

## **Marjorie Hlava Oral History Interview**

**Interviewed by Robert V. Williams, November 4, 2012, Lexington, SC**

RW: This is an oral history interview with Marjorie K. Hlava on November 4, 2012.

RW: I have here born June 9, 1946.

MH: Right.

RW: In Manistee, Minnesota.

MH: Michigan.

RW: Michigan? Ah, OK.

MH: Manistee, Michigan, yep.

RW: What's the abbreviation for Minnesota?

MH: MN for Minnesota, MI for Michigan.

RW: OK, tell me a little bit about your family background, parents, etc.

MH: I'm the oldest of four children; I was born in Manistee, Michigan. My Dad received a bachelor's in forestry and my Mom's was in nursing at the time they got married, primarily because World War II dictated what you could get funded for and what you couldn't. My Mom was pre-med at the University of Michigan but she had grown up quite poor because her father died when she was young. My Dad was raised in the Hershey's Boys' School for orphan and half-orphaned boys and so money was not particularly forthcoming. So they were there doing whatever they could for work and any other kind of funding they could get. For my Mom, she was pre-med but in World War II

the government would pay for a man to get a medical doctor degree but they wouldn't pay for a woman to get a degree in medicine. But, they would pay for a woman to get a nursing degree, so Mom thought, pffft [on you], free school versus slugging work full time while going to school, she'd go into nursing. So she abandoned med school--she was in her third year--and went into nursing. The war ended and I was one of those leading edge baby boomers, as you can tell from my birth date. And, as I said, Dad was in forestry, he finished his bachelors after the war and once graduated Dad wanted to get a real feel for the timber industry. So when I was six weeks old Mom and Dad packed up all their worldly belongings and we moved to Northern California and lived around Eureka, Cutten, Thorn, Redding, Mount Shasta, Carlotta, and other places. By the time I was six I'd moved 18 times. We did everything from living in real houses with real floors to houses with no floor to camping in the Van Heusen River on a sand bar and so on. Those were really good stories and exciting times. I spent my very young days and I grew up in the big woods. And then when I was just over five, one of my Dad's friends got hit by a falling tree, died with a crushed skull in Dad's lap and Dad said, "That's it. It's time to go back. We've had enough of this kind of life." Mom needed to get more training because she couldn't fix a crushed skull, although, in retrospect, I don't think she ever could've fixed a crushed skull. It was a very hard thing. So my Mom, my two uncles, my younger brother, Larry, and I went back cross country to the University of Michigan. I went to part of kindergarten there. Larry and I moved in with our grandmother up in Manistee while Mom and Dad finished up their degrees at the University of Michigan. Dad came back a little later than we did and he got a Master's in Economic Forestry. I did kindergarten in Ann Arbor and then Manistee and then back to

Ann Arbor. Dad got a job with Dant and Russell, a lumber sales company, and we moved cross the lake to Wisconsin. By that time I was in first grade. I first went to first grade in Manistee and then finished in Mequon, Wisconsin. Mequon was a very upper class neighborhood and I was from the woods! They sang songs I did not know so one day I sang "all buried in a barroom" for them. It was a Christian Temperance Legion Song but the teacher was aghast at the lyrics from one so young. Early troublemaker, sigh! Starting in second grade, having gone to all those different places, three different kindergartens, two different first grades, we landed in Caledonia, Wisconsin, a rural community about twenty two miles south of Milwaukee, twenty two miles west of Racine, and seventeen miles north of my high school. It was a mile and a half away on a gravel road. It was a charming one room grade school called Forest View Grade School. From second grade until eighth grade that's where I got my schooling and it was a perfect kind of schooling for me. There were only eight families. There were 32 kids and we all knew each other really well. The range and capability of the group was quite broad but it meant that the kids that were a little faster and got a little more support at home and helped tutor the other kids. It was a great way to support a lot of different learning styles. For me the bookmobile came out every two weeks with two big long wooden--I suppose they were not as long as I think they were because I was smaller then--but big crates of books and by the time the two crates went back, two weeks later, we'd pretty much read everything that was in those cases and they'd come back in again. That was one of those very exciting things that would happen for me in grade school. I learned after a while you could request certain books. I could read them again and again and again. The parents were very involved in school activities. We had frequent plays and other events

at the school. When I was in sixth grade they added a second room, a furnace with a boiler to replace the oil heater, and indoor bathrooms. The out houses were really cold in the winter! I went from there to Union Grove High School in Union Grove Wisconsin. The really big hardship of my high school life was due to the two hour bus ride every morning and every night on the bus. I'd finish all my homework on the bus but they still made us take our books all the way inside every night. We had to haul those suckers up to the house at night and haul 'em back the next morning. It was a great injustice! I really thought they should have put lockers on the bus. It would have been much easier for us, but it didn't matter. I hung around with a fairly small cadre of kids that formed what, I guess, today would be an honors group. There were seven of us. We moved together through school pretty much lock step in the advanced classes and because there were just a few of us, we really got a lot of wonderful attention. There were 123 kids in my high school graduating class. Almost all the boys either went to a military academy or to the Vietnam War on graduation. I graduated in 1964 and we lost a lot of guys-- lost 23 guys -- to the Vietnam War from that class, so it... it had a significant impact on the rest of us but they were gung ho. I mean they could've gotten exclusions, many of them, because they were the senior kid on the farm but they went on to the war nonetheless.

RW: Now, this is a rural area, right?

MH: It was.

RW: With farms and woodlands, your father was still working in the...

MH: My father was an economic forester by then, so he was working for a company called Dant and Russell and later he founded his own company, John's Lumber Company. That

company actually went bankrupt my junior year in high school which affected my college career quite a lot. There was no money to spare--just like my Mom and Dad had had no money--so Dad paid for my dorm--room and board at the dorm--for the first year, which was \$900 and tuition back then was \$125 and I got a state scholarship for the tuition and some other little scholarship things. I went to the University of Wisconsin at Madison, graduated from there. It was a big adjustment to go from the rural farming community to a campus of 25,000 kids. The worst thing was that they locked us up at night. I had never been locked into a building at night before. Many of the farm girls would go up and sleep on the roof of the dorm so we could feel freer. It took me six years, one baby, my marriage and two other schools in between to graduate. I went to the University of Minnesota, field camps, and what was then Wisconsin State University at River Falls. I met my husband first semester of my freshman year and married him three years later. He was a geology major and I was a botany major with a geology minor. Well, you couldn't do much with one of those unless you got a significantly advanced degree, so that's why...

RW: Now, this is '64 to '70 you were...

MH: Right.

RW: ...at Madison, OK.

MH: ...and then I got certified in secondary education and taught high school at New Richmond High School, which is just 22 miles north of River Falls, where my husband had gotten a job as assistant professor as a geologist teaching geology in the department of plant and earth science at Wisconsin State University at River Falls. That was a good time. It was

cold up there. I remember one day, driving north from River Falls to New Richmond, home of the Doughboy Turkey, and my car just stopped dead. I was going 65 miles per hour and the engine froze. It was just... it was so blistering cold.

RW: This is as far north Wisconsin, right?

MH: It is, it is and it was, I don't know, it was like minus 65 wind chill, I don't know what the actual temperature outside was...

RW: I remember.

MH: ...but, ah, you know, I had my boots on and my extra socks and my insulated underwear and in those days all women were wearing dresses, so I had on a dress, but what was bundled over the dress was quite a lot of stuff and everybody'd go out every two hours and start all the cars in the parking lot. We just left the keys in the cars because we weren't worried about anybody stealing them but we were worried about the engine blocks freezing...

RW: Yeah, yeah.

MH: ...and so it was, it was chilly.

RW: Chilly?

MH: Yeah, so...

RW: Ha, ha. I remember those 60 below nights in Madison.

MH: Yeah, and then the house we had in River Falls didn't have insulation. It did have a beehive in the north wall, so in the summer, you could hear the bees fanning in the hive

'cause it was hot but in the winter our neighbor would bank it with snow so he'd put a snow plough on the front of the tractor and bank snow against the house and that would keep us pretty well insulated for the winter months. So they were good times, they really were. Paul and I decided to go back to school and applied here and there and were particularly enchanted with the faculty in the areas that we wanted to work in like at the University of New Mexico, in Albuquerque. So Paul went down there to work under Dr. Emmons and I went down there to work on a Master's in Botany, and got my thesis topic approved and got funding for it to do the revegetation of mine dumps at the Chino copper pit under Silver City and started work on it.

