Conversations with Medical Informatics Pioneers:
An Oral History Collection

The Woman Behind the NLM's Integrated Advanced Information Management Systems (IAIMS) Initiative

2005 Interview of Nina Matheson

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Joan S. Ash & Dean F. Sittig

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NIH U.S. National Library of Medicine

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Oral History Interview with Nina Matheson

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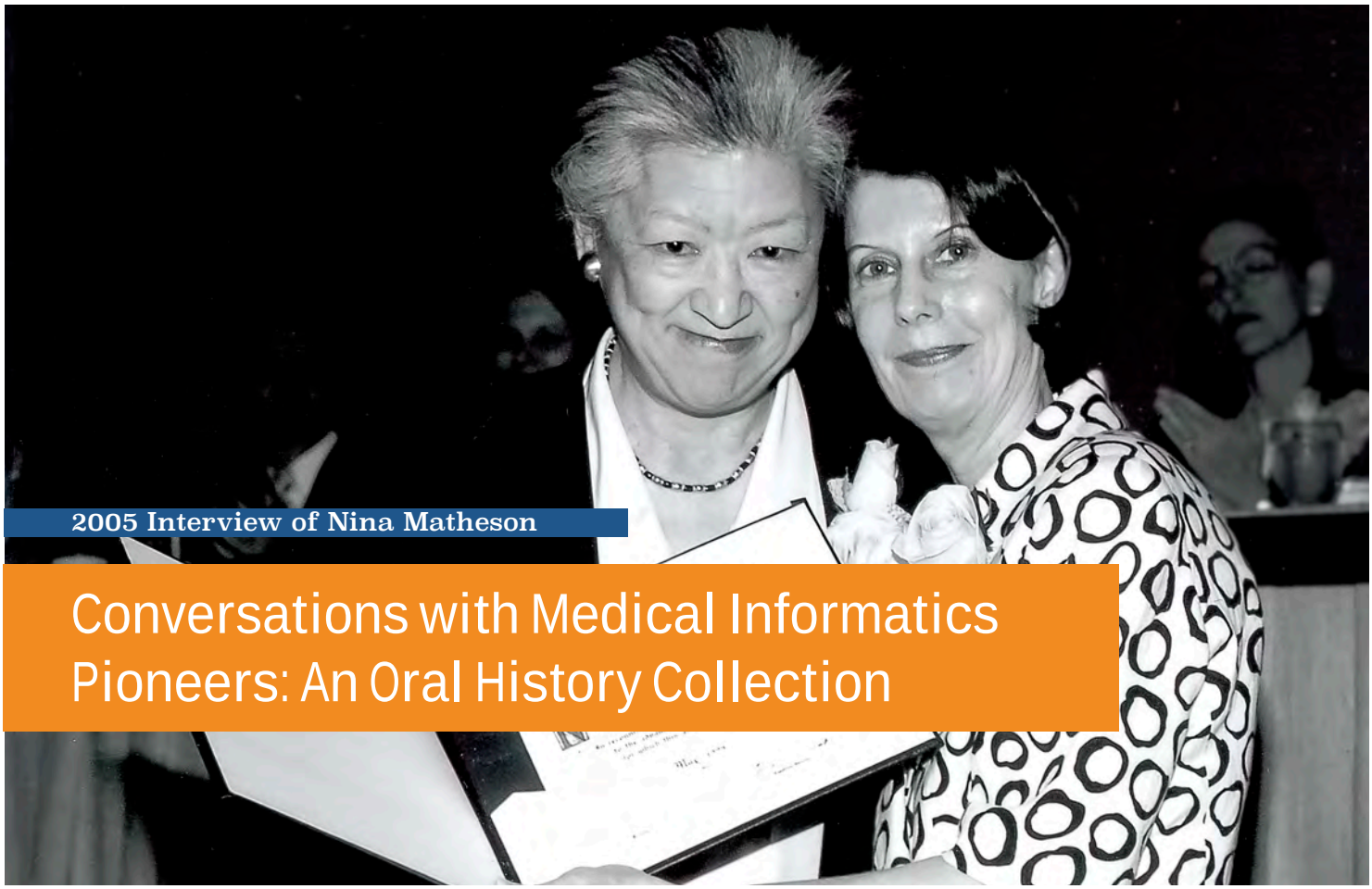


2005 Interview of Nina Matheson

Conversations with Medical Informatics Pioneers: An Oral History Collection

Source: © JJ Jowdy Photography. Personal collection of Nina Matheson.

Nina Matheson (left) receives a Fellowship award from the Medical Library Association (MLA), 1994.

The Woman Behind the NLM's Integrated Advanced Information Management Systems (IAIMS) Initiative

Dr. Nina Woo Matheson is a medical librarian and vocal supporter for the importance of librarians in medical informatics.

INTERVIEWED BY
JOAN ASH AND DEAN SITTIG

JULY 14, 2005
CHEVY CHASE, MARYLAND

Nina Woo Matheson, ML, DSc, is perhaps best remembered in the Medical Informatics community as the lead author of the Association of American Medical Colleges' 1982 Matheson-Cooper report,[1] which described the future role of medical libraries and led to the creation of the National Library of Medicine's Integrated Academic (later changed to Advanced) Information Management Systems (IAIMS) initiative.[2–6]

In this conversation, Dr. Matheson describes how she became involved in that project, and other aspects of her long and distinguished career working in various academic libraries and medical library professional organizations.[1,7–16] She was Director of the George Washington University Himmelfarb Health Sciences Library from 1974 to 1980 and of the Welch Medical Library at Johns Hopkins University beginning in 1984. She was President of the Medical Library Association in 1983 and was elected a Fellow of the American College of Medical Informatics in 1986.

An English major in college, she says, "If I've been successful as a medical librarian, it's not been because of any subject matter [expertise]....[What is] really important [is]...native intellectual curiosity and a critical and analytic cast of mind that is keyed toward trying to find solutions."[17,18]

In 1990, she and her husband formally established William & Nina Matheson Books, a member of the Washington Antiquarian Booksellers Association. Matheson Books specializes in scholarly bibliography, modern literature and poetry, and 20th century literary private presses.

JA *It's July 14, 2005, and Joan Ash and Dean Sittig are in Chevy Chase, Maryland, interviewing Nina Matheson. Would you please tell us where you were born and raised, just so that we can get some background?*

NM I was born in Seattle, Washington, and lived there until I left library school, which was about 1958. My mother had a Chinese laundry, and that was how she supported the family, and we lived in the back of the store. We lived on Queen Anne Hill. We were the only non-white family on Queen Anne Hill at that time.

Source: Personal collection of Nina Matheson.

With her younger sister, Barbara Woo Radke (left), 1939.

I went to grade school there, and Queen Anne High School, and then the University of Washington.

> Maxine helped me get a job at NLM, when it was down on Seventh and Independence—an old red brick building, which is now where the Hirshhorn Museum is.

