Dennis Rodriguez Interview
January 3, 2006

Victoria Harden: This is an interview with Dennis Rodriguez, about the origins of the NIH worldwide webpage, the third of January, 2006, in the Office of NIH History. The interviewer is Victoria Harden, the director of the Office of NIH History.

Mr. Rodriguez, thank you for being with us. And to begin this interview, would you state your full name, and the date, and that you are aware that this is being taped.

Dennis Rodriguez: Sure, my name is Dennis Rodriguez, today is January --

VH: Third.

DR: Third. Already three days have gone by, and I am fully aware that this being taped, and I'm participating with my complete and full willingness.

VH: Thank you so much, now, Dennis and I go way back, so this will be on a first name basis, more than a formal interview of Mr. Rodriguez. Dennis also has a most interesting career at NIH, and so Dennis, before we actually get to the discussion of the website, I'd like for you to give me a brief summary of where you grew up and where you went to school and then how you got involved with NIH, because you have been involved in any number of areas.

DR: Sure. I grew up in the suburbs of Baltimore. Went to the public school system in that part of the city, and I guess I was sort of a product of the [unintelligible] of generation of young people who got excited about science listening to the specials that he put on and following the rise of the space program, and that was really kind of one of the things that really got me excited about science, and then later biology. I went -- I started off going to the University in Maryland, and became interested in biology while I was there, and sort of made that my focus. I then transferred to Towson University, graduated from Towson University with a degree in biology. After getting out of school, I of course was looking for a job, and ended up working at first a private company, called Litten Bionetics [spelled phonetically], and that was an interesting phase in my career, because I sort of came in on the tail end of the president's war on cancer. President Nixon's war on cancer.

VH: What year are you talking about now?

DR: This was '72.

VH: '72. Yes, just as it was getting underway, actually.

DR: Yeah, right, that was the beginning of it. I was sort of, I guess one of the people that got -- I was fortunate because they were bringing on a lot of contractors, because NCI had lots of money, and so I worked on a cancer research project.

VH: And where was Litten Bionetics located?

DR: Well, I started off actually, they had a lab on Pearl Street, Bethesda, and then they moved to a larger building at the site of -- it's right adjacent to White Flint Mall now, Nicholson Lane. And they had several different aspects of their research that was unique. They had one of the larger primate centers in the area, so they specialized in handling larger primates. But my lab kind of specialized in working on doing large scale experiments for the Cancer Institute in areas where they, like let's say they wanted to do 10,000 mice instead of 100 mice, experiment that kind of scale, we handled the large scale. And then I got to know quite a few folks working at NIH, and eventually I was able to apply for and get a job working a lab here at NIH.

VH: And that was with Dr. Lloyd Law?

DR: Well, Lloyd Law was the branch chief for that particular group I worked in. I worked immediately under the director of a scientist named Chow Chick Ting [spelled phonetically] -- everybody called him George. And spent four years working very closely with George. We worked in a lab that really was about the same size as your office. A very compact unit, which was typical for labs, probably still is. And it was very interesting phase where we -- I guess one of the things that sort of was part of my growth during that time was I realized I really was kind of an equipment geek. Maybe they didn't have the word geek -- I don't know when the word geek came around, but I was always fascinated by technology, and we had a small WANG [spelled phonetically] computer of relatively -- I wouldn't call it a personal computer, but it was a portable smaller computer that we used in the lab to crunch numbers and run our statistical algorithms that we used for our research. And that's kind of, I think, where I really first became interested in computers.

VH: Interesting. But then in 1980, you switched out of the laboratory, and got into policy work. Want to talk about that a bit?

DR: Oh yeah, sure. I reached a point in my career where I was kind at the glass ceiling of being a technical support person, and I had a choice of going back to graduate school, and in fact I already started taking graduate courses, and that was -- my initial expectation was to try and get a PhD and I was really interested in immunology, but I saw an ad in the -- I think it was the NIH Record for applications to this thing called the NIH Management Intern Program that sounded kind of interesting. They told you up front that your odds of being selected were kind of slim because it was a very competitive program they had: ten positions and they were expecting over 500 applicants. So I didn't have real high hopes of being selected for the program, but for whatever reason I applied and managed to become one of the selected interns. So that seemed to be a real great opportunity, so I decided rather than spending all the years at work in graduate school, that maybe I would pursue this management intern thing and see how that worked out for a year, and if that didn't work, then I could always still go back to school.

VH: All right, so here you are, a new management intern, just for the record, would you describe the process that you went through. Did you go to school, were you an apprentice to various things, all of the above -- how did the program work? What did you do as the management intern?

DR: It was a very flexible program. You had essentially, for the NIH Management Intern Program, you had one year. During that time you could set up, really, as many work experiences as you wanted to. They referred to them as rotations. Typically though, people would probably do rotations for about three or fourth months. Occasionally someone might do a rotation for a short time, maybe a month or so, and we all kind of traded information on, you know, different opportunities to take rotations, and we also talked a lot about the different NIH managers who would willingly let you come in and work in their offices, and you know, you quickly learned that there were some that were recognized as being outstanding teachers and mentors and others that you wanted to avoid, and that sort of thing.

VH: Which ones did you do? Do you remember?

DR: Let's see, I'll try. The first one was with a man names George Russell that was in the Office of Management Policy.

VH: In the Office of the Director?

DR: Yes. And then I believe the second one was with a budget officer named Art Fried, and the [unintelligible] Health Institute. My third rotation was with a man named Mike Goldrich [spelled phonetically] who at the time was an administrative officer for one of the labs, one of the divisions in the Cancer Institute, and interestingly that was the division that had Dr. Gallan's [spelled phonetically] lab in it, and one of my projects during that rotation was to work with one of the other analysts there, and we did an audit of Dr. Gallan's laboratory, and that was a fascinating…

VH: Now this is something I'd like to hear some more about. Was this the kind of thing that every institute did? Was it audits at different labs, and different programs? Or was this just sort of a project for the management intern?

DR: No. From the way I understand it, my recollection is a little sketchy on this, but apparently there was somebody on the National Cancer Advisory Board who, in looking over the budget figures for the Cancer Institute noticed that it seemed as if Dr. Gallan's lab was one of the largest components of their budget in the intramural program. And apparently I gather this individual asked questions about where exactly was all that money going, and who was really monitoring how this money was being spent, so the director of the Cancer Institute, I guess, didn't have any answers, and so this was the result was that it was an internal kind of accounting of how the funding was being used at that lab.

VH: So you were looking at budget expenditures as -- at what? And particular projects, or individuals, or how -- just tell me…

DR: Right. We were kind of breaking everything down in terms of you know, the number of people that he had in his lab, the number of positions, the number of support contracts that he had, and trying to sort of just model it and compare it with other labs to first determine whether or not they were spending proportionately an equal amount of money. I mean, because one of things we knew was that his lab was larger than most of the other NCI labs, so it was only to be

expected that they were spending more. But even accounting for the additional positions, I believe that it still was a more expensive operation than some -- many of the other comparable labs.