RW: Now, why New Mexico?

MH: Well, because from my point of view the plants there are very endemic and for Paul's point of view--he is a mineralogist-geologist--he was particularly interested in the pegmatite variety within the state. There is a lot of volcanic activity as well as metamorphic. It's the original fault block Graben system for fault blocking, you know, the up and down block things in the earth's crust? But it was also an awful lot of pegmatites. He loves the geology of the volcanic intrusions into rock, which messes up the stratigraphic beds and then, if it's slow cooling, the crystals that grow out of that are really interesting. So he was fascinated by that variety and that's why we went down there. Of course, that's not what we did once we got there. I was working on that mine pit revegetation and Paul was working at the geology department. He got a teaching assistantship at first, and then he got a research assistantship at the Institute of Meteoritics. He learned how to run the electron microprobe under Klaus Kyle and started working on the moon rocks and was able to publish several papers on the things that they found in the moon rocks, including

new, new minerals and so on. I got a job at a NASA installation, working on the NASA information system at a place called the Technology Applications Center at UNM and [laugh] it meant both of us took a detour. So, though Paul is still a mineralogist-crystal chemist, he learned to use the electron microprobe, worked on the moon rocks and segued into materials analysis and eventually went to work at Sandia National Labs, where he was head of the Electron Microprobe Labs for 33 years. I got to work at NASA, first in that local institution/installation as what they called an information engineer. Then, I became information scientist and director of the group of people that did all the searching manually through the secondary print indexes and we prepared a lot of booklets of search results for researchers and other customers. I eventually took over the publication of five different publications there. We published bibliographies on heat pipe, hydrogen, remote sensing, solar thermal energy, and wind energy. We did those bibliographies and published them for a lot of years--I mean, NASA TAC published them. These were new cutting edge technologies and interesting times for deploying those kinds of technologies. Heat pipe, for example, is what they used to keep the oil running from Prudhoe Bay all the way down to Seward, Alaska in to Alaskan winters. You need a heated pipe to keep that slurry moving because otherwise it just gets all blocked up. Hydrogen energy has incredible variety of potential and lots of people have heard about solar and wind. And now of course remote sensing, then, fairly much in its infancy, because this was mid70s, has become an incredibly useful tool so that when people look at maps of the US and they zoom down on Zillow or an ordinance survey of some kind, or Google Maps they're really using those NASA photos. So it was heady times, lots of things to do with the information technology transfer. And then we...

RW: Now the NASA facility is in Albuquerque?

MH: It was part of the IAC system, which is the industrial application centers...

RW: Uh huh.

MH: It was one of six IAC's, as they call them, and the purpose of an IAC was to transfer all that technology stuff we were spending the zillion dollars on in the NASA space program to say this really has impact on the common man, so all those things that they were inventing so that we could get a man to land on the moon were also things that could be applied in lots of other venues. It was an initiative to try to transfer that technology--so that technology transfer operation is really what it was and it was part of the NASA Scientific and Technical Information Facility. It was their outreach program and NASA Scientific and Technical Information Facility - STIF - was located at the Baltimore-Washington airport--just outside of it actually--although its mailing address was BWI. It has since changed its name to CASI. I remember when CASI ...

RW: Let me pause you just a minute and make sure that I'm recording OK.

RW: Alright, we're resuming, you can go ahead. You're working with NASA and your husband is working with Sandia labs.

MH: Right.

RW: OK. But you're living in Albuquerque.

MH: In Albuquerque. Right. So, then UNM got another contract with the DOE Energy Information Center which was located in the Forestall Building in Washington, DC, part of the Department of Energy, and, they asked me to be the information director, even

though I was in Albuquerque. We had seven people in Washington, D.C. and 40 in the Albuquerque “affiliate” facility. We called it the National Energy Information Center. NEIC and NEICA, we had the National Energy Information Center, which was NEIC and it was located in the Forestall Building in Washington DC. And then the rest of the staff was at UNM, in Albuquerque in the same building as TAC. I’d go up and down between the floors a lot to visit my staff upstairs and because I was still Information Director at TAC the seven I had downstairs. I was also Information Director at NEICA and NEIC and the people at NEICA--which stood for the National Energy Information Center Affiliate--were located with me in Albuquerque. By this time I had two little kids, Heather and Holly, and Paul was newly at Sandia and I was still attempting to pursue a Master’s in Botany, although it was getting less and less hours available to do such a thing. The nice thing was UNM would allow me to take the credits, the bad thing was I wasn’t getting my field work done. But over time I abandoned the Botany Masters. I was really the only woman in the group--well there were some undergrads in the production department and secretaries. I was the only female information engineer, and then I was the only woman in management--with an all male staff and all male colleagues--so I learned to girl watch with the rest of the guys when we went for coffee, usually twice a day, at least once a day, and they were a good crew; they were really fun to be with. There was one guy there named Craig Lickness who actually had a Master’s in Library Science, which was an unknown commodity to me and he said, “You know, you are really doing professional work here, you should get a degree in this.” So, I tried but I was at the University of New Mexico and they didn’t have such a program; they did have certification for Library Technical Assistants and Library Aides. They would

periodically set up some kind of a program that we could do remotely. I entertained getting a Master's in Public Administration 'cause that seemed similar. In the end I gave it all up, didn't do it.

RW: Well, I have that you received the MPA degree.

MH: Nope, nope, I did not finish a Master's of any kind. I flirted with them but I never finished one.

RW: But you went off and on for four years?

MH: Oh, yes, [laughter] that I did, well I went all the time for four years but I never finished any of them.

RW: OK.

MH: So, my only degree is a baccalaureate from the University of Wisconsin.

RW: It says you have the MBA and IS University of New Mexico but not working on one....

MH: No, 'cause I did work on one...

RW: OK.

MH: ...but there was no degree granted because there was actually no program. So, I have a lot of credits; I took everything they could muster but never managed to get it cobbled together as a degree which was very frustrating for a while but in the end...

RW: So, you'd never heard of a Master's in Library or Library and Information Science?

MH: Well, I worked with...we had a librarian at my high school, Miss Ducky, and I worked in that library for several years and when I was at the University of Wisconsin, I did work in the Birge Hall Library. And I worked there for, I think, three years. It was...back in those days, they weren't so stuffy about who could do what and so one of my jobs there was to work the reference desk and file the books and stuff at night but, when I worked in the day shift, then my job was to reclassify the German botanical books from Cutter to Library of Congress Classification system. They had all been done in Cutter. It was an impressive collection and I re-cataloged those to Library of Congress. I reclassified them and I also re-catalogued them to update them, so I learned a lot about how that worked. Of course, in retrospect, University of Wisconsin does have a nice degree program, but that wasn't my focus at the time. My focus was on botany and actually, the wedding that I'm here [Lexington, SC] for, my best friend from college, it's her daughter that's getting married, we were in the botany program together.

RW: OK.

MH: It was serendipity to be here. Yesterday we went to the botanical gardens and today we went out to one bird refuge, anyway...

RW: In the 70s a lot was written about the difference between technical libraries and information analysis centers. I imagine you read that.

MH: I read a lot of that and actually one of the really nice things about being a TAC is they were really exploring the edges of what is now, I think, information science. And because I was where I was, they started working on digitizing a lot of that stuff and making it available electronically and you probably remember that NASA came up with this

system, this idea, and put it out for bid. And a company named Bunker-Ramo won the bid. And one of the other companies that had bid on it was Lockheed Missiles and Space and the guy who thought he really had it figured out and then didn't win the bid, lobbied hard and they gave him a consolation prize. So, Roger Summit, who was with Lockheed Missiles and Space, did what was known as the AEMS experiment. For twenty thousand dollars you get kind of the booby prize. He put together that "remote console" system known as the NASA Recon system. Because I was at a NASA IAC, I got to be a beta tester of it, so I got to know Roger really early in these proceedings, long before he hired Charlie Bourne and many others. I was... after about a year, I was logging about twenty hours a week online remotely via dial up first to Phoenix and later locally. Which was an incredible amount of time and then, whenever I didn't like something, I'd let the developers know. There was a system out of the Systems Development Corporation called Orbit, which was run by Carlos Cuadra, and there was a NASA system run by Roger Summit and then, not too long after that, Lockheed developed the Dialog system. But there was also Popinform and the BRS (Bibliographic Retrieval System) built by Jan England and others came along not too much later. The National Library of Medicine thing built on Elhill which was an amazingly complex. You had to take a two week training class before they allowed you to put your hands on the keys. At first, when these things first really became available digitally, I had to go across campus to the medical school and use their teletype machine to do the searching, so we would either type it online, which was very scary, very expensive, 15 cps (characters per second) and people were just having a coronary if you didn't type fast, and the machine that I used did not have a shield on it and so you'd push—they were double reflex keys, like the double

scissors—and I'd forever get my knuckles stuck in those things 'cause my fingers aren't long enough. And to type on it was really awful... so when they came up with the “modern machines” ...particularly Texas Instruments machines, I was just ecstatic because...

