Transcription: Grand Canyon Historical Society Oral History
Interviewee: Martha Ames Burgess (MAB)
Interviewer: Tom Martin (TM)
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TM: Today is March 26, 2024. It's Tuesday, and this is a Grand Canyon oral history interview with Martha Muffin Ames Burgess. Muffin is Martha's nickname, as I knew her back when, oh my gosh, back in the 1970s. Muffin, how are you doing today?

MAB: Really good. Thank you.

TM: Good, good.

MAB: Moisture in the air.

TM: I'm sorry?

MAB: I just said Good. Moisture in the air.

TM: Oh, yeah, yeah. It's been snowing here a little bit in Flagstaff, so that's fun. Muffin, may we have your permission to record this oral history over the telephone?

MAB: Yes.

TM: Thank you. We left off at the end of Part One, you had talked about flying in an airplane to Flagstaff, Arizona, after you graduated from Brown University or Brown College.

MAB: Brown University,

TM: Brown University with a geosciences degree in 1967. I just want to start off with you landed at this little bitty airport, walked off the plane and walked through a little gate. I think there wasn't even any sort of building to walk through. And then you must have gotten in some car by somebody. Who picked you up at the airport?

MAB: Okay, I got off the plane, down the stairs and across the tarmac, and it was Mary Ellen Morbeck, who later became Dr. Mary Ellen Morbeck, physical anthropologist, but she was a fellow intern at Museum of Northern Arizona, and she was sent to pick me up, and she said that she recognized me immediately from my East Coast outfit.

TM: Oh my gosh. What were you wearing?

MAB: Villager shirt, I mean skirt, dress and probably Weegen loafers.

TM: Okay. You certainly weren't wearing a squash blossom, you know, necklace, I suppose, and wearing a cowboy hat.

MAB: That came later.

TM: Okay. Wonderful. What were your thoughts on Flagstaff as you drove through the town on the way out? Did she drive you straight away out to the museum then?

MAB: Right you have to go through town from the airport and across the railroad tracks or under the bridge and through the main part of town. It was it felt like an old an old west movie set. Beautiful, little stone Episcopal Church. But there was a new Circle K.

TM: Wow.

MAB: She drove way out Fort Valley Road, which was not very much occupied. I think there was a Pioneer Mansion, sort of house anyway.

TM: Right.

MAB: On the way to the museum. Felt pretty rural by the time we got to Museum of Northern Arizona.

TM: And did you know where you were going to stay the night? Had somebody said, oh, we'll have a place for you or something? How that was going to work out?

MAB: They had little buildings at the research station on the other side of Fort Valley Road.

TM: Okay.

MAB: And, you know, little block houses for the interns. So that wasn't a problem. We were well lodged.

TM: Okay. And what can you tell me about Mary Ellen?

MAB: Oh, gosh. She was a feisty east coaster. She studied anthropology with really neat people at University of Colorado, and then she had gotten the internship. So a number of us came together from different places. Among our group was Laverne Masayesva who was Hopi and who taught us a lot, helped us understand local cultures.

TM: Nice.

MAB: It was a neat experience to be within that group.

TM: Okay. So did you go into some sort of an orientation?

MAB: Oh, gosh, no. Baptism by fire. I just dived into our work. Well, we have a tour of the museum and the philosophy behind the museum, you know, interpreting for the public, the science and the arts of the plateau and we were, most of us, were in the anthropology department, which meant we were going to be working with excavated materials and helping on archeological excavations. My background was geology and so and but they in those days, I have to tell you, they didn't allow women to be in the geology department at the research center.

TM: Really?

MAB: No, that was "men's work". And so I got to work on the lythics, you know, anything related to geology that came out of the archeological sites.

TM: Okay.

MAB: So identifying the various shards or sandstones or vesicular basalts or whatever.

TM: Okay.

MAB: That the tools may have been made with.

TM: All right. That's really surprising. Puts me back on my heels to think that the geology department at the museum, you know, at the university, okay, maybe I don't know. It doesn't sound right either, but at the museum, wow.

MAB: Well, things were, you know, sociologically, were a little slower in the southwest. When I don't want to get ahead of myself that I went that fall to University of Arizona to think, to see if I wanted to go on for a master's. And I was not, let's see. I was one of just a few women in the geosciences. But we weren't allowed to sleep in our dormitory rooms. We had to sleep on a sleeping porch. We women in Gila Hall.

TM: With a dorm mom or something? I mean.

MAB: Exactly. A house mother that kept tabs on us, and we had to sign in and everything.

TM: Wow.

MAB: By 11:00 o'clock or whatever. We called it instead of in loco parentis. We called it in loco prevent us.