JA *How did you decide to go into library science?*

NM Well, I was an English major, and I had a teaching fellowship. I taught for one quarter, and realized that I was not going to be a teacher...actually I was not going to do my PhD. So I got a job at the University Bookstore and Bill [Matheson] was working in the stockroom during the summer. He had left University of Chicago with a master's, and he had already enrolled in library school. Well, I was at loose ends, and I had no idea what to do. I'd never heard of a school of library science, but it seemed like a reasonable thing to do, since I had nothing else in mind. So, let's see, that was in June, and I managed to get enrolled, and started in September.

JA *You were both in school together then?*

NM Yes. Along with Maxine Hanke. The three of us graduated together. Maxine had a fellowship or internship with the National Library of Medicine. Bill had an internship with the Library of Congress, and I had an internship with the New York Public Library.

JA *Were you married at that time?*

Source: Personal collection of Nina Matheson.

High school graduate, with her mother, Gee Shee Woo, in Queen Anne Hill, Seattle, 1951.

NM No. On weekends Bill commuted up to New York, and I commuted down to Washington. After several months, that got really tired, so I moved down to Washington, and Maxine helped me get a job at NLM, when it was down on Seventh and Independence—an old red brick building, which is now where the Hirshhorn Museum is.

JA ***I didn't realize that. And so your first real job out of library school was at NLM?***

NM Yes. Well, they paid me at the New York Public Library [laughter], so it was a real job. Felt like a real job. I worked at the New York Public Library at the downtown 42nd Street research library. But I had no knowledge, no background, really, that fit into anything at the research library. So I spent several months in the Bronx, working in the branch libraries. But I discovered that I didn't really enjoy being a policeman, so I was very pleased to come to Washington and get a real job in a real library.

And then I got a job on the basis of really sketchy Chinese, cataloging Chinese materials.

JA ***And so what was NLM like then, besides being in an old brick building?***

NM I went to work for Sam Lazaro. It seemed to me, as a callow young thing, that the place was full of eccentrics—and I actually think it was full of eccentrics.

The building was not air conditioned, and summers in Washington, at that time, were a lot worse than they are now, even though there's global warming. It seemed it was very hot then. There was a cataloger that I remember who wore a light kind of shirtwaist that was short-sleeved, and she would go into the women's room and soak the shirt and put it on, and then go back to her desk to work. And it was her version of air conditioning.

DS ***That's good!***

NM Gene Garfield was there at the time.

DS ***Really?!***

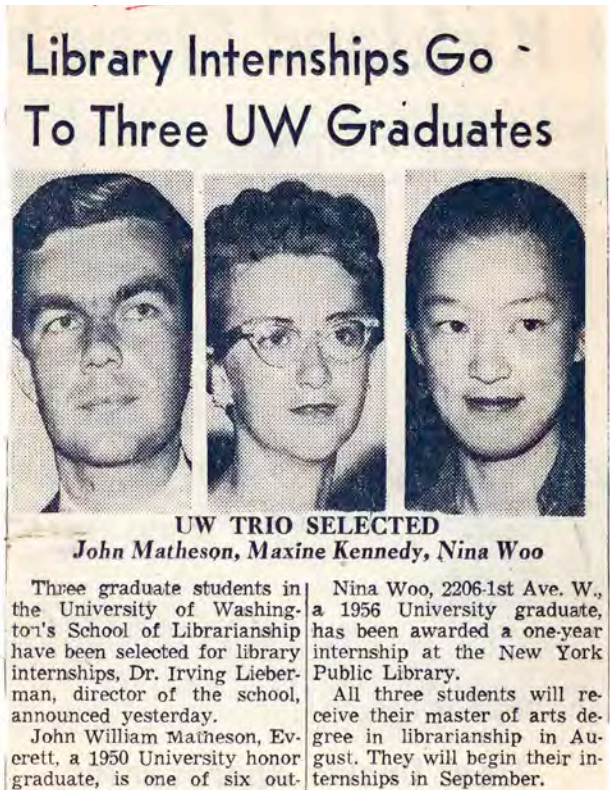
NM Yeah. I think that was partly when he was incubating his idea for Science Citation Index.

JA ***Who was the director of the library then?***

NM Brad Rogers. Seymour Taine was in charge of the beginning of the automation. And I just saw Seymour. He used to live in this building and he's moved out to—oh, what is it called? Leisure World? He's married to Beryl Ruff, who used to be at WHO as the head of the library there. The two of them live part of the year in Geneva and part of the year in Washington. His sons live in California, and so they keep going back and forth like this.

At that time, they were looking for people within the library who had the potential to become involved in automating. I remember they gave us all tests. Yeah! And John McCarthy and I were selected out of the group to start training. I don't remember what the nature of the training would have been—programming, COBOL, I suppose, or something like that. But then before I really got involved with that, Bill and I left because he'd gotten a fellowship at the Indiana University Lilly Library.

JA ***So how long were you at NLM that time?***



Library Internships Go To Three UW Graduates

UW TRIO SELECTED

John Matheson, Maxine Kennedy, Nina Woo

Three graduate students in the University of Washington's School of Librarianship have been selected for library internships, Dr. Irving Lieberman, director of the school, announced yesterday.

John William Matheson, Everett, a 1950 University honor graduate, is one of six out-

Nina Woo, 2206-1st Ave. W., a 1956 University graduate, has been awarded a one-year internship at the New York Public Library.

All three students will receive their master of arts degree in librarianship in August. They will begin their internships in September.

Source: Personal collection of Nina Matheson.

"Library Internships Go To 3 UW Graduates," June 22, 1958, newspaper clipping.

NM Close to two years. I left in ’61.

JA ***And what did you do in Indiana?***

NM Well, Bill was learning rare book librarianship; I had a brief job with the School of Music as a secretary. And then I got a job on the basis of really sketchy Chinese, cataloging Chinese materials. [Chuckles.] Really sketchy. I could use a dictionary—that was the extent of my Chinese. But they needed people at that time.

JA ***How long did you do that?***

NM That fellowship lasted a year. From there, we went to St. Louis, where Bill was hired to create the rare books and special collections department at the Olin Library at Washington University. The university had just acquired the collection of a St. Louis collector, whose collection was inherited by this gentleman’s two sisters. And they had just turned over materials. They knew nothing about what their brother had collected. So Bill was able to extract a great deal of stuff that they didn’t know they had, like filing cabinets with autograph materials. He collected signatures, presidential signatures, and presidential documents, things like that. So we were there for about 10 years.

Source: Personal collection of Nina Matheson.

Nina Woo and John William (Bill) Matheson, just engaged, Washington, D.C., April, 1961.

Estelle Brodman had taken the job as the Medical Library Director then, but she didn’t have a place for me when I arrived, so I got a job as the Initiating Librarian at the St. Louis State Hospital in St. Louis, which was then the biggest state hospital in the state. It was where the state commissioner of mental health had his operation. So I started that professional library, with help from patients. There was one patient who was very good at filing. I would make these catalog cards by hand [chuckles], and she would file. All the cards had evidence of Jessie’s lipstick, because she was always licking her thumb. It was a very charming, home-grown kind of operation.