VH: Did you have a reason for that? Did you find -- did you all analyze the reason? I mean, were they spending the money wisely is what I'm getting at. As far as you can tell.

DR: Remember, we did uncover a number of, I guess you might call them -- well, I remember there was one that we came across. They had set up a contract to have -- one of the researchers there had set up a contract to have some fairly expensive biologicals supplied to his lab every week, and then the truck would come by and drop this box of these biologicals off at the loading dock, and this investigator would pick them up and…anyway, this investigator eventually left, but the contract was never terminated. So every week a box would come with these biologics, would sit out there, it would rot, and somebody would put it in the dumpster, and then this would go on. And we were the ones that sort of uncovered a number of little things like this, where it was just a matter of oversight, I think, that people weren't always using the contracts, or using these different support mechanisms in the most cost effective way possible. But there was -- I don't think we ever uncovered anything really striking. In proportion these were minor, minor sort of inefficiencies.

VH: Well, after this rotation, you moved and I believe this was at the end of your management intern year, into the Office of the Director to join the Program Planning Branch and the Office of Program Planning and Evaluation.

DR: Correct.

VH: Kurt Habel. This is when you started working on policy studies, seriously, lots of them. And you worked on human subjects in research, research instrumentation, training, stabilization of grant cycles. Do you want to talk about this period a little bit?

DR: Sure. That was actually my last rotation. I spent three or four months working Kurt Habel's branch, and I really admired Mr. Habel. He was quite a force to be reckoned with in Building 1 at that time. Exceptionally thoughtful individual, just a great analyst, terrific writer. He really -- I really looked up to him and admired him, and I think he sort of took me under his wing and served as a mentor to me for that period of time, and I enjoyed that rotation so much that I wanted to continue working there. And unfortunately they didn't have a position for me at the time, and this is actually kind of one of the things that I learned during my period of being an intern, that you don't necessarily just accept what the bureaucracy says is the answer. You try and find creative ways of working around it. So I learned that management intern, for that next year, was going to have only eight slots, instead of ten, so that meant that there were two sort of unused positions, and the way these things worked was that each of the institutes would donate positions to the intern program. So the long term plan was to drop down to eight, but then next year put it back to ten. So for this period of one year, there would be one of these two unused positions. So I talked to the -- I came up with this plan of proposing to use one of these slots to keep me there for another year, and by the end of that year, hopefully they would have another position, or vacancy. And I talked the executive officer of OD into going along with this plan.

So I drafted a letter, he signed it, we sent it to the personnel department, and because it was something they had never grappled with before, it became so frustrating for them, that they ended up just giving Kurt the position, just so they didn't have to deal with the hassle of trying to figure out how to make this work.

VH: Good. This is where your brilliance in bureaucratic matters was honed and…

DR: Right. That's exactly what they taught us to do in the intern program, to be creative, to come up with solutions, to not just necessarily accept what we were being told, but to find some other way of working around it. And that was kind of one of the themes, I guess, of working in Kurt's office, that we looked at any number of problems that would come up for -- that would be on the Director's plate. And it was kind of exciting to be an analyst working there, because we did get to have face to face meetings with the Senior Staff, the Director, the Deputy Director and Associate Director, we went to all the advisory committee Director's meetings at that time. And we prepared essentially white papers on all the different issues and topics that were problems facing the Director, and we also tried to come up with options or papers that would project what different -- what might be the outcomes of different options. If you have to choose this, this is going to happen, if you go this way, this might happen. And it was a great learning time, and there were some really sharp people that I got to work with in Kurt's group.

VH: One of the things in AD4 which I think was in the same office was this major report on the forces driving organization change. Now, this is a most interesting project in a variety of ways. The -- this was the larger part of when you were staff for the IOM study on the organizational structure of the NIH, and as I remember, that study was never published. The papers were done, they were contracted out and done, and at some point, you became very interested in how history tends to repeat itself, as I recall you saying, you know that we shouldn't forget that they ten years ago did a certain report and we ought to have access to this. Tell me about this report on organizational change. I'd be very interested to hear more.

DR: Sure. Well, the -- I think, you know, that's also interestingly, this is sort of one of the reasons why I was drawn to history, and that is, really, if you do spend some time going back through the records and looking through what had happened at the advisory committee for the Director, for example, and you go back far enough, you begin to see the same issues over again, and you realize that a lot of the thought and possible solutions to problems oftentimes are right there if you bothered to go look for them. And I think the whole challenge of NIH in its complex organization structure is something that, you know, is a reoccurring issue that comes up. Even now it's something that's been discussed as far as the new reauthorization and that different models are being proposed. And Kurt and I were talking about it, and we began to go back and look through some of the records, and we were just noticing how many different -- how many different pressures NIH had been under over any years, to create more and more entities. And we were just sort of speculating, well, suppose we actually had created an Institute, or a Center, or a Division for every time one of these things came up. How many would we have by now? And it was really quite amazing when we went back and looked at the number of proposals that had come through by administrative and legislative channels for back injury institutes. I can't remember them all now, but there was this huge list of organizations that had been proposed. And many of them had actually gone pretty far into the process, the legislative process of being

seriously considered. And then we also examined the ones that were successful, tried to draw some comparisons between what made for a successful bid to create a new entity here versus the ones that didn't. And we were just trying, I think, to lay it all out so that people had a better appreciation of how the whole thing worked. You know, what were the forces driving this, and drawing a contrast between, you know on one side the forces that were driving organizational change at NIH, and on the other side what that meant for the organization itself in terms of having an ever more complex, fragmented series of Institutes, Centers, and Divisions that had to be managed by the director.

VH: One of the things I remember coming out of this study was that the studies of the various institutes that had been created -- that were done on contract -- showed that indeed, if you created a new institute, let's say the eye institute, then you got more clinical studies on eye diseases than if you just had or were a part of the neurology institute. And that this concerned a lot of people, and that this was one reason these reports and this whole thing was never published as a book. This is rumor, I have heard, but I just want to take this chance to ask you this and see if you have any recollections about this for the record.

DR: Well, I do remember that when we finally saw the almost, I guess it was, penultimate report from the IOM, their final draft, I remember, you know, I think I can remember this pretty clearly, because it was sort of surprising. We got -- our job was to coordinate the NIH response back to the IOM to let them know how we felt about the report. So, a copy of each report was -- sealed report -- was sent to each Institute Director. Their letters came back to us, and I don't think I've ever seen the Institute Director's and their correspondence be as blunt, and openly critical, even to the point of being undiplomatic. You know, typically, it's the director's here. If they're going to write, they're going to put things in very diplomatic tones, even if they weren't happy with something, but you know it was almost to the point of just being shocking.

VH: What did they not like?