TM: Oh my gosh. Well, we'll find out how well that worked here. But this is very fascinating to document. You know, what was the culture at the time? So which is, you know, now 56 years ago. So, yeah. Okay, so Vernon was there and Mary Ellen. Do remember who else was there that you met there that summer?

MAB: Lavern.

TM: Lavern. Thank you.

MAB: Lavern. Yeah. I can't remember the other interns right now.

TM: Okay.

MAB I could dig that out if you want.

TM: Yeah, just as other people who you remember. And, oh yeah, yeah. I want to tell a story about so and so, because that was interesting.

MAB: Well, I remember some of the other guys. I don't remember the other woman, but Stuart Aitchison was working in the biology department, and George Billingsley was working in the geology department. So all of us would go out hiking together and exploring on the weekends. It was really exciting. Oh, there was another guy, oh gosh, I can't remember who was a forestry professional. Anyway, he was from Tennessee or something, and had a southern drawl, so we teased him about studying forestry from a southern exposure.

TM: Okay. What do you remember about Stu?

MAB: Oh, gosh, he has remained a wonderful friend through life.

TM: Nice.

MAB: Amazing biologist and naturalist. I mean, he knew a whole lot more than just plants and animals. He has since written a number of layman-oriented guidebooks to like the Bluff Area and the Hole in the Rock Expedition. He's quite the river runner. He's run the San Juan several times. Amazing guy and a good writer, natural history, interpreter.

TM: Nice.

MAB: Then George has become quite the famous geologist working for USGS, and he's probably covered more miles in the Grand Canyon than anybody alive or maybe dead.

TM: Indeed.

MAB: He has actually done the geologic map of almost all the quadrangles of the Grand Canyon area.

TM: Yes, yes. And he was working on that with Peter Huntoon at that time, wasn't he?

MAB: I didn't meet Peter Huntoon until after I got to U of A. Maybe he was but unbeknownst to me.

TM: Okay. So George was there and Stuart was there, and, of course, Mary Ellen. Of the MNA staff, who do you remember from that first summer?

MAB: Oh, gosh. For sure there's Bill Breed, and the director was Ned Danson, who happens to be the father of Ted Danson, the actor. So he and his wife were elegant directors. You know, quite a dashing couple.

TM: Okay.

MAB: Let's see Bill and Carol Breed. Carol wasn't on the museum staff at the time. I think maybe she was USGS. Anyway, she was a trained geologist, and she eventually went to Jet Propulsion Lab, I believe.

TM: Wow. Okay. What do you remember about Bill?

MAB: Bill, oh gosh, good natured, enthusiastic, a good people person as well as a rock person.

TM: Nice.

MAB: He was head of the geosciences department. Affable, encouraging to us youngsters. A character, bemusing. And he would supply me with things like a barrel of lithics that I should identify.

TM: A barrel?

MAB: Oh, well, you know, tons and tons.

TM: Oh my gosh.

MAB: He thought that I needed to understand and know.

TM: Okay.

MAB: It really was with Stuart and George that introduced me and Mary Ellen to the whole terrain of the plateau. I mean, we would go into the White Mountains across the plateau. We would go to the through the Grand Canyon. George insisted that we go to the North Rim, and we came down in bad weather, slippery, slick weather, down the Hurricane Slope, the Hurricane Cliff near, is that near Mt Trumbull.

TM: Yeah, oh my gosh.

MAB: Four of us packed into his ‘67 pickup and oh gosh, he took us to Coral Pink Sand Dunes in southern Utah. In those days, nobody was there, and was it was sort of before the off road vehicle enthusiasts.

TM: Right. Right.

MAB: It was like virgin pink sand dunes.

TM: Oh my gosh.

MAB: Covered with yellow, giant yellow daisies. So I think it's the coreopsis, and it was public land, I think. And we had no compunction about picking a whole bunch of daisies. We covered the dashboard of his pickup with daisies.

TM: Oh my gosh.

MAB: And drove in to Kanab to get gasoline. And in those days, that was summer of '67 "and if you're going to San Francisco" it was heavy, heavy duty hippie time.

TM: Okay.

MAB: And everybody in the Four Corners area was paranoid that the hippies were coming from San Francisco to invade.

TM: Oh, my gosh.

MAB: And so when we drove in, "the flower children," when we drove into Kanab everybody disappeared, and we had to pump our own gas. And you didn't do that in those days.

TM: Wow. Okay.

MAB: Back when people, you know, the service guy would pump your gas and wipe your windshields.

TM: Right. Check your oil if you wanted and all that stuff.

MAB: So we were the flower children even though we had cowboy hats and, you know, we looked straggly because we've been camping.