JA ***How was your budget?***

NM It wasn’t bad. It was an interesting time, and it’s probably why I got involved with informatics, because George Hulett, who was Director of Mental Health in the entire state hospital system, had the idea that if he could computerize all of the patient records, they could perhaps find the biological determiners. And so I think he bought one of the first big IBMs. What were they?—17-somethings—I can’t remember.

Anyway, they had a lot of time, the programmers, and so what I got them to do was to set up a program so that I could computerize the card catalog and produce a paper catalog, which then I could send out to the other state hospitals so that they could at least have some access to the mother library, the bigger library. So that’s how it all started.

JA ***When was that?***

NM Oh, about ’63 or ’4.

DS ***So you had to type all those in yourself? I mean, they didn’t have places to download the book records, like they do now?***

NM That’s right. We created IBM cards.

JA ***How many volumes are we talking about?***

NM It was a small library, about 3,000 volumes.

DS ***Fewer than you have in your house, in other words.***

NM That’s right! [laughter] I think Science Citation Index was going on at the time, but it didn’t include a lot of the psychiatric and psychological material. So then I had the idea, since we had a reasonable journal collection, of making tables of contents. So I had this little manual SDI [selective dissemination

of information] system going, where we photocopied the tables of contents. I think we created profiles of the physicians in the state hospital system who were interested. And then we sort of matched them up with the tables of contents and sent them out twice a month, or something like that. And then if they were interested, they just marked off the table of contents, sent it back to us, and we photocopied the article. It was all terribly manual.

DS ***Terribly!***

NM We had some poor workers who did nothing but stand at the Xerox machine all day long, but it was effective.

If he could computerize all of the patient records, they could **perhaps find the** biological determiners. And so I think he bought **one of the first big IBMs.**

JA ***And then what? What was your next effort?***

NM Actually, I got a grant to do that SDI program. There was another grant program. I think it was for—oh, yeah! It was for getting—was it a teletype machine that was first used to—?

JA ***AIM Twx we did at the time.***

NM Right. So I guess I kind of got to get one of those machines, which was very helpful, because then I could produce the card catalogs off of them, too.

DS ***Use the printer, huh?***

NM Yeah, use the printer. And that was when, at that time, I got to know Marjorie Wilson for the first time, because she was the one who started the NLM Extramural Programs. I think she was the first director, if I'm not mistaken. Or she was second in command—I can't remember. But she was the one who pushed through the idea that there could be grants made to the libraries. I had one of those early ones, a couple of the early ones.

JA ***You got to know her because you were awarded a grant when you were still in St. Louis at the psychiatry library?***

NM Yes. But for some reason, I was aware of her much earlier than that. I really don't know where or how.

JA ***She was a physician?***

NM Yes. And she worked with Marty Cummings to get the legislation through. She wrote the legislation—is my recollection—and she worked with Marty Cummings to grease all the wheels.

JA ***The medical library system legislation?***

NM Right. She got that through. You know, it's all very vague. I've written about it someplace. It's in the literature somewhere.

JA ***Well, Don Lindberg talked about Marjorie Wilson and said that we should ask you about her. Your first introduction to her was when you were a young grantee. I know you continued to be associated with her.***

NM Yes, but I don't remember how or why, because when she contacted me about becoming the investigator for creating the AAMC report, I think probably Marty Cummings had something to do with that. He must have suggested that she contact me. And I really don't remember how we interacted, but I seemed to know her and know her career reasonably well at that time. There must have been some committee work or something going on.

The programmers set up a program so that I could computerize the card catalog.

JA ***Were you involved with MLA [the Medical Library Association] as early as when you were in the psychiatry library?***

NM I became a member. I think that was about the extent of my involvement. I didn't really do a lot in MLA before the late '70s.

JA ***So psychiatry library, and then what?***

NM Let's see, when we came back [to NLM] in '71, Lee Langley was head of Extramural Programs, and he took me on. I was at Extramural Programs for a couple of years, and then I went from there to G.W. [George Washington University].

JA ***So what did you do in Extramural Programs?***

NM Well, Langley made room for me as a special assistant to the director. Then I became head of a one-person unit for program evaluation, which meant that I had to prepare the monthly or quarterly briefings for Lee Langley when he would meet Cummings and all the senior staff. Those were [gasps] terrifying preparations because Marty Cummings liked to surprise his staff with questions that they hadn't anticipated, for which they had no answers. So there was always anguish beforehand wondering what he was going to ask, where he was going to come from. Then afterwards, there was the mopping-up business. Joe Leiter was there. The entire cast was there: Kent Smith, Harold Schoolman, they were all there at that time. Lee Langley was head of Extramural Programs for maybe three or four years. Marty got rid of him, in part, because Langley was such a womanizer and was caught in the parking lot with friends. [embarrassed laughter] Those were carefree days.

JA ***Amazing. So this was now in the new building?***

NM Yes. The Lister Hill Building had already been built.

JA ***And so what was it like? If Lister Hill was there, they were already doing research.***

NM Well, naturally, there was a lot of rivalry, because there were limited resources. They were starting a lot of new programs: toxicology, information service, plus the research programs. That was partly what the quarterly briefings were about, which was to bring everybody up to speed. But they tended to be kind of show-and-tells, with the idea of impressing everyone [laughing]. But it was a very exciting time.

JA ***Was there tension between normal library operations and the other things that were going on?***

NM [long pause] Well, I don't know. There's always a tension between the traditional functions and the other functions. And at that time, there was a transition—or the beginning of the transition—of the Regional Medical Library Program from a grant program to the contracts. There was a fair amount of tension around that issue for a long time.

Well, now that I think of it, I think the Regional Medical Library Program was the largest part of Extramural at that time.

DS ***What kind of grants were you giving out? You said you were in program evaluation. Do you remember who was getting those? It was called the field of informatics then, wasn't it?***

NM There was a fairly large international program at that time, and a fair amount of grants went into supporting publications programs, overseas publication programs.

DS ***Catalog publications or Index Medicus?***

NM Well, no, actually, they were scholarly, historical research—history of medicine kinds of things. The small hospital library program was going on at the time. I don't think there was a great deal of non-library supported grant activity at the time. I can't imagine what it would have been, if there had been, because—well, that's not true, because Don Lindberg was active in Missouri in the late '70s, wasn't he?

DS ***Yeah, but he was doing basic science more, using the computer, so building lab systems and things like that. I mean, there were people who were doing informatics-type work but they would get their money from like the Heart Research Institute. They were building artificial intelligence programs for a specific disease or something like that.***

NM Well, now that I think of it, I think the Regional Medical Library Program was the largest part of Extramural at that time.