RW: Oh, with the CRT.

MH: Well, no, they didn't have a CRT, that came along shortly thereafter, but they had thermal paper and they did have a keyboard, then the next advent after was to make the connection easier. We would do it with an acoustic coupler and from Albuquerque, we had a phone on Telnet to Phoenix, and because there's a mountain range in the way, the connection didn't always work. We went from 15 to 300 baud and then eventually 1200 baud, which was like lightning fast! It was still really expensive because we were charged per connect minute. What we did was get another new machine with two cassette tape drives and we would prerecord the syntax of the search on one and then push a—I don't remember what the character sequence was, but pushed a—button, let it send that and then it would send back something and you had anticipated what the system was gonna send back and then usually we asked them to print and then mail the results because that was the best way to do it. I had a team of seven guys that worked on this with me after a bit and they were also searching. So there's some commands that I considered to be my personal command on Dialog and one of them is “print cancel”. We were searching Chemical Abstracts and one of my guys put in “oxide” truncated and then said “print all” so everything in Chemical Abstracts—and I don't remember if it was file 2, 3 or 4, but it was split into several files—practically everything in it had oxide in it. He told me this...so I called Roger in a panic and he had to manually go through every print

run to see which one it was and stop them and restart them, so we got “print cancel” as a new command a week later so they wouldn’t have to do that again. Those were heady days in the evolution of online. Things were constantly changing and those of us that were serious searchers--who were really trying to leverage the systems--and there weren’t very many of us--were able to really influence which way the system went.

RW: Now, is this the NASA database more than anything else?

MH: It was NASA but it was also—ERIC was number one file on Dialog and then 2, 3, and 4 were Chemical Abstract Service, number 5 was biological Abstracts. I don’t know what number 6 was. Number 8 was Engineering Information.

RW: I thought 6 was NTIS.

MH: What? Six was probably NTIS, that’s right, but, it was a handful of pretty good-sized things. The people who were running those systems were keenly interested in what the users were doing. A few people from NASA and other IACs,( there were six of us) and then there were people from General Motors and other organizations that were also searching a lot and we formed a group called the National Online Circuit in 1979. I was the second chair of that group, the first chair was not able to continue after the first few months but I remember it was at an SLA meeting in St. Louis. SLA wouldn’t let us have a room but the University of Missouri let us have a room, so it was simply word of mouth. Anybody interested in coming should come.

RW: What year was this?

MH: 1978. Over 100 people came. It was just amazing! Gerry Lawrence was the first chair and she and I went to London for the second online meeting in London, which was being run by a guy named Roger Bilbol. I was giving a paper on the NASA system, which I had researched using the federal record and the NASA archive, so it's all public information. In doing that, I discovered that there had been some not totally forthright contracting activities during the Recon original build.

RW: Between NASA and Dialog?

MH: Between NASA and Bunker-Ramo.

RW: Bunker? OK.

MH: So Bunker-Ramo got to sell them all the equipment but didn't have a system that would hold a candle to anything else, just flat didn't work. I spoke about that and other things and because I was at NASA, I sent my paper to NASA for approval and they said I couldn't give it. I researched that sucker 16 ways to 7 on my own time and they weren't gonna let me give it. They said it had to be pulled. I called Martin White in a panic because the paper had been accepted and it was going to be published and said NASA won't let me give it and he said, "Why not?" "They said because they don't want some of those facts to come to light." You'll notice I'm not telling you who the people at NASA were. My immediate contract monitor was very strongly supportive of what I was doing but there was another person who'd been responsible for contracting who was not. I called Martin and I said, "This is the situation." He says, "Well, do you want to give the paper?" And I said, "Yes, I want to give the paper!" And he said, "Well, then I will send you my reply by sea mail. So, back in those days you know you could send not

send email. You could send Air Mail or you could send sea mail and sea mail took a long time to get here, by boat of course. I never did get the sea mail response, now that I think about it. Then it became pretty widespread news. I didn't say anything but he must've told everybody and his brother. Gerry and I went to meet with our European colleagues for the online searchers, the National Online Circuit, we were the representatives. The Europeans had formed a similar organization, so we were all very excited about what we were doing--but Holy Cow all those Europeans smoked! I can remember sitting in this hotel room...

RW: Where was this?

MH: Maybe 30 people, in London...

RW: In London?

MH: yes, and, as the smoking continued, I would sit lower and lower in the room until I was finally laying on this floor because I didn't want to leave, the conversation was fascinating, and we were all bantering around about what could be done and what else should we do and what should we ask for and what techniques did we share, but, oh, so smoky! Then I gave my paper, it was the Second International Online Meeting, in the Kensington Town Hall, just outside of London. Martha Williams introduced me. I crossed the stage and the audience included all these people who'd been involved in some way in this contracting thing. Roger and Charlie [Bourne] and Roger Bilbol, who was the Dialog rep, at that time, in Europe--or he ran Dialog Europe--and people whose files were up online, like the Chem Abstracts people and the NTIS people and Ted Brandhorst from ERIC, so it was a very warm, responsive audience and I gave my paper. I felt like

that went really well and I went back to NASA and they were a bit prissy about the whole thing. There were a few other issues at the University too, so I quit. And I founded my own company. I'd been thinking about it for a while anyway because people who know me know that I'm not particularly good at bureaucracy, I'd rather just get things done. Being on a government contract at a university installation was a challenging situation for me. My boss was a guy named Eugene Birch and he was very supportive of me. I could get a tremendous amount done and I was very, very effective but he also knew that I would get very impatient when there was some bit of malarkey that passed as bureaucracy. I'd been thinking for a while about setting up my own company.

RW: This is 1980?

MH: 1978.

RW: Still '78? OK.

MH: It was a momentous fall. I quit and founded Access Innovations in October 1978. Then I was on my own, so, when we founded the Circuit in '78, in June and I took the chair in, early in '79 because Gerry couldn't do it anymore.

RW: Is that the online users' group?

MH: Yes, well it was called the National Online Circuit. I don't know why we called it that but it seemed like a good name at the time. Then I started going to a lot of meetings frequently as a speaker because people wanted to hear from users, and they still do. And it was fun but the reason that I formed the company was different. Those databases that I'd been searching were cutting edge and there were a lot of people coming and saying,

“Well, how do I make one of these? How do I build one of these databases?” And I said, “Well, I can do it for you.” The callow youth, I figured I could do anything. I did start building them. I took with me five of the other engineers from TAC. So there were six of us who formed the company. Then, in December of 1978, Jay Ven Eman joined us as our first fulltime employee. Then in early '79 Jay and I bought the other partners out because it wasn't working. We were all graduate students and our directions were not cohesive for a company.

RW: Where'd your capital come from?

MH: We each paid in fifty dollars. Fifty dollars each, three hundred dollars is the capitalization of Access Innovations. On one occasion in the life of the company we've taken outside capital. I'm actually sorry we did it, so we've pretty much grown off of retained earnings for all of our corporate life.

RW: Cash flow must be pretty good then.

MH: Well, cash flow is up and down. What we do very well as a company is manage cash flow and keep an eye on where it's coming from. I get a daily cash report at the company. I monitor it real closely. I know where my nickels are coming from. It's what's saved us because we've been in business now...we just have begun our 35<sup>th</sup> year in business and it's a long time for a company. We've certainly had some hills and valleys.

RW: Who was your first customer?

MH: Our first customer was Control Data Corporation (CDC). They had us build three different databases for them. We built a local government information network, called LOGIN

(Local Government Information Network). Cool acronym! It was a database to provide lots of information about what you could get from your local federal or state agency. Putting information up online in a fashion that people could look for it, find it. We mounted it on CDC computers, of course, but we needed to figure out the database design and we also figured out how to classify all the data, so we figured out all the fields and we figured out the controlled vocabulary for it. Actually, it's been used many, many times that controlled vocabulary. It stood us in good stead. The second one that we did for them was on alternative energy. Bill Norris, who was the president of Controlled Data Corp., was very interested in helping people learn to do things with alternative energy and because we had edited those publications--many of them on alternative energies--like wind and solar, that we could help people with that, so the basic research, to my mind, really hasn't changed much. There are some advances in photovoltaics but most of the rest of the engineering is still pretty stable, so you can have active solar, passive solar and when you have active solar, that gets technologically intensive but passive solar has been used for eons by people. They get a south-facing cave, so they get the morning sun. Having nice, thick walls of adobe of some other material to retain heat and keep the cold out, those are things that have been known, they were being pretty heavily researched back then.