TM: Right.

MAB: Anyway, so hiking into the Canyon with them, with the interns, was just a priceless, new experience for me.

TM: So you'd already been backpacking, though, in the Sierras. So that wasn't new to you, but what was new to you was the Colorado Plateau, was the Grand Canyon and the White Mountains and off into a Southern Utah, Arizona Strip. Wow.

MAB: Yeah. The other aspect that was new to me was going down first and then having to climb up.

TM: Yeah.

MAB: When you're tired. It's a whole different ballgame to go into a canyon and then hike back out, instead of going up the mountain and then down.

TM: And then just kicking your feet out to kind of plod home. Yeah, now you have work to go home. You bet.

MAB: Exactly.

TM: And where did you go hiking in the Canyon then?

MAB: Oh gosh. Well, Bright Angel, of course.

TM: Okay.

MAB: And Kaibab Trail.

TM: Down to Phantom Ranch?

MAB: I don't remember getting to Phantom Ranch the first few times. We did Grandview Trail and down to the mine, and that's where I first learned about violent green swallows because they were whizzing past us. You know, just, you know, singing in our ears. It was really a neat experience, kind of an eye opener. Sit and meditate with the violent green swallows.

TM: Yeah, just zipping by your ears like gunshots, just pew!

MAB: Yeah.

TM: Wow. Was that like a day hike down there to the mine and then back up the Grandview?

MAB: Yeah, I think it must have been a day hike. I don't we may have camped at the rim.

TM: Okay.

MAB: And let's see. This other archeologist, Cal Jennings, was one of the archeologists, and he took us up Red Butte.

TM: Okay.

MAB: And we scouted all over, you know, kind of did a visual survey of Red Butte.

TM: So let's see there's Red Mountain and there's Red Butte. And I get, always get them confused. One of them's by the old Grand Canyon airport, which had the big hangar off the north side of the mountain. And the other one is an amazing volcanic sort of tufa, sort of cinder cone

thing. And I get them confused. One of them's like halfway between the Grand Canyon and Flagstaff, and the other one's much closer to Tusayan and the South Rim.

MAB: Okay. This is the one that's sort of halfway. And I thought it was Red Butte because I'm pretty sure there was a cap rock and that had protected the Moenkopi formation, or something. That's the red.

TM: Right. Right.

MAB: Am I saying it right geologically?

TM: Well, I.

MAB: Whatever the red sandstone, I'm pretty sure it was red sands, that overlies the Kaibab.

TM: Exactly, exactly. Yeah, yeah, okay. And that's Red Butte. And again, I get these two terribly confused, but I think that's much more, much closer to Tusayan. You drive quite a ways out from Flagstaff. You go through Valley and head up toward the South Rim. It's off on the east side of the road there.

MAB: Okay, I'm maybe totally confused. I haven't been there for 56 years.

TM: Yeah.

MAB: And at the time, in order to get there, we were going through what had been juniper woodland. I mean, a really nice juniper forest that had been totally chained, and they would have two giant bulldozers and an enormous chain. I mean, you couldn't lift one link that's between the two and just tearing down this amazing juniper forest in order to make.

TM: Wow.

MAB: Theoretically, to make grasslands for cattle.

TM: Right, right. What were your thoughts when you saw that for the first time?

MAB: I felt this disastrous feeling in the pit of my stomach. What are they doing? You know, disturbing this land, disturbing what is so successful.

TM: Yeah, yeah.

MAB: Just for another buck.

TM: In such a huge amount of slash and burn over so many square miles for as you say, for so little return.

MAB: Yeah, for a bunch of hamburgers.

TM: Yeah.

MAB: And we know, in retrospect, that doing that disturbed land is going to be a big, major siren invite for invasives.

TM: You bet, you bet. Yeah. One of the things I wondered about, in the 1950s the museum did a lot of salvage archeology in Glen Canyon. Lex Lindsay have done that, Christy Turner had done that for the museum back in the day, in the late 50s, early 60s. Was that the material that you were sorting out, or were you sorting out other sites from other areas?

MAB: We were not doing Glen Canyon. The museum at the time I was there, had grants for salvage archeology, and one of the big salvage projects was the Black Mesa to Page Railroad.

TM: Oh, wow.

MAB: The route that that was going to take for the coal to go to the coal burning plant. And so we were salvaging all along that route, you know, like through Cow Springs and then to the west towards Thumb Butte.

TM: So were you walking the flagged line that the railroad was gonna take?

MAB: No, they somebody, I guess maybe Cal Jennings or Lex Lindsay, or somebody had, and Lex actually was one of the other archeologists there. They had already scoped out which, you know, where the sites were most likely to be productive for us to dig, because we had to pick and choose where to concentrate our efforts.