DS ***Right. And there were some people there doing informatics-type work. So we've interviewed Tony Komaroff, for example, who was at the Lincoln Lab in Boston. They had a big program to build some algorithms there.***

JA ***The Regional Medical Library Programs.***

DS ***Right.***

NM They were trying to be meshed together. That was a big push to piggyback on the Regional Medical Library [RML] Programs.

JA ***And so what I think you're saying is that the RML program was part of the Extramural Programs at that time, and then it became a contract program, so that it separated out from Extramural Programs.***

NM Although it didn't have to. We made contracts out of the Extramural Program. I'm not sure now how or why that division came about. I'm pretty sure it was a political decision.

DS ***Of course.***

JA ***So what was Marty Cummings like, and thinking of this transition more into informatics, what role did he play?***

NM [long pause] I think Cummings' great contribution to the library, his whole overarching aim, was actually automating the entire library. I mean, he picked up the Index Medicus at a time when it was really beginning to collapse under its own weight.

Cummings' great contribution to the library, his whole overarching aim, was actually automating the entire library. I mean, he picked up the Index Medicus at a time when it was really beginning to collapse under its own weight.

DS ***Those were the big books they used to have?***

NM Yeah, when they were using a computer to generate prints. And so he made that transition, along with—oh, I can't remember his name— you'd know his name. He was sort of short and sandy-haired and thin. Anyway, he was in the library part. He oversaw the computer system for the library. Marty's attitude towards extramural programs was always very ambivalent. At least at the time that I was involved. I'm not sure what he thought about medical informatics as informatics.

JA ***So the ambivalence about extramural programs, because it wasn't a normal library activity, do you think?***

NM I think he probably had trouble integrating it with his thinking about where the library was going.

DS ***Well, that was a big change, I think. I mean, that was like a new way of thinking about the library and the role of the library.***

NM And I think the Lister Hill program never had, as far as I could tell, a very clear focus as to what its research was aimed at and where they saw their research pushing things along.

JA ***I think Don Lindberg sort of mentioned that too, and that was one of the things he mentioned about why it was so important to have a long-range plan, like that.***

NM Yeah, because in Lister Hill at that time, there were a number of people who had very strong individual commitments, and they were taking their programs in the directions that they wanted to go, regardless of where the library was going.

JA ***Well, now, at that point then, you spent a couple of years in Extramural Programs, and then you left.***

NM Yes.

JA ***And what was it that motivated you to go elsewhere?***

NM Well, I didn't see myself going anyplace in Extramural Programs, particularly. And it was really a very frustrating kind of job. The last task that I had in Extramural Programs was overseeing some evaluation contracts.[19] And that was where we did the first Delphi study. That was very frustrating. This contractor dumped a huge amount of data into the report, without any real analysis—not real—without any analysis. And I was struggling to try to interpret what they had found and wasn't able to. So in part, I was sort of

cowardly, running away to a better job, a better life [laughs], running a small library.

DS ***I've done that before.***

JA ***So that evaluation project was an early attempt at doing a Delphi study to predict what might be happening in medical libraries?***

NM Yes.

JA ***So it was a predecessor of your project?***

NM Yes, you could say that. It was a Delphi study that had too many questions that were much too specific, trying to look at where would interlibrary loans be, for example, what form. We were trying to uncover how medical records might be integrated with literature, parallel delivery of information, that kind of thing. And I think we used the [NLM] Board of Regents as experts. And we had other experts, also. We assembled a whole group of names, I think, including most of the Board of Regents, because I remember Vladimir Slamecka [from Georgia Tech] was on the Board of Regents at that time, and he was also one of the experts. Anyway, that report is part of the general literature, but it never got mashed into some useful shape, into some kind of communicable article.

Source: Personal collection of Nina Matheson.

Nina Matheson served as Director of the Himmelfarb Health Sciences Library at George Washington University School of Medicine and Health Sciences in Washington, DC, from 1975 to 1980.

JA ***So you moved on to G.W. [George Washington University] then?***

NM Yes.

JA ***And you became Library Director.***

NM Yes, they recruited me—they came and recruited me. It was a nice feeling.

DS ***I guess!***

NM They had just built a new building, and the librarian who had been there for 30 years, retired. They were looking at a real change in direction. So once again, I became involved in library automation—this time, it was creating a computerized circulation system. We did do a home-grown circulation system. And we did do a sort of home-grown catalog, as well. You know, I don't remember where I got the money to do that. But that was a very interesting time, because part of the building was given over to another research project, which I no longer remember the name of. But it was run by this man who owns Airlie House. Oh dear. This is one of those stories that never gets told much. This man had a law degree, a dental degree, an MD, and a PhD. And he owned Airlie House, which is a big conference center in Virginia. I think it still functions as a conference house.

Once again, I became involved in library automation—this time it was creating a computerized circulation system.

DS ***Yeah, I think I've been to a conference at the Airlie Center.***

NM Yeah. But he was also a man who was open to bribery—I mean, not bribery himself, but he bribed people. G.W. was one of those private schools, along with Georgetown, that always had to go to Congress for additional funding. And Congress was prone to say, "Okay, we'll bail you out this time, but this is the last time." While I was librarian there, it became really critical to get more money from Congress. I cannot remember how I got a hold of this information, but I think it was told to me by that man himself. He said that he had insured G.W.'s claim by handing over an envelope full of green stuff to the right people. In fact, that was it!

This came out in a faculty meeting, and some faculty had the temerity to stand up and say, "What?! Am I hearing this correctly? You essentially bribed members of Congress to give us funding?!" And the answer was, "Yes. How can you be so naïve?"

DS *[laughs] My goodness.*

JA *You were at G.W. then how long?*

DS *Till Congress changed? [laughter]*

NM Till 1980, because that's when I went to the AAMC [Association of American Medical Colleges], because I was there from '80 to '82, and then after that contract ended, I went back to the National Library of Medicine as a special expert consultant for two years. At the end of that, I went to Hopkins.

JA *When you were at G.W., then, that was quite a while. Your career, that was when you were active in MLA?*

NM Yes. And active in the Regional Medical Library Program. That was '75 to '80.

JA *And active in the Regional Medical Library Program in what way?*

NM Making trouble. [laughing] At one point, Marty Cummings told my dean, "Tell this woman to stop making trouble." Naomi Broering and I were trying to get some rationalization into the interlibrary loan system, because there was some kind of hierarchy in the interlibrary loan. So we tried to manipulate the system to our advantage.

DS *Was Naomi working for you then at G.W.?*

NM Oh, no, she was at Georgetown—she was always at Georgetown.

JA *The two of you ganged up then, on Marty Cummings?*

NM Yeah. And of course Naomi got Marty mad because she did the mini Medline, without permission.

DS *My goodness! There's punishment for that!*

NM Without asking Marty Cummings, she just did it—and he didn't want that.

DS *That was a version of Medline that ran on a small computer, didn't it? And you could do a query.*

NM Yeah, it was a subset of Medline, the most commonly referenced journals.