DR: They just felt that the -- again, I don't remember all the details, but they just really seemed to have felt that the analysis was flawed, that the conclusions really weren't helpful at all. They just really felt that the whole project, and I don't remember -- at the time I think it was considered a fairly costly project. I mean they spent quite a bit of money over a period of time, and they had a lot of talented people on the IOM committee dealing with this report, but there seemed to be unanimous opinion across the Institutes that the report just was really off the mark in terms of being anything that would be helpful or useful to the agency.

VH: So tell me if I'm interpreting this correctly then: the report that said yes you should have more institutes is what they didn't want to hear, or there was a whole lot more to it, than that?

DR: Yeah, I definitely think there was more to it than that, although you got to remember, I mean, I was a relatively junior level analyst, so I wasn't really involved in the high level discussions about these things, but I did get to see -- I remember looking at the course of the incoming, because our job was to try and somehow come up with one response, that we were trying to, you know, pick up all the different comments and put it into one long thing. I mean we were just amazed at how strong an opinion the Institute Directors had.

VH: Those documents were saved in the OD files, and will be of great interest to scholars one day. Okay. You said you had a [unintelligible] word processor back in one of your early laboratory days, and in '85 you coordinated the installation of Wine-centralized word processing network for OPPD. So is this pulling you back to your interest in technical things.

DR: Right, yeah, since I had more than -- I probably had far more computer experience than just about anybody else, at least in our group, and probably in all of OPPD. It's funny to think back on it now, because now, I mean, we have computer geeks everywhere, but back in that period of time, very few people would confess to being a computer geek. But I had spent quite a bit of time -- I had taken courses in computer science and programming, and I was somewhat proficient with FORTRAN, as a computer language. And we did have a need for trying to coordinate how our documents were handled, since we had so many correspondences going on all the time, and the Wine Corporation did have one of the better centralized solutions at that time. We did a cost comparison; we looked at several companies. It was like, Lexitron, and Xerox Corporation, and IBM I believe had a solution. And we did, I did, sort of a cost comparison study looking at these different vendors. And it was, again, it was amazing to think how much -- I don't remember the figures, but it seemed like a very large sum of money to procure this system, and we had to install cables, and set up work stations for everybody, and set up the rules of how, you know who would have access to different documents. Basically there was a central CPU, and it was a small local area network that served that particular group.

VH: Just a one off the wall question: could people back up their own documents, or was there a central person who did it?

DR: You could write your own documents to -- it's funny that the disks that you could write to were ten or twelve inch floppy type disks, but there was only one writer, so you would have to take your disk down the hall and put it in this slot, and then write to it and then go back and get. So it was a little inefficient, but you could save your stuff locally if you wanted.

VH: In the fall of '84 in Building 5 -- that's when I first came -- and they had an IBM system, and the one person who coordinated the system for the building was the only one who could archive. And one day she didn't, and the system crashed, and lots of scientists lost data. I lost some data, but mine was trivial compared to theirs. So this is why I was asking. This is all, I'm sure, going to seem extremely primitive in the future, but we were walking through this, dealing with it, dealing with the beginning, when it was still the most advanced. This is why I wanted to get some of this down as we go.

DR: Oh yeah, it was -- I thinl our disk -- the machine that we used, the CPU was probably the size of like something like a typical washing machine, and it had a big hard drive in it. I think it was a 20 megabyte hard drive, and that everybody was sort of like stunned by the capacity.

VH: And you may remember when we first began to get IBM PCs, and then you got your ten megabyte hard card, and I thought that would last me for the end of my career. Ten megabytes. All right. In 1988, however, you took another step out of policy per se, and into the office of AIDS research. You want to talk about how you got to OAR, and what your duties were there?

DR: Yeah, that was another fascinating component of my career. I began, you know, going back to my biology days, working in the lab. My primary interest was immunology, and when we first started hearing some of these reports about some immunologic based cancer problem in San Francisco, there were periodic requests from time to time coming into the Office of the Director asking NIH, was NIH aware of this problem, what we were doing, and oftentimes our office had to be -- we responded to some of these types of queries. And there was nobody on our staff who was sort of up to speed on this issue, and each analyst had a number of topic areas they were responsible for. Since I had a background in immunology, Kurt said -- he kind of gave this task to me to monitor this, track it, and find out if anybody at NIH was doing any work on it, and to draft responses as correspondence came in from Congress or from the public, saying what was NIH doing, did we know about this. So that's kind of how I first got involved with AIDS and then it just -- over the years it became more and more consuming task. There were just more and more queries coming in, and then it became a press issue, and then Rock Hudson, and eventually I was part of a small team of people that helped to coordinate AIDS policy activities in the Office of the Director. We were quickly overwhelmed with work --

VH: Who else was involved in that? Do you remember?

DR: Yeah, I should. There was -- the people that were on the team there were myself, there was another analyst named Judith Swann [spelled phonetically] and Judith, I believe still works with the Cancer Institute, I think she works in the SEAR division; the group that works on that. And there was another woman who helped us, whose name was Barbara Harrison. And Barbara, I believe is still at NIH, although I believe she works at extramural…

[break in audio]

VH: Right. Now you were talking about your support person named Linda Hoto?

DR: Hodo. H-O-D-O.

VH. Hodo. Okay.

DR: Okay. So that was kind of our little core team, and you know, we kept complaining that we were understaffed and there was this mountain of work pouring in that had to do with AIDS, and it was well recognized that Building 1 needed a much more robust solution. The solution at that time basically was to have one person serve as a central AIDS coordinator. The first AIDS coordinator was this physician, Bob Gorton [spelled phonetically]. And he worked right down the hall from me, which made it very convenient whenever we had a question or an issue or a problem we needed to get solved with our scientific expert. We could go in and talk to Bob, and he was an extremely knowledgeable individual; just encyclopedic knowledge of medicine. So he was great, we could always fact verify -- if we put together some policy, [unintelligible] some issue, were uncertain about the medical credibility or veracity, we could ask him. But unfortunately he became ill and unfortunately died, so the AIDS coordinator position was then shifted to a man named George Colaso [spelled phonetically] for a short time. George really wasn't -- he was I think the [unintelligible] for extramural. So we never quite understood exactly

why he was selected to serve in that role. And actually it was, I only have Kurt Habel's sort of perspective on this, but according to Kurt, he was the one who essentially went to Jim Weingarten [spelled phonetically] and said, look, this isn't working. We need to have Tony Fouchy [spelled phonetically] be the AIDS coordinator. Because current at that time, the person who was Associate Director for Program Planning left and Kurt was the acting Associate Director, and so he want to Weingarten and proposed that we needed to reconstitute the AIDS executive committee and we needed to put Tony Fouchy in as the NIH AIDS coordinator. And apparently Weingarten [unintelligible] and shortly thereafter, we -- I think [unintelligible] actually drafted these memos from Weingarten making these decisions to create, or reconstitute the AIDS executive committee, and to appoint Tony Fouchy as the AIDS coordinator.

VH: And at this point, this is pre-1988, is it not?

DR: Yes. Yes.

VH: Okay, this is when it was still just an executive committee. And then in 1988, the Office of AIDS Research was established formally, with Tony Fouchy being the head.