RW: Now, your folks all had the technical skills, including yourself? Programming, you had the database...

MH: I had the database expertise and I had the vocabulary expertise and I had some of the subject expertise but not always. It would depend on what the subject was, whether we'd have that subject expertise or not and the ability to organize the information. Early on the

programming was pretty straight forward. Nowadays, programming is increasingly complex but most of us were able to figure out how to put the data in. Nowadays I have a team of seven programmers that work on the data. Like our software, we started our Data Harmony software in 1987, and we first wrote it in visual basic because v basic was the big, new language at the time and then we rewrote it in C++ and then we rewrote it in Java. So, it's Java at the moment and although there're some people that think I should move some hunks of it to Python or something else. I'm still happy with the way Java's going. The development core, the shared community for Java's pretty good. My only concern about it is, now that Oracle has bought Sun...we were ok with it. Microsoft finally decided they'd have JavaOne and they'd be happy with JavaOne and it'd be compatible with regular Java and now, you've got Oracle getting a little prickly toward Microsoft and there's this really nice language in between that, I don't know what'll happen to it 'cause, clearly, Oracle owns it, now that they've bought Sun. We'll see what happens. We committed to XML when it came out in the early 1970's... no, XML in about 96, 97. When Bob Badger from Springer first wrote SGML--Standard Generalized Markup Language--we thought that was pretty cool 'cause the previous situation [was] tough. It was taking people's print and moving it to digital so they could have an online database, and that's still what we do, but, for a lot of those people, they had their data in some kind of proprietary photocomposition format and it really handcuffed you. I can remember taking a guy out for drinks underneath the bridge in Chicago...in Chicago they've got these bars that are underneath bridges...this typographer held the keys and I knew if I could just get a few of the commands, we could unscramble the language. It was kind of a code. But we had to get the keys and, fortunately I come from a high

altitude, so alcohol doesn't affect me as fast as it affects some other people. It was a long night but I got the keys. I had them on a legal sized envelope because that was apparently the only paper I had to write on. I think I still have that piece of paper somewhere...actually, I know where I have that piece of paper. That gave us the keys to unlock the typography for Marquis Who's Who, which we converted to online, we used it for several newspapers, for Encyclopedia Britannica, for the USPC--the United States Pharmacopeial Convention--and several others where it was particularly difficult to try to unscramble that data and get it unlocked to a format that we could then move it to an online file. That worked really well. When SGML came out, instead of going through convoluted programming systems to unscramble an APEX or a Penta or some other Science Typographer's photocomposition system, you could just use a standard generalized markup language. That was really awesome. It got simplified in the mid to late 90s into XML and that's where we are now. It's much easier, although XML is fairly verbose--as it's stated now--it wasn't as verbose initially but I've noticed that people are starting to move to JSON calls so that they could collapse the syntax of XML to something concise. It makes for a much easier handshake information back and forth over the web.

RW: Now back to your first customer, describe who was using this system and what kind of equipment and those kinds of things.

MH: Controlled Data Corporation manufactured computer systems, as you probably know. They later became Ceridian Corporation.

RW: OK, wait. You did the contract for Controlled Data? I thought it was for a local government?

MH: Controlled Data financed the local government information network.

RW: Ah, ok. Alright.

MH: So, yes, it was local government information and it had connections with most of the 50 states. The State information could be put up someplace that a user could dial up and input a search and pull down information about their local government and mostly they were state...I don't remember any cities...mostly they were state information networks and so they had a lot of different customers that would phone into a state line and, of course, for Controlled Data, they were able to sell the machines to support that local government information network and the information would be there, which made it more persuasive and then people could add their own information beyond what we had been able to get for them.

RW: And your company developed the vocabulary?

MH: We developed the vocabulary. We also developed all the records. We gathered and keyboarded and put into the right format and we were using primarily left tagged ASCII at that point. It was an 80 column format reflecting the punch card origins. The first two characters were the field name, TI for title, AU for author, and so on. And then a couple of spaces and then the data will go over to end in column 72 because 73 through 80 were the check digit columns. We keyboarded thousands and thousands of items doing that and we did it all in Albuquerque. We were the first commercial installation of Apple 2Es in the country.

RW: Very good.

MH: I think we might have been the first commercial application of Apple, to tell you the truth,  
but we were certainly the first of...

RW: Do you still have any of them lying around?

MH: We don't ...

RW: [laughter]

MH: ...I have some of the floppies. They had 48k of memory and one of our machines had two  
floppy drives...

RW: Yep, I remember that.

MH: ...so we'd keep one for archiving and then we would take the other and transfer it to 9 track  
tape. We started with--we had 800 BPI--we really started with 1600 BPI tape and then we  
moved to the 6250s which were incredibly amazing and dense, but, you know,  
technology will change in a heartbeat. Back then, I used to figure that my technology  
platform would have to change about every three years and then it went to 18 months and  
now it seems like we are just in a constant upgrade cycle. That's part of why we  
developed our software, 'cause every time we changed machines, we changed operating  
systems, we had to change the entire software platform and it just made me furious. I  
wanted something that was platform independent, which would compile under any  
operating system. This is why we went to Java. We went to Java, we went to TCIP,  
'cause it wrote on all networks and we went to XML, 'cause it was totally transferable  
and that has served us well.

RW: And you were selling the software also to your customers, along with the ... [not clear]

H: Not 'til...well, we started selling the...we developed the software starting in '87 for our own use. We constantly improved it and one of my clients finally said, "You know, Marge, you could sell this stuff because quite a few of your customers now have it installed. You could just sell it." I'm not a software engineer and it's been a mixed bag to be a software company 'cause I don't consider myself a coder---I'm not a coder. Overseeing a software company is difficult but I had this...I swear he's a genius!... this guy named C. Scott Roberts on my staff and he's just...he's so clever! He came up with a lot of really good pieces of software and we would brainstorm a lot back and forth--so he and I share some patents of the software that we have. Without Scott it never would have happened. What we were trying to do was---everything that's clerical---we wanted to see if we could automate it. We're constant productivity improvement. Watching all that stuff, trying to figure out how we could best automate and the ways that we can do that is really where ASIS comes in. I went to my first ASIS in 1976. It was a fun organization. There were lots of people willing to talk about all these things and how they work. I could push the edges of how can we automate the intellectual part---how can we make the system work to benefit the editorial staff. But I didn't want to replace the editors; I just wanted to make them really efficient and that's a big dichotomy, I think, in information science. There's those who think you can automate the whole thing and there're those that think you can assist the human to make them more efficient and I'm on the make 'em more efficient end of things. I would---and I still do---constantly look at ways to make the automation happen. I would listen to people's presentations about how they automated indexing or translation, or did cross language retrieval, or automatic indexing of some

kind and then some of those situations, I could see where that nugget or some other nugget could be used to speed up our people.

RW: How'd you first hear about ASIS?

MH: How'd I hear about ASIS? From Craig Lickness, the guy I was working with at TAC told me a lot about information science and library science, all of those kinds of things.

RW: Back at UMN, huh?

MH: Yes.

RW: OK.

MH: 'Cause I was at UNM when I first started going. I think Craig and I might have gone to the first ASIS meeting together. But, as I said, the people at TAC at UNM were very supportive of my career. It was good for them too. I don't want to under rate that it wasn't good for them but it was good for me, and then I was also...there is no ASIS chapter in New Mexico, never has been. There's been a Rocky Mountain chapter, there's been a Western chapter but they've always been centered in Denver (444 miles away), some place like that, so never much local support, so, if I was going to be involved at all, I needed to be involved at the national level, which is what I did.

RW: Does SLA come before ASIS or about the same time?