DS *A hundred and twenty-five top journals or something like that.*

NM Right.

DS *We had that at Yale when I was there.*

NM She was a marvel.

DS *I'd forgotten about that.*

NM You'll have to interview her.

DS *Oh, definitely.*

JA *Where is she now?*

NM San Diego.

DS *Wow! Whe should do it in the winter. [laughter]*

JA *So now we're up to the time when something took you away from G.W. to go to AAMC. How did that transition happen?*

NM Actually, [Marjorie] Wilson had gotten the contract to do another medical library study that was sort of a second Bloomquist study. Remember, Hal Bloomquist did the study that more or less provided the data for the Medical Library Assistance Act. And then there were other AAMC studies along the way. There was the one on A.V.s. There was another one I don't remember. But Marjorie had the vision and the sensitivity to see that medical libraries were going to be going through a real transition and wasn't sure in what direction or

She did the mini Medline, without permission.

Marjorie had the vision and the sensitivity to see that medical libraries were going to be going through a real transition.

what shape and form it was going to take. So she had the idea, and she went and got the contract money from NLM to do another study of the state of medical libraries and try to articulate what the future might bring.

DS ***So how do you leave a job where you're the head of a library, to go to what you know is a temporary project? You could see it was going to be important, obviously. Did you know how important it would be?***

NM No.

DS ***But you thought that was a good risk, to take another job like that?***

NM I never thought of it as a risk.

DS ***You didn't?***

NM No. I always figured [chuckles] something would turn up.

DS ***That's good! It did! And so the report that came out of that study is what we call the Matheson-Cooper Report, the thing that made the IAIMS program, sort of.***

NM Yes.

DS ***And then Marjorie Wilson helped get the money.***

NM Marjorie Wilson got the money, and her name should have been on the report, but it didn't get there. She had left the AAMC by that time. By the end of the study, she'd gone to University of Maryland as associate dean, I think.

DS ***Wow.***

JA ***Did she recruit you, or how did that match happen?***

NM She recruited me. She invited me over to talk about her project, and to see what I thought. I was thrilled, really thrilled.

So she got the contract money from NLM to do another study of the state of medical libraries and try to articulate what the future might bring.

DS ***I can imagine.***

JA ***Why do you think she recruited you—not that we're surprised, but—?***

DS ***Well, she'd known you for a long time—it wasn't like she just picked you out. She'd known you since Washington University, right?***

NM Yes, that's true.

DS ***She was following you.***

NM Yeah, I think she probably had been following, a little bit. And then she was up to date with what was happening at NLM and talked to a lot of people there. I suppose she got some advice.

JA ***Then how did you start?***

NM I did a literature search. [laughs]

DS ***She's a librarian, after all!***

NM Yeah, I did, for the first couple of months—a very broad kind of search. And at that time, there was a lot of forecasting literature. There was actually a journal of—.

At that time, they were talking about nanobits. Nobody ever knew what a nanobit was. Let's see, that was 1980, so PCs had just begun to permeate a little bit.

JA ***Technological Forecasting.***

NM Yeah, right. And at that time, they were talking about nanobits. Nobody ever knew what a nanobit was. [laughter] Let's see, that was 1980, so PCs had just begun to permeate a little bit. But Marjorie Wilson kept asking me the question, "What good are these PCs for, except to balance your checkbook? I still don't see what they can do for me. Why would I want one in my home?" She was the kind of person who would ask those kinds of questions to stimulate, to have you think about what are all the negatives in the things you really have got to account for. At the time I went to AAMC, they had none of the

data actually under any kind of processing control. They were doing, I'm sure, all of the residency matching programs basically by hand. They were just beginning to computerize the medical school data.

JA ***You were there physically, did you have an office there?***

NM Yeah, I had an office there. Once again, I was lucky, because the people in the computer center were very happy to see me, because I was at least willing to push the idea that you could use them for handling data. We weren't even doing much word processing at the time. I'm pretty sure that was true, because I taught the computer center to run the Delphi data for me, and they also helped me with the iterations of the report, the various editions, because I didn't have a secretary, so I did all of that myself. So it was an interesting time.

> Go visit some medical centers and talk to the people about what it is that they're doing, and where are they going.

DS ***I guess!***

JA ***I still want to know where you started, as far as you did the literature search—?***

NM Marjorie said that, well, one of the things that I should do is to go visit some medical centers and talk to the people about what it is that they're doing and where are they going. You know, I really didn't know very much about medical centers, but she knew that. She was always impressing on me how complex they were—they are. So I visited, with her opening doors, I visited a number of schools. I can't remember where I went. I did go to Maryland, and I think I went to Harvard. So I did that kind of survey. Then I did the Delphi, using library directors as the experts.

> Don [Lindberg] was thinking a little more broadly in terms of communication networks.

JA ***And others. I was one of your subjects.***

NM Oh!

JA ***I was on the board of MLA, so that was one of the groups, I think, that you did.***

NM Yup.

JA ***How did you come up with the idea of the Delphi?***

NM Well, I had to get data somehow, and at that point—and I think it's still true—there was a federal law that prohibited doing surveys, conventional data-gathering surveys. So the Delphi was the way around the survey.

DS ***Meaning it's a survey that you get feedback, and then you do another survey? Seems like two surveys more than no survey.***

NM I didn't call it a survey.

DS ***Okay, I just wanted to make sure I knew what the Delphi was. That's where you send out a survey and get the answers back, and then send the answers back?***

NM Well, it wasn't a survey, because you had an expert group, and you were eliciting opinions of an expert group.

DS ***Okay.***

NM So it wasn't just a shotgun kind of open-ended sort of thing.

DS ***At least there wasn't a rule against it.***

NM Yeah, there wasn't a rule against it.

JA ***Now, we do qualitative research, so we know very well that you didn't have a computer center crunch all the data and spit out the report. So as the surveys came back, there was a lot of text.***

DS ***These were open-ended questions, right?***

NM [pause] Yeah, they were open-ended questions, but there were very few. Let's see, if I remember, there

was a range. You were actually given a choice, zero to 10 or something, zero to 5.

JA ***But then you wrote a lot.***

NM Yeah, then you could write something. But there were very few questions.

JA ***So anyway, what I'm getting at is, you read all the responses?***

NM Yes. Yes, I did the number crunching.

JA By yourself? Well, I mean, with the computer center, but as far as the synthesis, the results, did you have a committee helping you, or how did that work?

NM There was an advisory committee, of course, because AAMC never does anything without an advisory committee. Marjorie Wilson taught me how to choose an advisory committee, the primary rule being that you chose people who not only are experts, but who are in a position to do something for you, they could do something with the outcome. If they bought into the process, they would need to be in a position to take it the next step. So it was with that principle in mind that the advisory committee was put together, and it was one of the reasons why there was some misunderstanding on the part of the library community as to why certain people were chosen and certain people were not chosen. Estelle Brodman wanted to know why she wasn't on the advisory committee, for example, and Louise Darling was—I think she was. Maybe not. It's been a long time since I've thought about it. But in any case, we had to choose the library representatives—and we had to choose on the basis of their being consensus builders and leaders recognized by the community. And so Estelle believes we're pretty much on the downward slope, as far as those criteria were applied. Anyway, there were two or three advisory committee meetings, and they looked over the Delphi studies and they participated in the Delphi

Source: Personal collection of Nina Matheson.