TM: Okay.

MAB: So the sites that I was involved with excavating and mapping, you know, with an Alidade, all that stuff the whole time, you know, we didn't have any satellites.

TM: Right.

MAB: Up there.

TM: So plane table work there.

MAB: Exactly.

TM: Okay.

MAB: So, yeah, I learned how to do that. And let's see we tried to make it instead of just grunt labor. It was pretty exciting. There were things that we found that just meant a lot. Oh, gosh, we ran into a by accident a little. Apparently it was a child's burial. I didn't see the burial, but I did see what came out. There was a cup. In those days they didn't cleanse us. We did have native

people Clive that, let's use Clark Peshlakai. And I can't remember the other indigenous people we had on the dig, but I do remember Clark Peshlakai, and his family had lived at what became Sunset Crater area.

TM: Oh, okay.

MAB: Anyway, we found this beautiful little ceramic mug with a handle that was a bear.

TM: Oh, my gosh.

MAB: Oh. It was very moving to, you know, you just are swept into the lives of somebody else from years ago. It wasn't just science. At least that's how it struck me. It was very personal.

TM: Wow. What do you remember about Clark?

MAB: Oh, gosh. He was a really gentle, wonderful person, and alcohol was a problem. And there were times when on Monday morning, Cal Jennings would have to bring them out of the Flagstaff pokey, that they picked up for being drunk on the weekend.

TM: Yeah, sure.

MAB: And so, yeah. So they've, you know, we needed them, and they were good workers. So they drive them out to the site, you know, like up to Cow Springs near Black Mesa. And he invited something very special to me. He invited me to meet his sister at their family hogan.

TM: Wow.

MAB: And yeah, that meant a whole lot to me.

TM: Where was their hogan?

MAB: Well, it was near, it was north of Sunset Crater out at the edge of Wupatki.

TM: Okay.

MAB: And I don't know if it actually was on Wupatki land now that. Yeah, maybe. I'm not sure where it was.

TM: But well, just, I mean, just across the Little Colorado River, there's some hogans over there. So it could have been across the, there's a ford there, just north of Wupatki.

MAB: I'm not recalling.

TM: Drive across the Colorado River.

MAB: Interesting.

TM: The Little Colorado River, I'm sorry.

MAB: Right, right. Yeah, another time. So it was summer, and the monsoons hit, and things got really wet, you know, doused us in our archeological camp. But so we went back to MNA. There was one weekend where Stuart said we got to go see what's happening at Grand Falls up the Little Colorado.

TM: Okay.

MAB: Took us out there. What's normally a dry or trickle of a fall, and it was gushing, you know, red, red water coming over the cliff.

TM: Did you get into the spray and get all mudded up that way?

MAB: No, we didn't do that, but we appreciated it. It smells so earthy.

TM: Yeah.

MAB: Wonderful.

TM: Yeah, oh my gosh. So during the week, while you were out at excavations, were you camping out on the excavation site there?

MAB: Yes. I think, yeah, I can't remember. We must have been out for a few days, but we would also go into Kayenta and eat, and that's where I learned about green chili.

TM: Okay. Nice.

MAB: Oh gosh.

TM: Yum. What was Kayenta like back in '67?

MAB: Oh, it was pretty small. I think they had just begun building some government housing. But there was a good trading post in, I guess, a couple of trading posts. Trying to remember. Yeah, I don't know if there's even a traffic light there. But The Blue Kettle or something, little cafe, I think that's where we had our where I had my first green chili.

TM: Okay.

MAB: And it was, must have been local hot stuff, or at least has chili.

TM: I did want to ask you what you remember about Lex Lindsay.

MAB: Oh gosh. Very highly principled archeologist. Very stalwart, dignified. Good natured, demanding of perfection. Wonderful guy. I respected him tremendously.

TM: Okay. And also Kathleen Bartlett.

MAB: Oh, yeah. I just had interactions with her as, she was such an archivist, and she was keeping the library at Museum of Northern Arizona Research Station. She would provide us with, you know, if we had questions about needing resources. She could put her finger on anything. I had the feeling that she was preserving information that really needed to be there and available. Yeah, she was elderly, but, you know, timeless.

TM: That's Katherine Bartlett, isn't it?

MAB: Katherine Bartlett.

TM: Yeah, yeah.

MAB: And I didn't know if she, I'd like to chase down or whether she was related, because my my forebears had the name Bartlett as well.

TM: Oh, interesting.

MAB: Then there was Billy Coyne, who was in charge of maintenance, and he was Hopi and knew how to fix anything from plumbing to mechanics, you know, to vehicles.