MH: SLA came about the same time. SLA had a very strong local chapter, 'cause in New Mexico, we have the National Laboratories, we have Sandia, we have Los Alamos, and then we also have White Sands Missile Range and Holloman Air Force Base and Air Force Weapons lab---which is now known as the Phillips Lab---and we had the Very

Large Array Radio Telescope, and we have Sunspot, which is a sun telescope and we had, you know, a lot of pretty impressive special collections and in '76, it didn't matter if you had a degree or not, it mattered what you were doing, what kind of information services you were providing. Nowadays, you're kind of a leper if you don't have an MLS--and I don't--so I've felt it many times but back then it didn't really matter and, although a lot of people did have a library degree because information science wasn't a popular degree yet, and quite a few of them had bachelor's instead of master's in library science from some place or another and they were a very, very supportive and interesting group, so you could debate the pros and cons of some kind technology or service or information resource with them.

RW: Excuse me just a second. Battery low. We may not get the... They told me the battery would be good forever but...

MH: [laughter]

RW: ...obviously it isn't.

MH: So, do you need to plug it in?

RW: Let's see. Let's stop for just a minute. [noise of adjusting device and recording stops]

MH: [background noises] ...that was the end of my cheerleading career. [laughter] Where were we?

RW: We're still...excuse me, sorry. I'm going to have to find out because they're saying the battery is low and I'll find out where...

MH: Is that the second battery now?

RW: Yeah, that's the second battery. Where this plug in device is for this thing...and it is not obvious where it is...

MH: Where do you want to plug it in?

RW: Resuming after a short break and technical difficulties.

MH: [Laughter.]

RW: So, SLA and ASIS are all at about the same time in terms of you discovering them...

MH: That's true.

RW: And you seem to get involved with both organizations simultaneously or pretty close to anyway.

MH: That's true, I did.

RW: [Now we're recording.]

MH: So...

RW: Any preferences over the years between the two?

MH: It seemed like, if I was active in one, I needed to back off on the other a little bit. But I was real active in each of them, I've been on the board of both, as you know, and the year that they asked me to be president of ASIS--or to stand for president of ASIS--they also asked me to stand for president of SLA. That was a "Hobson's choice" because my intellectual home was at ASIS. My customer home was, at that time, at SLA. The thing that really made me decide was--I'm one of those "in for a penny, in for a pound" people, so if

you're gonna be involved, you're gonna do it whole heartedly. And I figured that SLA presidency would take me about 20 hours a week. And I figured that...

RW: 20 hours a week?

MH: A week. To do it right. And I thought ASIS would take me about 5 hours a week. Just because of the ways that the places were organized and so on. And because of the ways that they organized their presidencies, which was a bit different. And I was about right, I think. For SLA you had to do--at that time--at least 14 chapter visits a year, which meant travel to a lot of places and I don't mind travel, as you know...[laughter]

RW: [laughter]

MH: ...I travel a lot.

RW: I was going say your life is on the road.

MH: Yeah, but it seemed like an awful lot of travel and then they had their board meetings and the finance committee meetings and the AOOO meetings and it was just constant stuff and they had two meetings that would require at least a week each, being their annual and their winter meetings. Whereas ASIS had a midyear meeting and those aren't all that different in terms of time, although those meetings were a little bit shorter anyway I chose ASIS [to run for president] and SLA's never asked me again, I guess they were miffed or something. But I did serve twice on SLA's board. I chaired their first strategic planning committee and that plan still stands fairly well, actually. I was on their--for SLA--I was on all kinds of committees, everything from nominations and publications and strategic planning, over the years. It's all listed in my resume. And I've gotten a lot

out of it but the main reason for being active in SLA really was because of two things: 1) the strong local chapter, a wonderful group of people, and, 2) the other was that a lot of my customers were there. It's no longer true. My customers are no longer at SLA. I'm not sure where everybody's gone but for the most part they don't go to SLA unless they're actually in the exhibit hall. It used to be that people attending SLA were my customers as well so it made it a really important meeting for me to go to. For some reason they don't have as many, but ASIS has also changed significantly over the years. It used to have a huge exhibit hall. Then, when Tom Hogan started his meetings...

RW: Which meetings are you referring to? Online?

MH: The online meeting and then later this conglomeration of meeting that he has now, the Knowledge World and so on...

RW: Oh, right, OK.

MH: ...but the, what was it called? The NEC National Online Meeting that Tom held for many years started just about the time that ASIS stopped having exhibits. And that made a significant hit to ASIS because the clientele that were attending the ASIS meetings changed a lot, so I counted up the number of practitioners at the ASIS meeting this year--the ones that I thought could be stretched a little to include the practitioners--and it was about 8% of the meeting, whereas 18% of the people attending were students, mostly doctoral students, but they were students and the rest were pretty much academics of some sort of stripe or another. But if you go back 20 years and you look at ASIS, it was significantly heavy with people who were either with the government or with the private sector in some way or another. In fact, I used to look at the ASIS audiences and you can

kind of stratify them. The academics were all up front, paying a lot of attention to the speaker and the manager, implementer types were pretty much in the middle, I mean that's where you'd see them.

RW: Not out in the hallways...? [laughter]

MH: [laughter] No, so the implementers [laughter] were in the middle of the audience and then, in the back and out in the hallway were the... either the entrepreneurs, the people who were running companies, the general cabal, and I'll admit that I was in the back. Those back aisle seats, man, they're golden and if the seats are locked down in the back [expressive noise] it was so annoying to have to lift them and pull them back because no one wants to be in the middle of some row if they're of that stripe. But you don't see those people in the back much anymore and you don't see nearly as many middle managers in there either; people trying to figure out how to implement a project and I'm not sure if that's because so many of the papers now at ASIS are on a much smaller sample set so the theoretical basis--that's what we always came for and that's what we still come for. But when you've got a sample size of seven, that's not going to hold up for anybody's data. It's just absurd. I read these papers where they're drawing all these conclusions from a sample of seven articles. [derisive noise] It is just really not sustainable at all! I'm dealing... I'm putting to bed a project right now that's got 820,000 articles. They're all full text and I'm indexing with keyword group and I'm inline tagging them, so that wherever the concept is mentioned in the article, you can zoom right to it and find the information. I'm doing another one where I'm indexing all the images within the text and identifying where to zoom right to them. A sample size of seven is just not gonna get you very far when we have these avalanches of information

pouring in on us. Everybody's talking about big data and then you hear 50...I'm dealing with an article set of 50. You can download for free a whole lot more than 50 articles. Do something that's worthwhile and that you can really [have] as substance. I don't know if it's because there's more of these student papers. I certainly love hearing a doctoral paper but I'm talking about student papers where they're just really not...

RW: Mmm hmmm.

MH: There's not enough there to get an idea to improve your business or improve your information access and I think its hurting ASIS in the long run. Every now and then there'll be a meeting where the papers are just really gripping and just spot on, or a session, but at ASIS those are fewer and fewer I'm finding, which I think is unfortunate and I think that's really what's hitting the back drop. I heard... I went to a classification research meeting this year and there were three papers there that dealt with absolute minutia and a total lack of understanding on how subject terms are selected by the Library of Congress. And it's certainly widely published; all you had to do is read it. There's a reason why they don't put ephemeral terms in that particular list of subject headings. So they were cute and the people were enthusiastic but there was no substance to the papers as far as I was concerned.

RW: Let's go back to when you started at ASIS in '78.

MH: '76.

RW: '76 with ASIS?

MH: Yep.

RW: And what were the first kinds of things that you did... first impressions.

MH: Well, there were two impressions that particularly stick with me and one was that the papers were exhilarating. There were things being talked about there that I was peripheral to... remember I'm at NASA at the time and I'm searching all these databases and people are talking about how things work under the covers, how those databases are built, what are the theories behind them and for me, it was exhilarating. It was absolutely thrilling to hear how to put that stuff together. I mean there were real...this is how we think it works and it would work better if we did it just a little differently here. And so it was a lot of theory meets implementation. People were coming up with theories and then they were trying them out. They weren't just theorizing, they were really applying their theories to data sets. Where it didn't work, they said so. We tried this...

RW: Which were mostly government people and information center managers?

MH: Yes, it was mostly people with big information collections and they'd heard some theory and they were working hand and hand with academe. There was a wonderful partnership between the two and the academe. And the government people were not just thought of as money targets by the academics; they were actually partners. They got good funding because they approached it as a partnership, not as a handout, and it worked really well. It wasn't just ASIS that I went to. I was fortunate to get to go to a number of other meetings and one of them was the Cranfield Institute in the UK, where Cyril Cleverdon, Tom Aitcheson, and others held forth with how information works and how to weight terms and how ranking makes a difference and all of those kinds of things. It was impressive. I listened to Sam Wolpert talk about his PermaTerm indexes that he was

applying to business information based on the SIC codes. How that worked, what worked and what didn't and why SIC needed to be extended to more digits in order to get the depth of functionality or discrete level for indexing that everybody needed in order to retrieve the information they needed. And I listened to the Chemical Abstracts guys talk about how to index chemical information. It was just absolutely thrilling time to be in the business and I think that's probably why I stayed with it--switched out of botany--because it takes a long time to grow a plant on a mine dump, believe me.