DR: Right, and I don't remember exactly when [unintelligible], but then in addition to our little team, Jack Weitsbarber [spelled phonetically] was hired to be the Director, and so we essentially sort of became Jack's staff in the newly formed OAR office.

VH: And you were serving as exec-sec to the AIDS executive committee as I understand.

DR: Right.

VH: So you were taking minutes and what else?

DR: Yeah. Well there were several responsibilities in that position. Yeah, I coordinated the meetings, the logistics, sent out all the materials, made sure everybody had everything they needed for the meetings. There was -- the meetings were quite intense because they often dealt with making decisions about which institute was going to take the lead doing something, and whether it was a clinical study, or some research on a drug, or -- and oftentimes, there were pretty sharp differences of opinion about who ought to be the lead. And also there was a lot of money involved, because there were a number of instances where NIH got a chunk of money, and it was more or less up to us to decide how that money was going to be apportioned.

VH: This is extramural, and intramural, right?

DR: Right. And I remember, you know, sitting in meetings with Tony many times, and he really had quite a challenge cut out for him, because he then had to be this negotiator, and he, oftentimes, you know, he would go out and he would say, okay, we have x number of resources and he would ask Institutes to come up with proposals on how they would utilize the [unintelligible] funding, and sometimes Institutes would come up with things that, you know, was very appropriate and perfectly agreeing with projects we pursued, and other times he would just become really agitated because he would feel that they were essentially trying -- they were

trying to repurpose the funds to support work that was already going on, or basically trying to sort of, gaining, the [unintelligible] best position themselves. And he would then have to be the one to go and sort of take people to task. And it was not an easy thing to do. And the challenge too, was that it was all happening so quickly, too, so we didn't have the luxury of spending a lot of time debating these things. The decisions have to be made quickly. So there was a lot of that going on. Then we also, part of my other job, was that every two weeks, I was one of the NIH staff people that went down to a recovery building to provide staff support at the AIDS executive committee meetings that took place down there.

VH: And that would have been departmental, or public health service or…

DR: Yeah. Well, I guess it was both, because usually the surgeon general was at the meetings, and usually the Secretaries, and Secretary Bowen [spelled phonetically] was usually there, and it was a big round table, huge meeting, with Jim Currant, and the cast from CDC, and the FDA folks, and the NIH folks, a very high level meeting, and there was sort of a gallery of all the staff people that was off to the side, and we had to sit there and take notes, and if one of our principles, Dr. Weingarter, or Dr. Fouchy needed something, we would dash around to try to get whatever they needed. If we had to retrieve a document, or they wanted copies made, or whatever it was. And then also, I had to, usually, we had our meetings, NIH [unintelligible] timed to HHS meetings so that Tony could report back to the NIH group what happened at the HHS level. Sometimes he would sort of prepare his own notes, but a lot of times I had to prepare talking points for him. And that meeting, I think, was like 9:30 - 11 downtown, and then our meetings were at 1:30. So I had about an hour and a half to have the thing on his desk before the meeting started, which didn't leave me much time for lunch on those days. It was pretty hectic, especially on days when there were lots and lots of topics that were covered. From time to time Tony did have someone kind of serve as his immediate NIAID AIDS staff person. There was a woman named Maggie, and then Peggy Hamber [spelled phonetically] was…

VH: Yeah, I remember Peggy Hamber. What was the other woman's name?

DR: Maggie Donohue.

VH: Oh, Maggie Donohue. I remember her.

DR: Right. Actually I was really glad when Maggie was there, because oftentimes she would write up his notes from -- write notes for Tony, that was a great -- took some of the pressure off me. Because I really had quite a bit of work to do just getting the meeting ready without having to worry about preparing notes for Tony. In any case, those were some of the responsibilities, the other thing that was our big time sink, was setting up and orchestrating, first one was this thing called the Ad Hoc Advisory Committee on AIDS. I think, and again I'm kind of speculating a little bit, I think what Tony was trying to do was to bring in a group of outside consultants to help, sort of, formulate the AIDS strategy for NIH and also to ensure that it was, you know, not just an in house thing, that we had kind of outside expert review. So we brought in this group of researchers and physicians from around the country who were experts in a variety fields: neurology and vaccine development and that sort of thing. That group, then, sort

of, that was an Ad Hoc unchartered committee, but then that eventually worked into what became the AIDS exec -- not AIDS executive -- the AIDS Advisory Committee to the Director.

VH: We're probably going to have to come back and go over some more of that in the future. Because you were really right there as it all emerged. In '89, though, you decided to seek a detail out of OAR, and you came to me, and we -- I was delighted to see you, and especially with the policy background you had and your interest in history, and your knowledge of NIH and of AIDS, and in fact, that's when we got the Oral History, the AIDS Oral History project started, and you did, I think the very first interview with [unintelligible], and it's grown from there. Just a little sidelight, we really are going to get to the worldwide web eventually. But tell me how you thought about -- what, as a policy person coming into history, how did you think about these early interviews? What did you want to see recorded? What did you hope to achieve by doing this?

DR: It was quite simple, and that was that: I mean, I really felt that NIH did a lot of really good work during that period, and there was an enormous amount of energy and commitment on the part of a wide variety of people across NIH to do something about this epidemic, and it just really bothered me, that the sort of political spin meisters had put such a negative on the NIH response to AIDS, and I just felt that if there was anything I could do to help, sort of set the historical record straight, or against the wrong way of putting it, but at least to just tell the story clearly, at least as I had seen it as an insider. I think it was something that none of the people that I knew, no one had, I don't think had the least bit of doubt or reservations about the decisions that were made. I think everybody was acting within the bounds of what they could do, they were exceeding expectations of what we as an agency could or should do in that situation. And I just felt that it was a disservice to not, or to distort that reality.

VH: This was the time when I was so frustrated about the fact that a lot of scholars and press people liked to use the government as a straw man to knock down. And it was truly a straw man; they knew nothing about what was really happening. It was just a monolith, and they could rail against this monolith, and it was almost like railing at the universe or what have you. And so agreeance -- it wasn't a matter of setting the record straight, it was a matter of capturing the record from this point of view. All right. And you also expanded when you got here because we were such a small operation that we all did everything. And did the very nice exhibit on the world of medical instruments, which adapted to a case we had that we had you do, and so, I mean, this was sort of just a part of the history of the museum; I always called it making it up as we went along, but doing what we needed to do, and I think that was a most interesting exhibit, because you had to find instruments that fit a case, but what you did was find a group of instruments that were pre-computer and then looked at what they did in their time, and how they were used. Do you want to talk any at all about this exhibit?