TM: Nice.

MAB: And there was Carl, can't remember his name. He was in charge of the language, the linguistics program documenting Hopi language. Carl Voeglin, I think.

TM: Okay. What do you remember about Carl?

MAB: Very you know, scholarly, Germanic, conscientious, trying to get the language documented before it was gone.

TM: Oh, wow.

MAB: You know, on a mission.

TM: Nice.

MAB: And I'm sure it's some of the things that he documented are cherished now by the people.
TM: Yeah, yeah, no kidding. What a powerhouse.

MAB: Yeah. I just felt like I was in the midst of these amazing giants, thinking and caring people, aware people, you know, just seeking to understand the plateau and the cultures deeply.

TM: Lovely. So you guys would be working on a site during the week, and then weekends were your own and you could travel around.

MAB: Yeah.

TM: Did the museum provide you with food or with a stipend for food? How'd that work?

MAB: I think we had to buy our own food. But there'd be some events. I remember Harold Colton, who was one of the, essentially the founder of Museum of Northern Arizona, was still alive then, and we celebrated. It may have been his birthday or something. It was a big barbecue with tons of food, and the whole staff and volunteers and interns were invited. It was quite the celebration,

TM: Wow.

MAB: And all the leftovers went to the interns, so we had re-re-refried beans for the rest of the week. But yeah, we were pretty much in charge of our own food. We grouped our efforts at least the women in the women's dorm. And I had brought sourdough starter. I wasn't really into baking. I brought some from the east, and I put it in the closet. Did I tell you this?

TM: No.

MAB: It was so cold in Flagstaff for the summer that I was wearing my winter clothes, and I wanted to keep the sourdough starter protected, so I put it in the closet with the water heater.

TM: Okay.

MAB: And it responded quite emphatically, and we decided it was the starter that ate Flagstaff, because it was it bubbled over.

TM: Wow.

MAB: Gosh. Like some Dr. Seuss story.

TM: So it really took off, then.

MAB: Yeah, it was very happy. I had to slow it down.

TM: But you kept it going.

MAB: Yeah, I ended up, yeah. In my first years in grad school, I would bake every weekend.

TM: Wow, okay. So is that where your nickname Muffin comes from?

MAB: No, that was because of my general morphology when I was little, and my big sister said that's what it looked like.

TM: Okay, all right. But you were baking every weekend, or at least, at least, even that summer at the museum. Or was that a little.

MAB: Yeah, I did some baking. Maybe I ended up losing that starter. I can't remember. Anyway, but I was trying to keep it up and feed it and use it.

TM: Wow, very fun. So as the summer progressed there in 1967, what were you thinking you were going to do that fall?

MAB: Okay. I was invited by all the archeologists to join to attend the Pecos Conference, which is the amazing Southwestern Archeology Conference, and it was held in Tucson in August.

TM: Okay.

MAB: Of the summer. My God, they must have gotten really good rates on the motels.

TM: It was hotter than a skunk and very humid. And there was nobody in town, right.

MAB: I was not adapted to the heat.

TM: Oh, my gosh.

MAB: Anyway, it was exciting because I had done a paper as an undergrad in an archeology class, a paper about tree-ring dating, and that's how I had learned about Museum of Northern Arizona doing that paper. And, of course, I had learned about the tree-ring laboratory at University of Arizona as part of it, so I was really curious to go to the tree-ring lab and to meet the personnel. And I did meet Bear Claw Bannister, Bryant Bannister, who was the director of the tree-ring lab at the time and played an archeologist himself, and attended the Pecos conference. And he was known for being, you know, casting a lascivious eye at young women.

TM: Is that where the Bear Claw came from?

MAB: I hesitate to say.

TM: Okay, good enough.

MAB: His contemporaries named it that. But anyway, so he said, yes, I think I can find a position for you at the tree-ring lab.

TM: As the old organ starts playing the scary music, you know, in the background. But you didn't know.

MAB: Yeah, really. I was excited to think that I could land a job. And he did offer me some sort of assistantship. I had to become an unclassified graduate student in order to qualify.

TM: What does that mean?

MAB: Well, I had hoped, I wanted to think about whether I was bright enough to go for a master's.

TM: Right.

MAB: And so I was gonna put a toe in the water, right?

TM: Okay, so you're gonna be working on your master's. You just haven't declared yet.

MAB: That's correct.

TM: Okay.

MAB: Yeah, I hadn't really, well, it was also a way to get residency because I couldn't afford out-of-state tuition.

TM: Got it.

MAB: So just gonna putter along and become an Arizonan. But there were some really good classes that I wanted to take, among Introduction to Tree-ring Dating. And then, oh gosh, I can't remember, Ecology of the Southwest.