In 1995, the Washington University School of Medicine (WUSM) renamed its library in honor of Bernard Becker, a noted researcher who headed the ophthalmology department at the Washington University School of Medicine for 35 years, discovered one of the first treatments for glaucoma, and donated his collection of 600 rare medical books to WUSM. Pictured (L-R): Nina W. Matheson, Estelle Brodman (director and associate professor in the history of medicine, WUSM), Bernard and Janet Becker, and Mark Frisse (Vanderbilt University Department of Biomedical Informatics).

as well. And then they looked at the first draft of the report. They went through each iteration—some more than others.

JA ***Now, Don Lindberg said he was part of—I can't remember what role he played.***

NM He was on the advisory committee.

DS ***Was he at the NLM by then?***

NM No. No, he was still in Missouri. He came to NLM just as I left, because I was at the end of this two-year special expert—. The decision had been taken that there wasn't probably any place for me at NLM, for me to move into. And that was when Cummings retired.

DS ***They never considered you to be the head of the National Library of Medicine at that point?***

NM Oh! heavens no!

DS ***Or did you have to be a doctor to do that?***

NM You had to be an MD.

DS ***Not a librarian.***

NM Not a librarian. For heaven's sake!

DS ***Joan was mentioning that yesterday.***

NM Well, I think these days it would be different.

DS ***We'll see! If we get a new director of the National Library of Medicine.***

JA ***Getting back to the synthesis and the writing, Don Lindberg did mention that he had brought the idea of networking into it. And so was that something that the Delphi, the people in the field—like me—that you surveyed, didn't come up with, and he, because of his technical expertise, thought would be coming in the future?***

NM I think the library community was thinking of networking individual medical libraries. Don was thinking a little more broadly in terms of communication networks. And that was a really critical suggestion of his, too. John Cooper made a critical suggestion, which I cannot remember now. I was having trouble organizing the final report. He read it, and made a suggestion that I thought made it into a more cohesive kind of report. And that was one of the reasons why his name was on the report.[1,20,21]

JA ***Otherwise, what role did he play?***

NM Nothing much. I mentioned that Marjorie's name should have been on the report, because she got the money.

> What Bill Cooper made possible was for me to go back to the National Library of Medicine, to write up the program that then the Extramural Programs would support with funding.

JA ***And it sounds like she was part of the discussion all along.***

NM Oh yeah, absolutely.

JA ***So let's see, we're at the point now where you've written the report and passed it by the advisory committee, and it's ready to be released. I remember it was published in two different venues. Wasn't it part of* Academic Medicine *and it came out separately?***

NM No, it was always a supplement.

JA ***Oh, it was a separate supplement?***

NM A separate supplement to the *Journal of Medical Education*. And that had to be funded separately, so there was another small grant to do that, to get the money to do that. At that time, Bill Cooper had joined the advisory committee as the NLM liaison. I can't remember whether he was there from the very beginning or not, but he was certainly there at the end and was a great champion of the report.

JA ***Well, he was part of the network that transitioned it into IAIMS, I know.***

NM Yes.

JA ***I interviewed [Senator] Mark Hatfield at one point, and apparently he was part of the effort.***

NM Yes.

JA ***So you wrote this report, and what was the feedback from the community about it?***

NM Well, it was split between the group that said, "We've already done that," and the group that said, "I don't think we can do that." [uproarious laughter] Naomi said she could do it. And Nancy Lorenzi, from the very beginning, saw opportunity. So did Rachel.

DS ***Rachel Anderson?***

NM Yeah. She saw an opportunity. Some saw the opportunity, but just couldn't get the kind of support that they needed. They didn't have the connections within the medical schools to bring it about.

JA ***So getting the opportunity at the individual campus depended on library directors who had an idea how to make it real within their—.***

NM Right.

JA ***What about the physicians, for example, outside the library community?***

NM Hm, I don't remember there was much in the way of a response.

DS ***So when you mentioned someone like Rachel Anderson, one of her things was to hire Paul Clayton and bring him to Columbia to help head up a program. The two of them were together, weren't they, working on that? That must have been, like, in '85. Like in '84-'85, Paul Clayton started going to Columbia, working with her.***

NM Oh. Well, she had one of the first planning grants. And so was that how she brought Paul in?

DS ***He came and did that with her. But he was leaving Utah, I remember, and he was being a consultant to them, on and off, like in '85. He probably went there in '86, and I think that was the first thing he did, work with her to get that planning grant.***

NM I see. What Bill Cooper made possible was for me to go back to the National Library of Medicine, to write up the program that then the Extramural Programs would support with funding. Art Broering was very supportive, and he took money out of the Extramural Programs, the first million dollars—I think the first $500,000, to support what became IAIMS came out of extramural funding. There was no extra funding. So that was a significant thing for him to do. So he put aside the Extramural Programs money to fund the first planning grants—and there were, what, three of them? So my job at NLM at that time was to write up the specs for the program, the IAIMS program, and get it through the hierarchy at NIH, organize the review, to do all that stuff. So by the end of two years, it was pretty well under way.

> What was the feedback from the community? It was split between the group that said, "We've already done that," and the group that said, "I don't think we can do that."

JA ***So you had spent two years at AAMC, and then you spent two years at NLM.***

DS ***So when you said you were wondering why we came down from Yale to see you, maybe it was because you had written the whole grant program, and so you knew all the inside scoop.***

NM Oh, yeah, that was John—.

DS ***John Paton had, but Perry Miller was the one that really drove all that, behind the scenes.***

NM Oh, was that true? I didn't realize that.

DS ***He's the one who understands how to get the grants. He probably wrote the grant for John.***

JA ***So what happened at the end of the two years?***

NM Hopkins was having—I wouldn't say trouble, recruiting, but they hadn't found anyone that had struck a chord with the search committee. So when I was asked if I would like to be considered—and I think, once again, Marty Cummings had his finger in that and suggested to the search committee that they should talk to me.

DS ***Even though you'd been sort of bothering him.***

NM Oh, well, no, he had forgiven me.

DS ***I see. He realized maybe you were right on some of those points, huh? [laughter]***

NM I don't know about—.

DS ***At least forgiven.***

NM He had forgotten, maybe. [laughs] I do remember when he asked for a briefing on the report, on the contract. So I'd done this briefing, and his comment afterwards was, "All you've described is process." And I was really rather shocked, because I thought there was more than process that was what I had talked about. But he was very acute in his observations. Anyway, I went to Hopkins with the idea of picking up where the former director had left off.

JA ***It was a physician, wasn't it?***

NM Yes.