DR: Yeah, it was -- I guess one of the things too that I was trying to do with that exhibit was to infuse some engaging graphical approach to help tell the story about what these instruments did and why they were important tools for scientists who were investigating health related problems. And I was a big fan of a particular magazine at that time. It was, I guess, it was called "The Sciences." The New York Academy of Sciences had a publication, and they were famous for finding artwork that helped to illuminate various concepts in science. And so, I thought, I

wonder if we could do something like this for the exhibit. So I spent a lot of my time trying to find art that could possibly help draw attention to these devices and also people understand why they were as useful as they were. Ironically some of them turned out to be not so useful, I mean in terms of their original -- the tensiometer was one of the things that was a beautiful instrument, but I don't know if it had much of a success as being a clinical instrument. But even that, I think, is part of the interesting story too. It's that it's the effort to try to find ways, exploring the biological world and measuring, and getting it to tell us things about what might be going on inside of a body, particularly a body that's not working right.

VH: Which I think was one of our great challenges because so few medical museums speak about the measurement of things, and how science -- I mean they talk about healing and this and that, but this particular scientific method of doing it, and the NIH of course did that, and this is what we were trying to get at. But let's move -- we could spend a long time on AIDS, and a long time on the museum, but let's try to talk about moving into your work with computers and the worldwide web. In 1990 you became a full fledged staff member of the Office of Communications, and about this time we were all getting, really addicted to email, but it was still pretty much text, we hadn't gotten into images yet. And you've noted that the NIH homepage was launched in 1993 by the Division of Computer Research and Technology. I was thinking it was not until '95 that the worldwide web came online. But I don't know. Can you give me a little timeline of what was happening. Wasn't it a group of people in Europe, Switzerland, I think is where they were located, who put the web together, and how it all happened, and how NIH -- I know DCRT had been doing laboratory computing, but what was going on here.

DR: Well, yeah, the precursor to the web was this thing called GOPHER. I can't remember what the acronym stands for now, but it was very -- it was a text based worldwide web, essentially. And that's the thing that really captivated the interest of a lot of people outside a very small group of people that were originally working on the original internet. Because with GOPHER technology, you could easily put up large amounts of information of a GOPHER server, and you could create menus, and it was easy to navigate, and I think the very first time that I began navigating a GOPHER site, it was just amazing, because you quickly, very quickly realize that this thing had enormous power that you could quickly begin navigating around the country going to different universities and perusing the holdings that they have there. Again, it was all text based, but yet, even at that time, it was still just a gold mine of information. But of course it was essentially very technical research based information. People would put their data, logs, they would put bibliographies online, abstracts, papers, manuscripts. Some enterprising people would even begin posting things that were no longer copyrighted, anything public domain. And the other thing that was going on at that time -- now, the only downside to the GOPHER was that it for the most part, you needed to be on a network somewhere. Which meant that it was something that existed for federal agencies and [unintelligible] universities that were part of their computer department and that sort of thing. It certainly wasn't anything that was popular domain. What was the popular domain were electronic bulletins. And so that's kind of where it went. But the --

VH: Tell me about this. Because I remember, when you bought software, did you not, to set up the NIH electronic bulletin board that people could do. And how were you related to DCRT, if at all, when you first started doing that?

DR: Well, DCRT actually did set up this sort of bulletin board system using their mainframe computer, but the problem with it is I think they basically wrote the code for this thing in house, and it wasn't -- it didn't really follow the conventions that most people who were BBS hobbyists were used to. I mean, there was a huge thriving community of people who were BBS hobbyists out there, and prior to the internet, worldwide web coming on the scene -- I guess I should backpedal a little bit and say that, yes, the NIH website went up in '93, and the reason that happened is that there was a transition between GOPHER and MOSAIC, where it was sort of like the GOPHER community immediately became aware of MOSAIC once the MOSAIC browsers was [unintelligible] the creation of that group that developed that. And that really was kind of the extension of making GOPHER graphical.

VH: Okay, and that was in '93.

DR: Right. And so that was very -- among the hard core geeks who were into that thing, that was like overnighter -- oh man, you have to get a look at this. But setting it up and getting it to run on the machine, took a lot of technical savvy, because you had to go into [unintelligible] windows, there were a lot of very specific files that you needed to install on your machine, and it was no -- it wasn't for the faint of heart to get it working. So again, it wasn't something that your typical computer home user was [unintelligible]. It was something, again, that existed mainly in the realm of the computer centers and research.

VH: I hope they archived.

DR: They put on some demonstrations, and I went to their demonstration, and I was amazed [unintelligible].

VH: I remember going to a meeting -- I was on the board of the Hopkins archives, and this man got up, it was about this time, and said, I have seen the future. I mean, just with this awe in his voice. And this is what he was talking about. This graphical interface, of course it all came to be very shortly thereafter.

DR: Yeah, it's ironic to think about, you know, younger people who grew up with the web. You know, you can't -- I suppose it's hard for them to imagine a situation where they don't have browsers or the web; hard for them to put themselves in the mode of thinking if you lived in a world without browsers and suddenly somebody gave you one, how would that feel? And it was pretty darn impressive.

VH: It certainly was. Tell me about used the Health Information Bulletin Board and what kind of information you put up on it.

DR: Well, being a BBS hobbyist myself, I had you know, kind of looked around to find out if somebody was looking for health information using BBS approach, what could you find out there, and there were a lot of health BBS boards out there, but the quality information on most of them was really dicey.

VH: Was that because people were trying to sell things, or people were just talking about…lack of knowledge?

DR: Well, they really weren't trying to sell that much stuff. It was mainly that people would sort of like take what they had at hand, or what was available, or and put stuff up, or else people would put up their own, you know if they had gone to a particular clinic and had a good experience, they would you know, maybe write…

VH: So these were lay people, not professionals.

DR: Right, I don't -- I don't really think many physicians were into this. So, I mean, that's one of the things that struck me. You could find information on a variety of topics, and oftentimes it was quite good, but most of them tended to be around -- like let's say it was baseball. There were baseball BBS's that had stats going back all these years, and a lot of good information on baseball, or if you were into building models. There were a lot of different topics that were covered, but health didn't seem to be an area that had much to offer. So that's why I thought there was a real opportunity to create a BBS and sort of tap into the good health information that we had here, and I did think that the decision not to try and put it up on a web server at that time, because not that many people had access to the web, and my goal was to try and make NIH information available to the public, non professionals, as well as any medical professionals that did use BBS. And that actually turned out to be one of the interesting users of the BBS that really sort of kept me excited about it, was that I heard back from -- got email from people who were working in clinics, for example people that work -- there was one person who was a nurse in an army clinic in Honolulu, and this person was saying how difficult it was for them to get materials to give to the patients, and they were downloading and printing off the stuff I was putting up, and giving it to the patients. It became like a magazine rack for them. And I think it was the people who were in areas that had minimal health services in their area that were the ones who were the most enthusiastic about the BBS, because I would get mail from people in you know, Alaska, and different military bases around the world, and Indian reservations, and all these places where people were saying to me, this is great, and I'm finally getting something for my tax dollars! Like something I could actually use.

VH: Where did you get your information? Did you just talk to the different institutes and get them to send you things?