TM: Okay.

MAB: So it was from then on, from August, from the Pecos Conference on through the rest of my work at Museum of Northern Arizona, I knew where I was going. I knew that I would have a job for the fall.

TM: Okay. And you would have, were you targeting to be in Tucson going to the U of A when the semester started to pick up those classes?

MAB: Yes, yeah. And I think the internship cut off just before that anyway.

TM: Got it. Were they paying you for that internship? I mean, were you making were you able to save any money? Were you making any money or not?

MAB: It was peanuts. Yeah, I was a starving student.

TM: Okay.

MAB: There was some stipend. It may have been 200 a month or something, I can't remember, but with lodging.

TM: Yeah.

MAB: And that was survivable in those days.

TM: Yeah, but if you're gonna go to U of A, I guess, I guess the U of A back in '67 was, I dread to think maybe around $100 a semester, maybe less?

MAB: Yeah, I think we paid by the unit. I took six units, and I don't think it was more than 100.

TM: Okay. But Bear Claw said he could give you a job. So you thought, okay, well, at least I can make some money there.

MAB: Oh, yeah.

TM: Okay.

MAB: And my dad supported me, too. He would send a little check make sure it could have some funds $25 a month.

TM: That's better than nothing and back in '67 $25 went a ways.

MAB: Yeah, I could go out and have a taco.

TM: Right, right.

MAB: And then some.

TM: So what kind of work did Bannister employ you doing?

MAB: Okay. Eventually, I, you know, I don't remember exactly what my title was. I think I was assistant for research, Junior assistance for research or something like that. And I was learning tree-ring dating. I would sand then I would mount the core samples and sand them down and plot those rings. You know, I was doing the real dating work, but I was also typing records. I typed so many on collection sheets. I typed all the data from all these different archeological sites all over the Southwest from Puerco ruin I guess there may have been some Glen Canyon stuff, but all over, you know, Show Low sites. And so I typed in the collection place and the collection number, and then the date that was derived from whatever it was, charcoal or living trees. Or archeological wood. Usually the archeological specimens were normally charcoal because charcoal, it lasts, it doesn't rot.

TM: Oh, interesting.

MAB: And when you break it in a certain way, you can see the ring vividly, the narrow rings. So anyway, they're datable. So I did a lot of those grunt work and the typist work. When I remember Julian Hayden coming in, he was a good friend of Jeff Dean and Bill Robinson. I was working in the archeology section of the tree-ring lab at the time, and Julian Hayden met me and said, I see that you're – in this deep, wonderful voice – you're Bill Robinson's Girl Friday.

TM: And this was, was this in the stadium? Was that where the offices were?

MAB: Yes, the west stadium, believe it or not. And we were on the second floor. The first floor, the ground level, was the mimeo bureau. That was the publication bureau for the university.

TM: Oh, wow.

MAB: And run by a battle ax. And we could hear her giving instructions down below. So on the second level, we could hear all the football players and other athletes running up and down the bleachers above us. Thundering up and down on their exercise runs, after you do 20 push ups, you've got to run to the top of the stadium and back.

TM: Nice. Where did you stay?

MAB: Oh, gosh. I first stayed in a little off-campus house in a single room. Somebody had converted their house into student housing, and we all shared the kitchen. Each had a shelf supposedly in the refrigerator. It was disaster because people would steal, steal your food, and it was so blasted hot. I had an evaporative little contraption in my room, tiny room. It was an evaporative cooler that you put water in and it's a blower. It wasn't in a window, and pretty soon the whole room would be so humid and hot.

TM: Right. Oh, my gosh.

MAB: I gave that up pretty fast. Since I didn't have time to hunt for an apartment, I went to the U and said, Do you have any graduate student housing? And they said, Oh yeah, Gila Hall. And I went there, that's where I experienced the sleeping porch situation.

TM: Can you talk more about that?

MAB: Okay, all right. We had a room I shared with a roommate, fellow grad student. She was in speech and hearing. And then at night, we couldn't sleep there. We could only studied there, and we had to go to this commons sleeping porch. There was open, you know, screened porch, bunk beds. And that was a disaster, too, because all of us women had to be sleeping there. And it was like the weakest link syndrome. The latest person would come, you know, not barging in, but you could hear them squeaking into the springs of their bunk bed, and then somebody that's wanting to get up at 5:00 o'clock in the morning. So they're, you know, to write a paper or whatever, and they, their alarm would go off and wake you, so you never got more than about four or five hours sleep.

TM: Wow. And then, of course, people be snoring, I guess.