RW: [laughter]

MH: [laughter] People were so supportive because everybody was enthralled with the idea of how are we gonna make this work. There were certainly curmudgeons around, people that would get in the back and they'd yell at each other. I don't know if you remember Ev Brenner but he would sit...

RW: Yeah.

MH: ...near the front and, man, he would let people know if he disagreed with their thesis one way or another, and he was applying cool stuff, he was doing automatic indexing for the American Petroleum Institute for that center that he ran and he was working from API in concert with the people at NASA and at DTIC [Defense Technical Information Center] to come up with the rules-based automatic indexing system. Even then the indexing that Ev was doing from the Central Abstracting and Indexing Facility was incredible and the way that he could then apply that, to not just the petroleum literature but also the patent literature and how to tease stuff out of the patent literature was fascinating. Ev became a great mentor for me. Because I was in the private sector, I got to be involved in a lot of

fun projects. One of the things was to digitize the patent collection, the US PTO collection...so we had to scan it, because it was all paper...

RW: Your company bid on this project?

MH: Yes, we did. We had a partner in it but we had to build special machines to scan the old patents. Paper's brittle, so we had to vacuum...move them and scan them on both sides and paper's thin, so you had to worry about the bleed through and so on. Once scanned, you had to digitize them and we did OCR on them. I had a huge disagreement with David Grooms, who was in charge of the project for the Patent office. He and I had already worked together to build a database on NASA's Space Commercialization Database. One, Dave was at NTIS, so he was a known quantity and he was really fun to disagree with but we had a difference of opinion...I thought that the accuracy level needed to be fairly high for accurate retrieval of the patent information and he said, "No, I don't think so. I think 95% accuracy is good enough." Well, that's five typos for every 100 characters. That's really ugly data. He says, "No, that's good enough." I said, no, I think it needs to be 99.98. And he said, "Nah, you don't need that kind of accuracy." So we went back and forth and back and forth and what finally we settled on was actually 97% accuracy because the average patent is 30 pages long and the chances that the word you're looking for will be spelled right at least once in a full text search—a full text search was pretty cutting edge at that time—but the chances that it would be spelled right at least once in an article of, in a patent of 30 pages at 97% accuracy actually came out to 99.997. OK, I'll grant you a one hundredth of a point...

RW: [laughter]

MH: ...but we had to prove it to each other, whether that would actually work or not and whether the retrieval would be worthwhile because the system that the Patent Office was implementing at that initial round was actually the Messenger system with the Genie format that Chemical Abstracts had developed for their implementation of their platform when they brought the abstracts and titles online, instead of just the number and the indexing and the section and we had helped with the missing abstracts for Chemical Abstracts so it was a pretty cool thing. In fact, that project for Chem Abs was a really difficult one in the end because they had decided that they wanted to bring all the abstracts and titles online in full text and space was expensive, so the idea that people would bring all that text online when we were used to just transactional machines, was pretty unusual. So the implementation of putting text, full text--up online any place--was a big deal, so Chem Abs just compromised on the abstracts and titles, which is what they owned anyway--they didn't own the journal article that they were indexing but they did write their abstracts, so they certainly owned those. So they decided to put them up online and I helped with the specifications for that, what it needed to look like and how we needed to take their photo composition tapes and what we needed to convert them to and we were all set...

RW: Now, your company accounted for doing this, right?

MH: Yep, my company.

RW: You were working with Dale Baker and...

MH: Yep, Dale Baker and his--well, I mostly avoided Dale Baker and his fast hands--but I moved to...I worked with a lot of his folks and he had a wonderful team. Ron Dunn and

Nancy Amaral and Brian Cannan and, Silas, what was his name, the technical guy? It'll come to me. And they were astute and they were fun to work with, so we had the model all done and were ready to start doing the conversion work. It's programmatic conversion with some checking of the articles to make sure that they're hitting the accuracy rates and all that and they did want 99.998. And then they went to the vault to get the tapes and they discovered that somebody had destroyed the 9 track tapes that all the abstracts were on for a 15 year period and they were just sick. So, they said, "Well, could you help us get these digitized?" And I said, "Sure." Because we were already working with some digital firms to keyboard stuff offshore and we had established a company in Mexico, called Access de Mexico, and a guy named Omar Alvarado Diaz was our partner down there and it was a really fun crew of people and we were working on these Mohawk systems and keyboarding to tape was very avant garde. Doesn't sound like it anymore but it was at the time. I was in Philadelphia and signed the contract with Ron. It was the biggest contract in my corporate history, 1985, and I spilled my tea on the contract! Then I telephoned the office and told Jay and Omar that we had the work. We had worked really hard. Chem Abs had worked particularly hard to get two full sets of the volumes because there were eighteen volumes every six months for fifteen years. That's a big amount of books. I don't know if you remember those things, they were that thick...

RW: Yeah.

MH: ...and they were 8 ½ x 11 sheets and they were 8 point print and they were---it's a big deal. So, we had two complete sets and one set we were going to guillotine the spines off so they could be keyboarded and the other set we were keeping at our office to proofread

against. We were going to triple key, double proof the data so we could get to the right accuracy level. I called September 18<sup>th</sup>, 1985 to Jay and Omar. Omar loaded all the books in his baggage and he flew Aero Mexico to Mexico City, loaded them all on his car, in his trunk and in the back seat and drove home and it was late, so, you know, crash and sleep. Next morning, 7:17AM, was that 8.7 Richter scale earthquake. Collapsed our facility from eight stories to one and a half.

RW: Ooooo!

MH: Only one person was killed because it was shift change. That was good, but the building was rubble. We have this absolutely comic picture of an eight inch floppy in the window. The window is not broken. The entire building behind it is collapsed, just amazing. Fortunately the books were still in the back of Omar's car. Now, the garage had collapsed on top of the car, so the car was a pancake but the books were in the trunk, so the car...

RW: [laughter]

MH: ...saved the books but we had a deadline to meet. It was a six month project. Jay took the books that we had at our place and flew to the Philippines and he got caught in the sea of yellow armbands on the freeway because Aquino--Benito Aquino--had been shot and his wife was running against Marcos and millions—I mean literally millions--I have pictures of people on the freeway and Jay's in this limo with all the books in the back going to the keyboarding facility and they were making progress at the rate of a mass of people. Finally got there and got the project restarted. So that wasn't so bad but then a month later hurricane, typhoon Dodd hit the Phils and killed all power on the island. And there

was lots of water in the computer room and we were at a four way grid for the power but all power stations were out, so very limited power, lots of brownouts--we weren't gonna finish the project and the machines got wet, it's just a mess, so Jay and I flew to Mexico City and got all but two volumes from Omar and Jay flew to Jamaica to keyboard them there and hurricane Kate hit. [laughter]

RW: [laughter] Ireland is next, I assume?

MH: [laughter] So, for lots of water, damaged machines, people's homes were absolutely destroyed. This thing on the East coast, there've been lots of hurricanes, not everybody's been hit by them in the US as hard but, man, that's hit the Caribbean before, so weren't gonna get it done there, so we got the books out of Manila and took them to Beijing. In November, in 1985, in Beijing, China, you remember what happened?

RW: Yeah, Tiananmen Square?

MH: Nothing.

RW: Oh, nothing.

MH: We finished [laughter], we finished the project on time, under budget--under budget!--the right accuracy level and Brian Cannan who was my project manager, says, "You know, when I saw your contract, I thought you spelled out those act of God clauses in unusual detail. I didn't expect you to use every one of them." [laughter]

RW: [laughter]

MH: So, we've had very exciting adventures...

RW: Yeah. Wow.

MH: ... in Information Science over the years.

RW: You must have burned up your extra money in that contract.

MH: We actually did alright on it. I mean, we didn't make as much as we thought we were gonna make but we didn't run in the red on it either. We hadn't expected that many airplane trips, which becomes expensive, but the data was good, the keyers, bless their hearts, did really well and we left some volumes in every place and then brought them all together. We converted a lot of fascinating stuff. We did the case law for Germany, the Staudinger, the Slovakian Parliament, we've done work...