DR: Well, basically, it was crazy. I would sort of walk around the hallways, and pick up publications, and then I would call up their information office, and ask them who worked on publication. So and so, and they would say Joe worked on that. So I'd call Joe up and say, Joe, did you happen to have the file that this came from for this publication. And sometimes they would say yes, and sometimes they would say no. If they said yes, it would be great, I'd go over and get the disk and make a copy of the publication. Occasionally we were able to do some scanning and OCR work -- some of these things, and -- and actually I had -- I can't remember -- Dorothy. Dorothy actually did some literal keystroke [unintelligible] taking down a hard copy of the ones -- I was [unintelligible] in cases where we had a good publication but no electronic copy, and particularly if it was hard scan.

VH: This was Dorothy Jones who was our program assistant at the time.

DR: So it was basically however I could get the thing in some sort of machine readable form, and then upload it to the BBS, and I gradually started to build a collection of materials, and some of the institutes were quite good at -- that they had a complete record of all their publications, and it was easy to upload that, but -- and I had one [unintelligible] to start off with quickly that [unintelligible] became separate over work [unintelligible] I got three lines. So I had three [unintelligible] lines and they were busy all the time.

VH: Did you keep any of the letters you got from people, or do you print them off or save them in any way?

DR: Unfortunately I don't have copies of any.

VH: If you come across any, we'd like to -- to build a -- because that again is the -- that's the -- really beginning sign of all this work that you've done. Okay, well that was the bulletin board, and you launched that in 1995, and by 1996, there was a worldwide web coordinating committee. Now that was all NIH, right?

DR: Right.

VH: And how were you involved in that, and how this evolved into where we -- to the web as it is?

DR: Well, as I said, there was a website that was put up by NIH, and there was sort of an interesting period time where you can see that -- that the BBS world was starting to wake up to the world wide web and see the advantages to it, and it didn't take much to see that BBS was kind of a dead end technology, and that sooner or later everybody was going to be migrating to the web, or more articles were actually appearing in BBS magazines at the time featuring websites.

VH: Interesting.

DR: And actually that's -- again, I see a number of articles about some of the NIH websites appearing in some of these DBS magazines, and

[break in audio]

VH: -- side one, and I think we should [unintelligible] the leaders, so go ahead.

DR: Okay, well the -- the interesting thing about the AIDS Coordinating Committee is, if you think back to what I was telling you a little bit earlier about the AIDS Committee, it basically was kind of the same game plan, in that you learned -- one of the things I learned from Kurt is that if you want to sort of set something up in place, and diffuse a lot of the dissention about it, you get the director to sign a memo creating something, and so I proposed this approach to Anne, because there was a lot of dissention at OD and it crossed the NIH path. The NIH homepage,

and who was in charge of it, and should it be DCRT, and what would it look like, and who was it for? Is it for the scientists, is it for the public? So by this time I'd gotten fairly good grounding in understanding what some of the good principles of communication were, and it also seemed pretty clear to me that the world wide web was going to become a public face for NIH, and so it needed to be something that could be utilized by the public and understood by our public users, and to kind of get away from all the internal in fighting, I came up with this approach, which was basically to have Dr. Weingarten sign off on this memo, saying, "Look, this is how it's going to be, we're going to create this committee. It's going to have this type of membership, and this is going to be the focus, and the communication people are basically in charge of it."

VH: Brilliant strategy, yes. It's the only way to go, and it was a very fine decision, as opposed to having the technical people in charge who didn't know how to communicate. At least that's my opinion, so --

DR: Yeah, they were great at keeping the network running, and they were great at building servers, and putting in the various lines that we needed, but when it actually came to deciding what pictures, what words, what messages do you want to up there, that's not their thing.

VH: So -- but it was not your thing right then at the beginning, was it -- on what was going on the NIH homepage, because as these things happen at NIH, tell me if I'm wrong and then expand for me, each institute was doing it's own as these things started going, and who was choosing what went on the NIH homepage, and how did they coordinate, and where did the Office of Communications come into all that, in the very beginning?

DR: Right, well at the very beginning, yeah the institutes were struggling with making decisions at their level too. I remember there were several interesting situations where there were, I think some institutes had had -- two different sites of both seemed to be -- you couldn't tell which one was the actual home page, so one of the things that we did do with the policy group, there was a CIT policy group, and I was working with Donald --

VH: And just for the record, let me say that --

DR: Oh, right, right.

VH: -- DCRT, the Division of Computer Research and Technology changed its name about this time to CIT, the Center for Information Technology, so these are the same -- this is the same outfit with two names, excuse me.

DR: Yeah, I work with a woman named Donna Lincoln [spelled phonetically], who is still at CIT, and we worked on a document that at least outlined some very basic ground rules about websites at NIH, like for example it would say, "Each institute has one homepage. Each homepage needs to have some point of contact on it. It needs to have a link going back to NIH central." I mean, these were some of the most fundamental things that, you know, you would assume the organization would do, but we had to basically come up with, like, a policy document.

VH: But this was inventing from the beginning. There had never been anything before.

DR: Right.

VH: So it was essential to do this in that sense, because if I recall, some of them didn't think about doing these things.

DR: Correct.

VH: Go ahead.

DR: Yeah. There were -- you could find examples of websites that -- it wasn't clear exactly where this website was coming from, you know, was it a federal entity? What was it? So I guess that was part of our goal, was to first set some basic ground rules in place, in terms of -- oh, and the other thing, too, that we set up in this document was that before we would link to your site off the NIH homepage, you would have to come to us and ask our permission, and that sort of gave us an opportunity to look at their sites, and if we noticed any problems or things that were really troublesome, then we could back to them and ask them to address those concerns before we were going to link to them from the NIH homepage.

VH: Was this the kind of wild and willy period where people were trying to figure out what was appropriate and inappropriate, like putting up their children's soccer schedules on an institute homepage, or, I mean, personal things, and I mean -- and all of this had to be sorted out in this.

DR: Yeah.

VH: Is that the kind of thing you all had to deal with, too?

DR: Yeah. It was a very frustrating part of our job, because you know, we didn't really sign on with the expectation of becoming web police but unfortunately, we found out that somebody needed to be -- to occupy that role. You didn't have to look very far to find all sorts of peculiar things going up. There was one person, I remember, who put up this site that was about the music scene in the DC area. So it had all kinds of information about -- that information about who was performing at what club, and if a band played somewhere and they did a really great job, there'd be a little synopsis, "Yeah, this band really rocked," or whatever, and it was sitting on an NIH server. There was another site that I remember we came across that -- it was -- it was an absolutely -- it was probably -- I wish I would have saved it, because it was so bizarre. It used -- I don't know if you've ever been to a butcher shop, and had a picture of a cow, and it had it segmented, and it shows you like where the ham hocks come from, anyway, that was the main lead graphic for this website, and I can't remember -- I think they had the different sections of the cow related back to different division or something -- it was just utterly bizarre, and not only that, it had a lot of information about different offices and different components of NIH that had nothing to do with this person who put the site up, and practically all of it was wrong. In every one of these cases that we came up to, it was a matter of saying, "Okay, who put this up? Why did they put it up? Can we get them to take it down? If they're not going to take it down, what

would we do? Who's their supervisor?" And it was just time consuming, you know, each case had to be kind of investigated individually, and it just took a long time to do it.