JA ***Male physician?***

NM Yes. A German male physician. [chuckles] He was such a charming man, and his wife was so charming. I can't remember the occasion, but we were talking about opera and about personalities. Polacek! His first name will come back. [Richard] Polacek said something about how he liked the The Ring Cycle, and his wife had said, "Well, of course! You think of yourself as Wotan!" [laughter] Anyway, they'd written an integrated library system at Hopkins, and it was functioning, and it was working. So what I needed to do when I got there was to expand it and to try to bring in some other kinds of activities. And that was when I realized that—oh, my goodness, I am having a senior moment!

DS ***Online at McKusick and Mann, that one?***

NM Yeah. Victor McKusick. I had been aware while I was at NLM that last time that Lister Hill had had some involvement with Victor. They were trying to use Mendelian Inheritance in Man as a basis for an online text, I think. But because of where they were, both technologically and as far as personalities went, nothing had come of it. And the last I had heard was that Lister Hill had given up on McKusick because he was just a "crazy old man." And McKusick had given up on them because they were just—.

DS ***Just crazy.***

NM They were crazy—they didn't have any idea of the practical needs. And what was important to him was the process of editing and compiling his book, not having his stuff outside of his control. So I thought that one of the things that could happen would be that if we could computerize his book, so that it could be computer generated—.

DS ***That's been sort of a theme for a long time, as you were using the computer to create paper books.***

Source: Personal collection of Nina Matheson.

Nina Matheson and Nancy Lorenzi at the 1994 Medical Library Association (MLA) annual meeting in San Antonio, TX.

NM Right. Right. And since he didn't want anything but a paper book, that was perfect, because then the byproducts would be available for other purposes. Well, you know, as it turned out, they had to work with the Hopkins University Press, and the press was only interested in publishing in the way that they had always done it.

DS ***So when you say the press, you mean like the publishers, or the printing presses?***

NM No, the publisher, Johns Hopkins, yes. They had a perfectly adequate system.

DS ***They didn't want your computer-generated output, in other words.***

NM That's right. So it worked, and it didn't work, because we did put it up online. We got some feedback, which was very gratifying. People from Southeast Asia wrote and said how wonderful it was.

DS ***How was it available? So this was like in the mid '80s, right?***

NM Late '80s.

DS ***Late '80s—before we had what you call the Internet. Was it available online? Could they dial in to Johns Hopkins to search it?***

NM Yeah, I think it was a dial-in.

DS ***You weren't part of, like, the SUMEX-AIM [Stanford University Medical Experimental computer research resource for applications of Artificial Intelligence in Medicine] project, or anything like that, or any of the big sort of computer resources that were in—.***

NM No, but I think—. Well, I think it was dial-up.

DS ***And did they pay, or did you support that?***

NM We supported that.

DS ***So I could dial in for free, for example?***

NM Yeah, right.

DS ***Search the book?***

NM Right.

Source: Personal collection of Nina Matheson.

At the 1994 meeting of the Association of Academic Health Sciences Library Directors (AAHSLD), presenting David L. Atkins with a certificate of appreciation.

DS ***Seems like I remember trying to do those kinds of searches.***

NM Yeah, they were very clumsy—enough to turn people off.

DS ***Well, it was hard: the modems weren't very good back then. You were talking about a 300 or baud modem or something. This was before they had—I mean, I never had a 9600-baud modem for a long time. When we were at Yale, trying to build these, we built an interface that would allow you to dial out to that book to sort of show how our IAIMS was going to work. We accessed mini Medline the same way. We had an interface you could click, and it would dial the modem and call up and give you this little search interface to show someone how that would work. That's probably why we went down to learn more about dialing into that, and sort of try to understand that we could do that a little bit better, to make it look a little more integrated, as they said in the IAIMS idea. [chuckles]***

JA ***So how was Hopkins as a place to be?***

NM Hopkins was a wonderful place. It was really the most exhilarating place I've ever worked. The people were so enabling, and so cooperative. Just an amazing environment. I think it still is an amazing environment. It truly is like no other place I've ever worked.

DS ***There was a guy there that I remember, that had done a lot of the computer work in your group, and we spent a lot of time with him when I went down there that one day. I don't even remember his name at all, but it seemed like he was the head programmer or the—.***

NM Oh, Gary Moore, I think, was in charge of that overall. Was Dick Lucier there?

DS ***Oh, yeah, Dick Lucier. That was the guy. Now I remember that name. What was his role? Was he your deputy or something like that?***

NM [long pause] Yeah, I think he was.

JA ***I think he had a research role, too.***

NM I think they created a sort of center of research or something like that for him, because he wasn't really a deputy in the sense of what we're seeing in any part of the library.

DS ***Yeah, I think so.***

JA ***So at this time, then, you're not at NLM, but you're sort of seeing the fruits of your labor come into the mainstream, because now people are applying for IAIMS grants, and, really there's a flurry of activity there. I want to know what it felt like when you read about it.***

NM What it felt like?

JA ***What was it like when you read the literature and you saw what was going on? How did you feel about IAIMS?***

> Well, the role of the Board of Regents is really as a conscience. The Board makes [NLM] accountable to the community.

NM Well, I never had any problem letting go of things. Once it was done, it was done, and it had a life of its own. I couldn't take any credit for what was happening afterwards. I just watched it. I didn't have anything to do with it.

DS ***Did you feel especially proud?***

NM No. You know, I don't have maternal instincts. I don't, I really don't.

JA ***Well, maybe you felt some chagrin that sometimes things were not the way—. You know, from a librarian's point of view, that report was all about libraries and the growing or increasing role of libraries. And for a while, I have to say I think it turned into something different. Maybe even now it's turned into something different. And that's what I'm getting at here: what's become of that original idea?***

NM Well, I think what I didn't appreciate at the time was just what libraries are, that really it's not in the cards to use a library as a launching pad for anything significant. It just isn't possible. And I fought that idea for a long time.

DS ***Is that because there's not as much money in the library, or some other reason?***

NM I think it's cultural as well as political. There is ingrained such a view of libraries as passive resources—not only from the point of view of the people who use libraries, but from the people who work there. Power is everything in the medical setting. And money is the way to power in medical centers, but I don't think it's the real driving force—at least it isn't in Hopkins. At Hopkins, you could have lots of money, but unless the contribution is significant, and fundamental, and necessary, it's not going to fly.

DS ***I suppose if you think about it, and you're doing a research project, and you ask a statistician for help, you put the statistician on the paper. When you ask a librarian for help, you never put the librarian's name on the paper. You don't consider that they have an active role.***

NM Well, the librarian's role truly is passive, because there's no knowledge generated, or true knowledge manipulated by a librarian.

DS ***There's something to be said for knowledge management. It's getting to be bigger. I'm not sure how that's going to affect libraries.***

NM If libraries were in control of, were the publishers of online information, for example, then they'd be in a role to do knowledge management, but as a third party, they're too distant.