RW: How have you gotten in touch with all these folks? Do they just wander up to you at ASIS or SLA and say...

MH: Oh, a lot of them contact us but we have continued to do a lot of exhibiting at different meetings...

RW: ...exhibiting, yeah...

MH: ...although I haven't done any really for the last two years because I'm not sure that that's the way to market anymore. I think that social internet marketing is the way to go and we are doing that but it isn't, you know, social media. I don't think is the way but I think making you presence known through other means like the blog and authoritative papers and so on are useful.

RW: Well, back to ASIS, why have these folks left? Is it because the academics came in and began to dominate the ASIS meetings...

MH: I think intellectual rigor is not there to the level that it used to be which is a pretty damning thing to say, I suppose...

RW: Yeah.

MH: ...to a bunch of academics. It's because it has become very insular. I am fortunate. I think that I am widely respected and liked within ASIS and if I say something, people listen to it but, if you're somebody else and you come in--if you don't have or aren't working on a doctorate in information science--you're thought of... I think you're thought a little less of and by the same token, the people that are ASIS customers--those that are trying to implement information science and make things happen--aren't coming to our meeting anymore because they aren't hearing things that--like I did early on--that they can apply in their everyday life. There aren't... I mean, I can remember people talking about one project or another that I would be able to apply. I remember an early paper by Doug Ord on cross language retrieval. It was absolutely fascinating. He was spot on and it was stuff that I could apply. I mean, I had a thorny little issue with the European Parliament at the time. It had... The Office of Official Publications of the European Union has a thesaurus called Eurovoc, which is in 27 languages, several character sets, Greek, Cyrillic, English, and extended Latin. It was a thorny issue that I hadn't quite come up with the right solution for it. In that paper by Doug, there was the nugget I needed to make it happen. When you go to meetings and you hear those kinds of nuggets, you keep coming back. You want to hear another nugget that you could apply and I know that the US Government badge people, the CIA and NSA, even FBI, used to come a lot to our meetings and listen in. They were the middle row.

RW: I don't think they come anymore.

MH: They don't come anymore because they're not hearing that stuff. The Office of Research and Development for the CIA...Bill Albarshot used to come to all the meetings and he'd always glean something but he's not gleaning anything from those meetings anymore. I think the topics are just not applied.

RW: What year did ASIS give up having exhibits and why?

MH: I think about 19...you know, we have to look that up.

RW: You were president in '94.

MH: I was and we didn't have exhibits anymore in '94. I think they probably gave them up in the early '80s.

RW: Early '80s?

MH: Yeah.

RW: Well, it must have been a considerable economic impact on them.

MH: Yeah, Sam Beatty was the executive director when we gave them up. It was before Dick Hill's time. I'm not sure who was president or what all happened but I know that...well, actually, it wasn't far off from the time that Wiley had to bail us out because the fiscal management had been a challenge, I think. ASIS stopped...

RW: This is just after the ERIC/CLIS fiasco also.

MH: Yep. Those were also very interesting times. [laughter]

RW: [laughter]

MH: And you could come to ASIS and get the real gossip. Not true anymore. If you wanted industry gossip, man, ASIS was the place to be. For those of us that are trying to make our living in it, that's important.

RW: I haven't seen government folks there much at all.

MH: No, well...

RW: I joined...my first meeting was '94, when you were president and I remember a few being there but now you seldom, if ever, run across any.

MH: I don't think there was...I'll check. I do comb through those registration lists for ASIS every year to see what the percentages are like. I really don't go to ASIS for business anymore and I don't go to ASIS for ideas, which is too bad.

RW: Yeah, it is.

MH: My company business is indexing and we index the journal for ASIS and we produce the proceedings for ASIS, so we still...although there isn't really a publications committee anymore. I do produce all those things and I told Sam Hastings when she was president that I'd get a digital library for her by the end of her term and we did. Got it done. I have a real good idea of what the publications are like. We also index JASIST although ARIST is changing in its complexion but the journal also used to have an applied section that Lois Lunin would usually edit and then whoever was the editor of the journal would make sure that it was very much applied and it's varied over the years. I don't really

think of it as a precision-recall journal anymore, although for a while I really thought that's what it was about but it's not, really doesn't have a lot to do with search anymore.

RW: What were the issues during your time on the board and as president? Any significant ones?

MH: Finance and fiscal stability was something that we faced pretty early on in my early tenure on the board and I was fortunate to be on the finance committee with Buzzy Basch, who's got a very keen fiscal mind. I think people don't necessarily know what Buzzy does exactly but I could tell you that...

RW: Yeah, his description got me...

MH: ...but I can tell you that he can read a financial statement like nobody else. He's just incredible.

RW: He still comes to the business meetings. I was at it the other day.

MH: Because I'm not bad at reading a finance statement and I know that Dick Hill used to dread it, if Bonnie Carroll, Buzzy and I would be sitting together in the back because [laughter]...

RW: [laughter]

MH: ...he knew he had to know his numbers because, sure as shooting, we'd question him on them and we did. But that's what the meeting was for and we did manage to get ASIS stabilized and then, with the Information Architecture Summit, which I think is the exciting meeting now for this society and it's also where the lion's share of our revenue comes from, because that's the happening meeting. The annual meeting is kind of the...

RW: Well, for academics.

MH: Yeah, the academic world, whereas the midyear...sorry, the Information Architecture Summit is very exciting. That's where new ideas are coming forth. And that's where you'll see people who are implementers instead of academics, people really interested in implementing information science. They are...they party late, like we used to party at ASIS, and, so you know, you drink and you laugh and then you talk some serious implementation stuff and whether it's search, precision, recall, accuracy levels for data, how you really index something so that people can pull it out again, whether you want to use ranking or weighting or some other measure in figuring out what kinds of stuff ought to come out first in retrieval. All that stuff. I don't hear it anymore. I really don't. I don't hear that. I hear about some social issue stuff and, you know, social issues are important but it's not what drags in people right and left.

RW: There's not in information systems...

MH: Usually not.

RW: ...and testing them and reporting on it...

MH: Yeah. It's not keeping up with Google. It's not trying to figure out is Endeca better than Lucene and why? That kind of stuff just doesn't happen.

RW: Speaking of Google, an enduring question in my mind is: how did we lose out, when we were doing all these things that Google later did, in terms of retrieval, search rank and online stuff and all that, and yet information science people don't get any credit for any of those kinds of things?

MH: Gene Garfield gets credit, as he should because he's really the father of bibliometrics, but how long since you heard a bibliometrics talk at ASIS?

RW: Oh, there are some, but not many.

MH: But not many.

RW: Kate...

MH: Kate McCain'll do one on occasion and others and those are usually good conversations but by and large you aren't hearing them. Kevin Boyack, Henry Small they seldom speak at ASIST...

RW: But we had all this vocabulary stuff that we worked on for years and years. Thesauri, et cetera, et cetera, you know...

MH: Do you know that the classification research meeting this year was all classification. It wasn't taxonomies, it wasn't authority files, it was classification, which isn't so broadly used anymore. Numeric sequences and so on. It was a surprise to me that that's what they were talking about. It's probably comfortable. I think maybe some people talk about things that are comfortable to them. To some extent, if you're on the cutting edge or bleeding edge, it's uncomfortable. It's not always an easy place to be.

RW: Interestingly enough that at our history preconference, we did have five, close to a third of the papers were on classification.

MH: See.

RW: So, viewing it historically is still an important issue

MH: Well, as it were...

RW: Classification and related kinds of things, I should say about, you know, thesauri, et cetera.

MH: I'm sorry I couldn't attend that but I was glad to be home and not cooling my heels for a week in the storm [referring to Hurricane Sandy].

RW: OK, so no major problems that you recall during the time you were on the board.

MH: I lost the election to Jose-Marie Griffiths and then I was convinced to run a second time for president, so I wasn't elected the first time I ran. I lost by only a few votes, reportedly, but I didn't win but I had been real active in this strategic realignments thing and on the committee on that under Anne Prentice. Anne and then Dan Robbins was particularly leading that effort for helping us shepherd it through but I was the one that was tagged as the person to implement these changes. We were really lucky, I think. ASIS had Anne Prentice, Jose Marie Murray Griffiths and then myself as a presidential string and during that time, we completely revamped ASIS and its organization. There had been a move afoot to try to reclassify the SIGs into six by subject areas and, man, that was a ton of bricks being dropped on some very unhappy people, so it didn't happen and I think that's probably just as well it didn't and then we followed up in the following years trying to realign ASIS because we'd had a tremendous amount of calcified committees. We had committees that had been around for 20 years and nobody knew what anybody did anymore and then they were overlapping each other. So we tried to make it very clear. When I was president, we cleaned up the committee structure. Then I was followed by Jim Rush and he was followed by Cliff Lynch and those two guys finished out the job, so we started it when I was chair of strategic planning under Anne, and then Jose-Marie

Griffiths called me up when she won and said, “I can’t do this without you, Margie.”