VH: Well, it reflects the fact, I think, that so many people didn't really appreciate the worldwide scope of this and this medium at this time, and it -- they didn't treat it the way they would a telephone in the same -- with which they were quite familiar, and they didn't think of it as government property, all sorts of things, the growing pains, or the transition issues, I suppose, if you will, and so you all did get to be the police, as well as the policy makers. I remember somebody telling me that he had to go and see this fearsome Dennis Rodriquez, I said, "Fearsome?" [laughter] Oh, well he can -- he makes these decisions, so this was thrust upon you is my point.

DR: Right, yeah I remember, I never went out to become the web czar, but I guess, you know, a lot of us were just sort of assuming that, in particular having come from a kind of policy background, and being sensitive to some of the issues, privacy issues, and ethical issues concerning clinical studies and animals -- and also just being sensitive to the way people perceive federal organizations, and to use this as looking for ways -- you know, you don't want to give people ammunition unnecessarily, and you don't want to make it seem as if, you know, people here have all the time in the world to --

VH: Right.

DR: -- to post non work-related things, and we also had the problem of -- on one hand, we were trying to make our information as transparent as possible and build a search engine for it, but until we actually could clean it all up, we sort of had to hold back on some of that, because building a powerful search engine would just make it all the more easier for people to -- to uncover all the stuff that we didn't want people finding, because it was inappropriate.

VH: So you were probably really very lucky to have had as small an amount to have to deal with as you had, even though it seemed like a large amount at the time, compared to what is certainly out there today.

DR: Well, it was also frightening because we didn't -- we didn't have all the tools necessary to monitor everything that was going on, and even, you know, it was sort of like, you know, you take your one problem over here, and have a problem pops up here, and you never really knew what your universe of problems was, all -- sometimes we would get email or calls from people, saying, "Why does NIH have a site on badminton?" That was another site. It was a -- it was a really good site, I'll bet, but everything you wanted to know about the history of the shuttlecock, the scores from all the badminton tournaments going back to -- but why is it on NIH server?

VH: Sure, sure. Now, this is -- we're talking 1996, when you all established this coordinating committee, and in 1997, the Online Information Branch was created, and were -- did you begin to focus more at that time on the top level NIH content, or were you still trying to coordinate the whole thing with the institutes -- how did -- how did it evolve, the way that your office worked?

DR: Well, the goal of our office was to, you know, create something official and permanent within the communications arena and had an oversight management role for using websites as communication tools within the communication community, and part of my goal of doing that was to just -- you know, to create some permanence to that relationship, between web technology and communications, and also give us some credibility and, you know, I think unless you're actually part of the organization, a lot of people don't really completely take you serious.

VH: Sure.

DR: That was also my expectation, that once I actually had an office or organization, maybe I could get some additional resources to help do what I was trying to do, so that's -- Anne Thomas certainly seemed to appreciate and understand and recognize the value in this technology as a completely new, novel means of communicating, and the fact that if we didn't exercise some leadership in our area, in this area that some other group would probably do it, and not being trained or experienced in communications, we didn't know what that would end up being.

VH: Did you have to work very hard to convince Anne of this, or did she instantly grasp it, or did she come to you?

DR: I came to her, she grasped it very quickly, she seemed very relieved that there -- she had somebody on OCPL staff who was interested in, and knew about the technology, and she just seemed like she appreciated the fact that I was volunteering to do this. The only challenge, or course, that we had is that OCPL has always been, as you know, somewhat conservative, as far as it's overall budget and the resources that you have to work with within this organization, and so you have to be creative, in trying to find ways of supporting what you want to do. So I think philosophically, she was very supportive, and to the extent that she could eke out some resources for me to work with, she did -- it was enough to get by.

VH: And then the whole organization of NIH started to see the value in having this home page, and I expect that everybody's resources expanded over time.

DR: Yes. There was considered -- there was investment by most of the institutes into the web. Some invested far more heavily than others. Collectively, there's a lot of people out there now who are, you know, official webmasters, and there are web teams, and have a lot of web support contracts, so I'm sure if you added it all up, it would be a considerable amount of resources that's, you know, utilized.

VH: Now, you noted in your information that you provided for me that there -- that you marked 1998 as a period of rapid expansion of content, and in 1999, the WAG, or Wide -- Web Authority Group?

DR: Web Authors Group.

VH: Web Authors Group, I'm sorry, was established. Is there a link here between the rapid expansion of content? Tell me what happened there.

DR: Yeah, well I'm glad you asked that, because it gives me a chance to -- at least in one place, debunk, maybe, some confusion. There were always -- was confusion about these different groups that we had. There was the WIG, the WAG, and [laughter] the Worldwide Web Coordinating Committee.

VH: Okay, the WIG, the WAG, and the Worldwide Web Coordinating Committee. All right, you're going to explain all these.

DR: All right. The WIG was the Web Interest Group. That was set up by -- oh, gee, what's her name? Dale --

VH: Yes. In CIT.

DR: Maybe it'll come back to me, but it was Charles Mokotoff, Sandy Desautels [spelled phonetically[, and Dale Graham, were kind of, you know, a group over there that were really into the web, and building websites, and learning the latest tricks in how to use HTML and other coding techniques, so they set up a group called the web interest group, and it was kind of thrown open to any and everyone who had any interest at all in anything having to do with the web, and they used to have their meetings over the Natcher -- oh no, in the Masur Auditorium, sorry. The group that I helped set up, and actually the idea for the group came from one of the institute webmasters, her name was Kathy Kranzfelder [spelled phonetically]. She set up the first website, NIDDK, and she came to me one day and said, "Well, you know, it'd be great if we had an opportunity, you know to sort of bring together the different --" but by this time, usually, in most institutes it was one person, so the idea was, "Why don't we set up group so we can like get up altogether, just sort of meet and talk among the different web authors," the people -- the content developers for these different websites, and so that was the idea behind the web author's group, and it was different from the web interest group, in that the web interest group tend -- first of all, that was wide open. Anybody could come, scientists, lab technicians, didn't matter. If you thought the web was neat, you could come to the meetings, and a lot of the discussions had to do with technical issues, you know, "How do you make something turn purple?" or whatever. The topics that we tended to deal with had more of a focus on communications. You know, how do you -- how do you turn a website into an effective communications technology, and we didn't worry too much about the technology end of it, our focus was more on the communications and the outreach part of it, and the support issues within your organization, how do you make people appreciate and understand what it is you're trying to do, and how do you get the resources to do it, as opposed to worrying about a particular bit of code. So it was a very different focus, although the names sounded kind of similar, and people got confused all the time. And also, the WAG group was limited membership, only to people who had an official responsibility for managing a website, as opposed to just anybody. So it was a closed group, open group, policy and ownership issues, technical issues. And the other group was the Worldwide Web Coordinating Committee, and that was a much smaller group of people who -- I guess the best way of thinking of it would be it's kind of like an executive board for the NIH homepage.