MAB: I didn't notice that so much. Maybe I was one of them. Oh, gosh. But then on the rooftop of Gila Hall. This is off of Park Avenue on the northwest corner of the old campus, encompassed by the salt wall. On the roof most of the girls would go up there and sunbathe and, you know, oil

themselves up with baby oil. I don't know that they were visible to the Davis Mountain helicopters.

TM: But those guys would have flown over slowly, if you were so, yep.

MAB: Oh, gosh. But we were on the main flight path of the jets. There weren't too many helicopters.

TM: Right. And I'm trying to figure out this sleeping porch thing because eventually summer turns into fall, into winter, and it's going to get colder. How did that work out?

MAB: It was a bear. It would get really cold at the sleeping porch.

TM: Wow.

MAB: Yeah. It was supposed to be for our health, you know, to be breathing the real air, probably the jet fuel.

TM: Oh, my.

MAB: Yeah.

TM: I mean, were you like just under a gazillion blankets?

MAB: Yeah. You did what you could to stay warm or cool, as the case may be. Anyway, I got out of that as soon as I could. Got an apartment.

TM: Okay, And what were you making working at the lab?

MAB: Gosh, wow. I think it was, it started off as like 2,000 a semester.

TM: Wow, that's pretty good, isn't it?

MAB: I think so at the time, I was pleased. So I can't remember, but it went up to maybe even 4,000 a semester. No, I think it was more like 2,000.

TM: Okay. And did that because you were working for the university, did that waive your tuition?

MAB: Yes. That was the key. That was what made it possible for me. My tuition was much less than it would have been.

TM: All right, all right, And you were street savvy enough to stay away from the bear claws of Bear Claw.

MAB: Oh, no. He was a principled guy.

TM: Good.

MAB: A good scholar and a good administrator.

TM: Nice. Who else did you meet in the tree-ring lab?

MAB: Okay. So I mentioned Bill Robinson, one of the archeology tree-ring people, and Jeff Dean, who is still there.

TM: Wow.

MAB: Amazing. He did the tree-ring dating of Betatakin and Keet Seel and Inscription House. I think that's his dissertation, but he's an expert on the plateau and the tree-ring dating of probably every ruin there.

TM: Okay.

MAB: Yeah. And then in the other part of the lab, Wes Ferguson, was in charge of the tree specimen collection, but samples of every kind of wood. He had a file cabinet. But instead of key sort cards, they were like four-by-eight blocks of wood so that you could see the vertical section, longitudinal section and the cross section. They could get a sense of the structure of the wood fiber.

TM: Nice. What the grains looked like and how the rings would present themselves, huh.

MAB: Right. The reference collection for the lab. Then he was the expert at the time on dating the bristlecone pine sections.

TM: Okay.

MAB: And he was harvesting or collecting core samples from ,continuing the studies that had been done before on bristlecone pine by Edmund Shulman and others.

TM: Okay.

MAB: And then in the hydrology and climate there was Val LaMarche, and I later worked for him and he’s a hydrologist, geologist, and Cal Fritz, who was very much interested in the correlation of tree growth and climate.

TM: Okay.

MAB: And I worked for him later, too, and helped him edit his tree-rings and climate textbook with the first jolted, trying to exactly correlate climatic events with a date on them.

TM: Okay. So you would come into this thinking about geology and geosciences. And that summer at MNA, you were introduced to the archeology of the plateau up there, and then moved to Tucson, and you were in tree rings. What were you thinking personally? How were you wanting your personal educational goals to go?

MAB: I was still very interested in archeology, and historical archeology, and geology. And the neat thing about the program that I eventually signed up for that after a semester as an unclassified student, I said, no, I want to, I want to get into this. And the program was called geochronology. It was a kind of a catch all of all the methods, it was under geosciences, it was all the methods of dating Earth time.

TM: Okay.

MAB: Tree ring being one, but thorium and, you know, uranium dating, you know, radioactive dating.

TM: This would be C14, because they had a C14 lab, didn't they?

MAB: Yes, C14, that was Austin Long who was in charge of that. In fact, before I came to U of A, did tell you about that, too? The winter of my last semester at Brown there was a AAAS meeting, American Association for the Advancement of Science meeting in Washington, DC. And I already knew at that point that I wanted, this is when I was a senior in college. I knew that I wanted to go to Flagstaff and be at MNA. I had already applied there, and I was very interested in what was going on at U of A and tree rings and turns out I met the head of the department, the geosciences department, at that meeting, and I met Austin Long. I was in, you know, a crowded entryway or something, and heard somebody talking about University of Arizona, so I joined the conversation and met them, so I knew Austin before I even got here.

TM: Oh, very cool.