Yeah, OK, well I’ll fold my wounded feathers and be helpful and then I was elected the next year, so we were able to do this five year long reorganization of ASIS where everybody bought into the plan from the beginning because Cliff and I had been on Anne’s board and then finished off with Cliff’s so...

RW: Cliff?

MH: Cliff Lynch. So, implementing that plan went very smoothly. It was very nice that we were able to do that so, with that, we were able to get ourselves on a pretty clean footing. Dick Hill is a very able administrator and didn’t want to get in the way of information science, so he felt, and has always felt, that his job is to run the organization. He’s really the chief operations officer and he makes that platform solid so that other people can get their agendas through when they’re on the board and he’s maintained that, done really well. We’ve been lucky to have him, I think. Not everybody agrees with me but I think he’s been good for ASIS. And now it’s a small gang but it runs very smoothly and most of the staff has been there like 16 or more years. It’s really amazing for an association to hang on to association personnel that long in Washington, DC, area, which is constantly swiping people from each other. I mean, they just do it weekly, I swear.

RW: Why do you think membership continues to decline now?

MH: Because the vibrancy isn’t there. We’re back to the “What do I get out of ASIS? What am I going to learn from ASIS? What can I take home from the meeting that I can apply in my daily work? People want to say “I forwarded the future of my doctoral students”. “I gave another paper which will be good for my career as a promising academic.” “I gave

a paper because that'll help me get tenure, as an academic.” Did you hear anything about how I did a really cool project and that was applied here in this scholarly publisher and could be applied in five others?” You just don't hear those papers there anymore. The industry has had this love affair with the semantic web. SGML was not implementable unless you had very deep pockets because it was very complex. If you make something very, very complex, very few are going to implement it. Part of what many members of ASIS helped with was implementing something that was simpler. Those people aren't at ASIS. The people that are making XML simpler or making search simpler or making indexing simpler, for the most part, just aren't there; they're somewhere else. And so you get taken over by these people who want to do a million line triple store so that they can do linked data. Well, you know, the computer science guys are just eating our lunch. Kevin Boyak and I did a study for the IEEE and we took ten years of IEEE Explore and we took ten years of the US patents and we took ten years of Medline and we indexed all of them automatically, using my software; this was easy for us. We indexed all of them using MESH and DTIC and the IEEE thesaurus, which I updated, and then we visualized the results and 430 different pictures, so you do a flip deck kind of thing, seeing “where is the industry moving, where are the edges of this science, what happens with biochemistry and bioengineering and biomedical kinds of things and medical engineering...where's the field going, where should the IEEE--who is the client--where should they publish new journals and where are their existing journals publishing less”. Good study.

RW: And where was it published?

MH: Well, we gave it to the IEEE, and it wasn't published and we actually have an article that we asked for permission to publish in ASIS--in JASIS--and we didn't get permission because one of the journals in the IEEE has not published on its core topic in the entire ten years. It's published a donut hole around it but it hasn't published on the topic, so they didn't really want that known, probably, so I'm not going to tell you what journal it was. That's actionable intelligence for them and I gave a report on it at Harry Collier's meeting in Nice last year and quite a few people came up to me and asked for a similar study to be done on their stuff and big companies, like BASF and Bayer, so some pharmaceutical firms, some big German publishing firms, some French companies and so on. So all of them are interested in that kind of capability and, you know, that's the kind of stuff we learned at ASIS. It's the kind of papers that, if we were hearing them at ASIS, we'd probably get a lot more practitioners. There's a limited audience of academics who can spring the cash to get to ASIS and if that's all we're going to appeal to, we're going to be a shrinking organization. There's nothing wrong with our member services. Member retention has to be based on two things: one, you have to feel fairly welcome to the group but the other is there has to be something that you can say "I went to the meeting and I gained this, therefore it was worth the week of time as well as the expense". I don't think we're getting a lot of actionable intelligence.

RW: You don't see any way to attract these folks or whether ASIS could do anything differently?

MH: Well, it's happening at the IA Summit. People really are getting what they want; they're getting ideas for how to implement and extend their portals and their web presence.

RW: Not much of that stuff is getting into JASIS or even into the bulletin. You get a little...

MH: I think none of it's getting into JASIS. None of it. I don't think JASIS is seen as a vehicle for that. It's a great, international, prestigious place for nonmember, non-US people to publish. If you did an analysis of the authors in ASIS, and I haven't done this, but I'll bet that you would find that very few of them are actually ASIS members.

RW: Yeah, lot of computer science folks who are nonmembers...

MH: And that's the other study...

RW: ...particularly from...

MH: ...Kevin Boyack and I were able to do and he and Dick Klavans have expanded even further and that is that information science is not what is happening. Library science is certainly not what's happening. Information science is eating lunch of library science and computer science is eating information science's lunch because information science used to be the text guys. If it had to do with text, full text, we were it and, as you point out, people like Google have stolen that march on us. We're no longer the big guys in text retrieval. Should be but we're not. We don't even invite those people to talk.

RW: Even the text retrieval workshops [TREC]... whatever you call them, very few of our folks are participating in those anymore. So you don't see a turnaround possible? Maybe you need to do this kind of study non-prophetarily...

MH: I think we probably need...it's been what? 20 years? Since we did a strategic realignment of ASIS? That really involved...I think the board did one recently, because I'm no longer on the board, but I think it needs to look beyond academia and look to the people

who are going to apply the stuff that we theorize about. And you've got to reach out to those folks. There's a lot of people looking for meetings and looking for places to be a member of and I, myself, am shopping, going, "Where have my customers gone? They're not at ASIS, they're not at SLA". And I know what they're doing; they're shopping all these little meetings like the Text Analytics meeting or the Semantic Web meetings or the Wilshire conferences or the Tom Hogan meetings, Information Today meetings, although I think those have diminished, and it's a combination of things. People aren't going to meetings as much. In the military librarians meeting, in December, which is usually 400 person meeting, and pretty cool, I mean, really applied intelligence, has been cancelled this year because government travel is so restricted, so people aren't travelling, they're looking for some other kind of venue, so everybody and their brother is giving a webinar. The ASIS Webinars are pretty well attended. I did five of them and Joe Busch did, I think, an equal number. And those are very popular. People really signed up for them and they were, I don't know, like fifty dollars or something, a lot cheaper than...

RW: Or many of them are free.

MH: Yeah.

RW: Yeah. You're painting a dismal picture of the future.

MH: Sorry. I think if a bunch of people got together and brainstormed it, we could figure it out.

I think it needs to be...I don't know. There used to be a past presidents' reception at the annual meeting, which didn't happen.

RW: Yeah, it's still held.

MH: Did it?

RW: Think so. I don't think it met this year.

MH: Yeah, it meets intermittently now and it had two purposes: one was to give the incoming president a notion of our support but, you know, that was awkward because the new kid on the block has their own agenda and their own plans and we have no business trying to say, "if you are president, you should do x, y and z". They're not going to buy that. Why should they? I mean, they've just become president. They've got their own agenda. But the other thing that frequently happened at those meetings: people talk about the state of the business and ideas on how to help ASIS and, since those are the people that are invested, I mean, invested at least a year, usually three years on the board, in my case I was three years on the board and then I was another three years and I think that's pretty common for somebody who becomes president, so you got six years of service to the society, so those people would have a fair idea of what to do but so many of them now are solely academic, whereas in the past you had a lot of crossover people. People who worked in the private sector, worked in the government and also worked in academe. And we get fewer of those now; we get---people are pretty vertically integrated--which is interesting, because you'd think information science historically is to knock down all those silos and yet we have...people are siloing a lot.

RW: Well, I hate to quit, but I think, one, I've got to get home and cook supper [laughter]...

MH: [laughter]

RW: ...and, secondly, you're worn out from talking, I'm sure.

MH: Well, yeah. We could brainstorm a bit further but, I think this is probably a good time to stop.

**End of Interview**