DS ***That's true. So do you see these new online open journals—I don't even know who publishes Biomed Central. They're only electronic journals, and a lot of libraries are starting—I think the libraries are publishing and controlling a lot of them.***

NM Not medical libraries. Stanford, I think, is one who's doing online publishing, but not the medical. And I don't think they ever will. The publishing establishment is too entrenched. Even NIH has not been able to overcome that.

DS Right. They're still fighting. I mean, now they've just passed that law that says you have to make all the data available, the journal has to be online after so many months or years—it has to be freely available. The publishers are fighting that.

> [The study] raised the consciousness of both parties—the library community and the medical community—as much as it penetrated the physician community. But I think it helped the informatics community.

NM Yeah, they would.

DS ***Don't worry about that.***

NM They want their two cents for every copy, every page copy, or every hit.

DS ***Exactly.***

JA ***You wanted to ask about the Board of Regents, because we saw the picture yesterday.***

DS ***So it was while you were at Hopkins that you got onto the Board of Regents for the National Library of Medicine. And you were elected to the Institute of Medicine. You made a huge step up, I suppose, in your career. At least I would think, if I got elected to either of those things—.***

NM Yeah, those were amazing honors.

DS ***What's the role of the Board of Regents, and how do you interact with the library? How did that work? It's more than an honor—I'm sure there's a lot of work involved.***

NM Well, no.

DS ***No work involved?! Dinners?***

NM Dinners. Well, the role of the Board of Regents is really as a conscience. So since the Library Director is not accountable to anyone—I don't think—in a way, the Board makes it accountable to the community. It isn't that the Director seeks approval or anything from the Board, and the Board certainly has no policymaking or decision-making role, but it exists as a body that can help the Director promote certain kinds of things. He did, when I was there, use the Board in

long-range planning. But then, once again, that was pretty much directed by the staff, as you would expect.

JA ***Now, the Board of Regents has to give its stamp of approval to every grant. I know they tell you that you get a certain score and it looks like you'll be funded, but it has to be approved by the Board of Regents. Did they ever say no?***

NM Well, yes, on occasion. The Board could question. The question goes back to the Review Committee and needs to be defended. The Board doesn't really overturn an action. And it really doesn't have the power to say, "Look at this one again, and improve the score," or something like that. It does serve as a checks and balances of a sort.

JA ***We talked of Don Lindberg yesterday, and I wonder if you can think back to the transition between Marty Cummings and Don Lindberg. I guess I'll come right out and ask the question, which is, it seems like Don Lindberg, as a choice, was really moving NLM more towards an informatics emphasis.***

NM Uh-huh. And less on libraries.

JA ***And less on libraries.***

NM Right.

DS ***Did they know that? Was that a conscious decision?***

JA ***Right, on somebody's part?***

NM Surely it was a conscious decision. I'm not sure who made the final recommendation on the candidate. I don't remember how that process goes—do you?

DS ***I don't know either. I guess I'm more concerned how they found Don Lindberg. They knew him, obviously, because he was on—.***

NM He was on the Board of Regents, and he was on the IAIMS panel. He was, for a while, pretty much the most visible kind of informatics person around, I think.

DS ***This was in the early '80s?***

NM Yeah, the early '80s. Yeah, I suppose so. It's quite true that what he did at Missouri never coalesced into anything—well, significant I guess is not a very friendly word.

DS ***Well, it never made it outside of Missouri.***

Source: Personal collection of Nina Matheson.

In 1999, the University of North Carolina (UNC) at Chapel Hill awarded Nina Woo Matheson the degree of Doctor of Science for "her outstanding contributions to the world of knowledge." Pictured with Samuel Hitt (former director of the Health Sciences Library at UNC), Carol G. Jenkins (director of the Health Sciences Library at UNC), and Joanne Gard Marshall (UNC School of Information and Library Science).

NM Yeah, right.

DS ***You could say a lot of informatics projects have had that problem.***

NM There's a great deal of anxiety attached to the transition.

DS ***I bet. On the part of the library, the people in the library, or someone else?***

NM I think on the part of everyone. You know, it was sort of the way when a new president is chosen, everyone serves at the pleasure of the president. So there was a lot of anxiety about, "Is he going to want to bring in all of his friends?" That sort of stuff. I remember Lois Colaianni[22] telling me that at one point, Don was talking to a group of people and he and his sister were very great horse people. He was complaining to his sister about this particular horse that he was very, very fond of, but he was having difficulty with—getting her trained. And his sister said, "You know, Don, sometimes you just have to change horses." Created all kinds of anxiety in people who heard this story, wondering whether he was giving a message. [laughter]

You really need to persevere if you have a vision, and stick with it.

DS ***Oh, dear! Oh, boy. That's a management strategy for ya! So you left before he got there?***

NM Yeah.

DS ***You realized that there wasn't going to be a place for you?***

Source: Personal collection of Nina Matheson.

Nina and Bill Matheson, August 1999, in their home and headquarters of their antiquarian booksellers company in Chevy Chase, MD.

NM Oh, I was told there was not going to be a place for me.

DS ***By Marty Cummings, then?***

NM It was a person to whom I reported as a special expert. Oh, yeah! [pause] I left just before Don came in. [phone rings] I remember Bill Cooper telling me that he had asked Don why he didn't keep me on. Don had told him that he didn't have a choice, it was already done by the time he got there.

JA ***We have just a couple more questions. The first is, what would you consider the accomplishment that you're most proud of?***

NM Oh, well, I suppose the completion of that study is the enduring contribution, because it led on to various consequences. Well, in part, I think its importance was it raised the consciousness of both parties—the library community and the medical community— as much as it penetrated the physician community. But I think it helped the informatics community.

DS ***Absolutely.***

NM And that really is the important thing, I think.

JA ***And then our final question: if you had advice to offer, let's say, to future informaticians or librarians or people who are a combination, information science in medicine people, what advice would you give?***

NM Well, if you have a vision, if you have an idea of where you think things ought to go, and you can imagine yourself doing—or position yourself to do—something about it, you need to not worry so much about the inhibitions, the inhibitory criticisms bound to come down on you from all sides. I especially think if I had paid more attention to the objections of people to the negatives, these things wouldn't have happened. But being somewhat closed-minded, you just go ahead and do things. I don't think one should [be] close-minded—I was sort of joking—but I think you really need to persevere if you have a vision, and stick with it.

JA ***One last question: that sounds like risk-taking to me. It sounds like you thought it was a risk to publish the report, in some ways.***

NM Oh no, I never thought of it as a risk. I just don't think about risks.

DS ***Just think of doing what you think is right.***

NM Yeah.

DS ***There's no risk in doing what you think is right.***

NM Yeah. If you lose your job, there's always something else.

DS ***That's good advice. [laughter] Thank you.***

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For additional Conversations with Medical Informatics Pioneers, please visit:

http://lhncbc.nlm.nih.gov/project/medical-informatics-pioneers

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