this Great Salt Lake Institute. They're involving students in learning about the lake. University of Utah's getting interested in it. Utah State's doing a lot. Some of the local companies…well, I know the Central Davis Sewer District, Leland Myers, he's done a lot on the Farmington Bay and done quite a bit with Utah State. I can't remember the names. Then you've had the Friends of the Great Salt Lake come into the picture here recently, the last ten years or something like that. They're a very vocal and very involved. They follow everything (laughs). So their interest in the Lake has really blossomed, which is a nice thing, because there was just not a great deal of knowledge about it.

One of the interesting ones is the USGS has done quite a bit. Recently they did a new bathymetric map, the depth of water type of thing, bottom contours. That's churned up a lot of interest. Not only did they find the bottom contours, but now they're looking at the relation of biohermes, or these growths on the bottom of the lake, there's been a lot of interest in that. Rob Baskin, the USGS, he's doing his PhD thesis on this. Hope he'll have it done by December. But just bringing to light a lot of stuff that's never been seen before.

Arizona State University, I believe, got hold of a lot of the drilling that Amoco did and they're doing a lot of work based on that. And I think they've also got some information on the geophysical work that's been done out here. So just…

BBL: It's nice to have the equipment they have now to enable them to do those sorts of studies and detail.

JWG: Oh, it is. I would like to have done more when I was at the Survey, but there was just not the budget for equipment and that type of stuff. But getting what we had, we did quite a bit.

BBL: Oh, definitely. When did you retire?

JWG: November '09.

BBL: So not that long ago.

JWG: No.

BBL: Do you picture a volume three coming out? Let me say again, these are just fabulous. I've been enjoying reading them. I'm not through all of it yet, but I've been through most of it and just a wealth of information that's wonderful.

JWG: To be right frank, I don't see another one coming out of the Survey. I think they were mad at me when I did those two (laughs). I've talked with several of them and they just think it's in the…the fellow that took my place when I left, he just does not see another volume like that. If I had the time—if I made the time—it would be fun. But, see, on these things here, on these books, what I did is I very carefully considered people who I knew worked on the lake and I contacted them and I said, "Would you write a chapter?" About thirty-five in the first book and somewhere about fifty in the second book. They're a two-year headache to pull that together, do all the editing and some of the illustrations. Some of them you have to basically do a lot of illustrating yourself. I just don't know whether there's going to be another one come out or not. The one previous to that, the blue 1980 book, was published in 1966 and I think it had fifteen articles or something like that, that Dr. Stokes had done.

BBL: Was that through the Geological Survey?

JWG: No, that was through the Utah Geological Association, I think it was, something like that.

BBL: Is that a private thing, kind of a club?

JWG: Kind of a club type of thing. Bigger than a club. Then in '80, starting in about '78 or something like that, I said we need to do something, so I pulled together that one. I have to laugh; I have to kid that that had religious beginnings there. My wife and I were in church one day and she looked over at me and I was sitting there writing something, *whuuut, whuuut, whuuut, whuuut*. I was picking subjects and putting people with subjects *whuuut, whuuut, whuuut, whuuut* (laughs). So that's where it came about, sitting in church (laughs).

BBL: Truly inspired work (laughs).

JWG: Truly inspired (laughs). Then I did the same thing on that one (but not in church), because I got to know a lot of people, who was doing what on the lake, so I contacted them. And, you know it's funny, I had only one paper I had to reject and I had only one person decline. Other than that…

BBL: Really. That's pretty good.

JWG: Yes. I thought that was a pretty good average. But it's a headache. Just about every so often you've got to bug these people: "No, I haven't started yet" (laughs). But it paid off. It paid off. These two books here are the most comprehensive things on the lake.

BBL: Absolutely I would agree. Great work. Very good.

JWG: Or at least a compilation of different subjects. You get some people who are doing some marvelous work, on theses and stuff like that, but that's one small subject.

BBL: Right. I agree. I think they're great. It's nice that they're done and available for people to access. It will become more valuable as time goes on, I think.

JWG: Yeah, this one's out of print now, but it's out on CD.

BBL: Again, that's easily accessible at the DNR bookstore. It doesn't take them very long at all. When I asked about it she said, "We can make a copy for you, we can make one up." So I thought she'd say it would be a couple of weeks and she said, "Can you wait about five minutes?"

JWG: Yeah, they've got it on the computer. They just burn it off.

BBL: Yeah, it's really quick. It was really easy to get.

JWG: Sounds like Pat Stokes. She's the head of the bookstore there.

BBL: I wonder if it was. It was a woman who was working with me.

JWG: It could have been. Probably a blond-headed gal.

BBL: I can't remember what she looked like, but very helpful, so friendly.

Well, Wally, I appreciate your time. This has been really interesting.

JWG: It's been fun.

BBL: I'm glad we got together. I'll go ahead and turn this off. Is there anything else you want to say before I do that?

JWG: No, just hope somebody keeps working on it.

BBL: I hope so, too. Thank you.

END OF INTERVIEW