MAB: Yeah. So that was exciting, too, because Wes Ferguson at the time was taking 10 year segments of known dated bristlecone pine and having Austin date each little decadal piece of bristlecone pine so that he could calibrate the C14 scale.

TM: Oh, wow.

MAB: Instead of being a straight line and assumed degeneration, or whatever you call it, of the C14. Now we've got this zigzag graph because of the work that Wes Ferguson was doing that had Austin date each decade of bristlecone pine material.

TM: Oh, wow.

MAB: To see how the C14 would vary from one decade to another.

TM: So this is radioactive decay, which you would assume would be some sort of linear kind of curve.

MAB: Exactly.

TM: But it wasn't?

MAB: Well, the chemical assumption, the chemical decay, yes, is a straight line, but the atmospheric C14 vary because of the sun and sunspots and the way.

TM: Oh, interesting.

MAB: It incorporated into the atmosphere, the upper atmosphere, and then down into the atmosphere that the bristlecones were breathing and all other creatures were breathing.

TM: Very cool. Okay. Do you remember who the head of the geosciences department was?

MAB: Well, oh gosh, I was trying to remember his name. Really neat guy, very handsome guy that had come from Nebraska. He'd been president of the University of Nebraska, and he's all into football. Oh, gosh, I can't, drawing blanks on his name. But the head of the geochron program, geochronology program, was Tara Smiley, and he his office was at Tumamoc Hill, and along with Paul Martin and other really interesting geochron people. Let's see, I'm trying to think who was. There've been so many but, but Tara Smiley was the head of geochron geocronology. So my major professor at the time.

TM: Okay. All right, So that would have been the spring of '68.

MAB: Yes, well, yes.

TM: I mean, did you, did you go up to the Hill that fall to visit, to visit with Tara for that?

MAB: I think I did. I think I met with him and talked with him. I also was meeting with Vance Haynes, who was teaching a course that was cross listed in archeology, anthropology. It was paleo, no that was Paul's course was Paleoecology and Man, but Vance Haynes's was. Oh, gosh. Anyway, he was studying past environments to be read in the strata of archeological sites. Geology of Early Man Sites course. So Paul's class and Vance's class were just like a major excitement for me.

TM: So you took those in that spring of '68?

MAB: Yeah.

TM: And so I'm thinking Vance would have, did he take you all up to Tule Springs to look at the cross sections up there?

MAB: No, we didn't go to Tule Springs, but Pete Maranger was on the hill at the time. He had been researching that. We spent time at Murray Springs, at San Pedro.

TM: Right.

MAB: And that's the cover of ‘68 I think. I didn't dig in Murray Springs until summer of ‘69.I can't remember. Oh summer ‘68 I took a course, in the it was Natural History of the Southwest and it was a field course. Field Natural History with Steve Russell the ornithologist, and we went all over the southwest mainly basement range area, not way up into the plateau.

TM: Okay.

MAB: Studying the Sky Islands and life zones and the plants and animals and substrate of each of those areas, you know, into the Sierra Ancha’s into the Grahams, you know, Pinaleno into the Chiricahua’s out to the Cabeza Prieta. He had us doing lots of research on the birds of each of these places, too, but we got a good picture of the whole ecology of the Southwest.

TM: Wow.

MAB: And it was a priceless experience and I would recommend that anybody who's doing any research in the sciences. Well, the life sciences of the Southwest need to get out in nature. You can't learn it from videos, you can't learn it from books or Zoom meetings.

TM: Right.

MAB: You've got to be there. It’s one of my themes.

TM: Lovely.

MAB: How can we understand the earth. How can we understand climate change or any of the threats of that if we don't understand the real settings as they are now.

TM: Right. You know, Muffin would be going on for about an hour here. I wonder if the start of 1968 is where we should pick up next time. Because I'm gonna want to ask you about, you know, the people on the hill. Smiley, Meringer, Martin. Haynes, of course. And your recollections of these people and their classes you took with them.

MAB: Okay. Sounds good.

TM: Eventually it's gonna get you back to Grand Canyon, but we're gonna hold that thought for a while.

MAB: Okay. Sounds good.

TM: Alright. In the material we just talked about which landed you in Flagstaff in the summer of ‘67 to going through the internship there and then off to U of A at the tree-ring lab and then shifting into geochronology, is there anything else you want to bring in that we haven't covered?

MAB: I think we've touched on a lot of things. Something else might come up, but that covers it for the time being.

TM: Okay. Very good. Well, with that, let's conclude Part 2, of a Grand Canyon oral history with Martha Muffin Ames Burgess. Today is Tuesday. It's March 26th, 2024. My name is Tom Martin and Muffin, thank you so very much.

MAB: Oh, el gusto es mio. Thank you, Tom.