VH: And at some point in all this, you worked with me and others on the museum's first homepage as a part of this, and you may or not realize that that entire first homepage will fit on one 3.5" floppy disk. I mean, everything we had on that website, and I -- I don't know how far

back the NIH, as a whole that other -- some of the institutes have archived their websites, but I hope -- I mean, a lot of them have been very good about sending us copies of their archives, and we appreciate your helping us doing that, but I -- I realize this is going to look all so very charming to people in the future who can't believe how primitive we all were, but it was really quite an exciting thing there at the beginning, and how -- and it grow very fast. Now, in the year 2000, the current version of the NIH homepage was established. Do you want to talk about some of the issues of making a major -- how quickly it got to be a problem to update a website? I mean, to make a major overall change, because initially, you just had this little small thing to do, and then all of the sudden, just to make one change meant you had to make a lot of other changes, and how did that affect what you all were doing?

DR: Yeah, that -- it did become, I mean very quickly websites had a tendency to become organic and become responsive to the needs of the organization, and there are so many different needs that come up, and different unique and creative ways to use the web to different effects, whether it's -- like for example, one small thing that came up with the appropriation subcommittees that -- staff on the appropriation committees quickly realized that it was a lot easier for them to have the institutes put up their opening statements on their websites, so that they didn't have to wait for the paper process to get a hold of the new opening statements and do their statement, so they began asking us, "Gee, can't you put up your opening statements?" So that became quickly a task that we took on to collect the opening statements. And there were just almost unending, seemingly unending list of other things that kept happening like that. Yeah, "Can you put up this schedule here? Can you put up this budget here? Can you put up this list of that there?" And you know, we didn't have, really, the luxury to sort of sit back, come up with a grand strategy of how to handle all this stuff. We just were being responsive to it, so that led to a very sort of complex series of directories and subdirectories, and it quickly became a lot to manage, so then the requirement came, "Oh, yeah, we need a new look and feel for the website," and it wasn't, I mean, part of the challenge is, "What's that going to be, how's it going to be different?" We want it not just to be a cosmetic thing, but to be a more functional improvement over what we have, so it -- it involved a lot of thought that took place behind the scenes, in terms of how we wanted to organize the information, not only to accommodate what we currently have, but to then anticipate what was going to be coming at us in the future, and how we were going to accommodate future change. So there was a lot of work that went into how to organize the structure of the website so that it didn't become as chaotic for us, so there was a cosmetic, nicer looking [unintelligible] that we'd created, but a lot of the effort really went on behind the scenes, in thinking about how to organize its structure, and move everything around, and of course a lot of the stuff that we created was best practices, supposed to be that you create web pages that can be shifted in different directory structures, but of course that didn't happen, so there was a lot of editing of pages as we moved them around in different areas, things broke, and it was just a big mess.

VH: How many people do you have on your staff now?

DR: Well, I guess we're thoroughly modern -- I guess this is probably one similarity between my group and your group, in that there's a very small number of federal employees, and that most of the workers are contracted out, and I'm kind of the same way as you are, and I have Julie Morten [spelled phonetically], who is kind of my principal web editor, and she's a federal

employee, and I have Betty Riley, who's -- she works on the calendar, she -- I never hired her as a web person, but she's kind of a [unintelligible], I guess you might say. But my -- then I have two onsite contractors, a guy named Dan Miller and Warren Konte [spelled phonetically], who also do web development, and I have another contractor named Kristin Meade, who's kind of a long range web strategist developer, doesn't do much coding, but works on developing new applications, and then I actually have other contractors who do work for me off site. [unintelligible] programmers and artists, and we even have a librarian who does some work for us out there too, so -- and we use their labor on an as needed basis.

VH: Well, as we finish, think about if there is anything else I haven't asked that you want to say, and then I would like for you to just predict where do you think it's all going -- will everything that we now have in libraries be on the web, so that we are deciding what books to keep as artifacts? Will everybody expect to get things on the web? That, of course, I'm thinking as a historian, but you think and project for me, just speculate a bit on the future of the web.

DR: Well, if I had to project about the future of the web, one of the things that I sort of see as a possible convergence area has to do -- well I told you I was interested in BBS's when I was -- well, [unintelligible] had interest is in computer games, and the speed -- the current state of the art with computer games has gotten to the point where the virtual spaces and the detail and the integrity of virtual space is so much more intense and realistic than what it was a few years ago, and that development arc keeps increasing. Also combined with the fact that computer games are not just played by teenagers and young geeky boys in dorms anymore. It's amazing that there's a lot of people my generation who are avid computer gamists, and there's also an extremely active group of people out there who not only play games, but also modify games for their own purposes. It reminds me in some ways of the early BBS generation. So I think if I had to speculate, I would say that three dimensional virtual space, as created using various game engines is just going to continue to be more and more popular, and eventually people are going to -- one of the things that people have also done with a game that just came out recently, it's called, "The Movies," is that you can create your own movies using your own little virtual characters, and that people -- it actually turns out that serious students of film are using this tool now to create works of art that are -- they couldn't actually do by going out and hiring all the production crews, but they're using it to create movies, film, that deals with serious social issues, politics, or there's one -- you know the riots that took place in France? There was this French film student who created this movie that kind of like explains the -- from their perspective, of the writers, what was going on.

VH: Interesting.

DR: So, I mean, if you're asking me to be speculative, I would think that what's going to happen is that there's going to be more of a mergence of -- merging of game design and an approach to game modeling and cyberspace, so that websites are going to become more like three dimensional space, so that if you're going into a library it's going to be more like maybe going into a virtual library, and that there will be other elements of texture and sound that are going to be helpful as you navigate this space.

VH: That's very interesting.

DR: Also, some of the things that -- the one thing about games that is actually far superior to websites is the interface and control. I mean, to manipulate things in a game environment, you have to have game interfaces that are just definitely a generation beyond what a typical website is, in terms of website and design, and just being intuitive, and I think there's going to be some sort of --

VH: Convergence.

DR: -- convergence.

VH: So it's more of a 3-D future, rather than, I always think about the TV and the computer websites merging, but you're proposing a third dimension there that would be even more powerful.

DR: Right. And it's also, you know, if you also look, another interesting trend is the multi massive game playing environments, and communities of people sort of forming around various types of topics and issues of interest, and a lot of it probably takes place now in the gaming world, because that's where all these people have just gravitated, but I think there are opportunities to use it for other -- non game related purposes, because people have other interests beside just being entertained. There are other goals that you might want to achieve, and I think the techniques and the technologies that are being used in that realm, I can definitely see that there are some advantages of how those things could be utilized as communication tools.

VH: Terrific. Is there anything else that you want to say before --

DR: No, just -- the only other thing is just that I really appreciate the opportunity to talk to you and get some of this on the record. I'm --

VH: Well, I think --

[end of transcript]