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Interviewee: William Ralph "Bill" Ballard

Interviewer: Annie Pontrelli

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Annie Pontrelli: This is Annie Pontrelli interviewing Dr. Bill Ballard on July 24, 1991. Bill, can you tell me a little bit about your background as far as what led you to the university, what years you were there, and in what capacity, so we can just lead from there?

William Ballard: I came to the University of Montana in 1957. What led me here...I had originally come from the state of Washington. I had been going to school in Chicago. I had been teaching and concurrently serving in the Air Force for a few years. Over the course of time I decided where I eventually wanted to be was in the Rocky Mountains and had sort of gotten the notion that Missoula was exactly where I wanted to be. So when it was time to try to get another job, just when I was finishing my degree at the University of Chicago actually, I put in my application and was lucky enough to get a job at the University of Montana. So we came here.

I got my degree in mathematics and came to what turned out to be a very congenial mathematics department ever since. I retired in 1987, so for the last four years I have been teaching part time. I've sort of run out of continuity here...You've got some other questions here though? You want me to just glance at that?

AP: Yes, that would be great.

BB: Well, it says who were the university president when you were attending. Of course, that isn't quite applicable; I didn't attend the University of Montana. When I came here the president was Carl McFarland. It was his last year here, so my tenure has been over the administrations of all the presidents since that time, several.

Of course, what I taught here is mathematics, I haven't taught all the mathematics courses. With the exception of statistics, I have taught all the undergraduate courses and most of the courses at the graduate level. Then my specialty is algebra. Of course it has to do with various kinds of associative algebra. That may not mean much to you.

AP: Go ahead and expound on it.

BB: Oh well, that's just a question of whether an algebraic system has a multiplication that satisfies the associative law. Whether AB times C is the same as A times BC . In all the familiar systems, in the most familiar system that is the case, but there are important systems where it's not. Most of my specialization has been in systems where it is true. I had also done some teaching and clinicking at seminars and that kind of thing in systems where it is not. So, I haven't been exclusively with that.

If you say "associative algebra," you are mentioning one of the specialties in mathematics that is

recognized by the Mathematical Society for example and the Mathematical Review. They are trying to specialize it in a routine and recognized way. I was for a number of years very much the utility infielder in the department. We were pretty short of manpower and I was able to and I did, teach quite a variety of things, perhaps more than some other people. I don't know, maybe I was just brave and audacious or something, but I would tackle whatever was needed and so I did a lot of different things.

AP: Did you notice a change in the program throughout the years?

BB: Oh yes. Sure there's been a healthy kind of evolution in our department. Our department was a department that attempted to improve its curriculum as it saw opportunities and ways of doing so, and also through the years there were a number of changes all over the country—maybe all over the world, in mathematics—and the way mathematics was being taught and what was being offered. So, when I first came, we were revising the freshman and sophomore curriculum in mathematics.

Then almost immediately after, if not at the same time, we were strengthening the degree requirements and changing the courses. Actually, there were some eager young guys like me who thought that our students ought to have some more training and more education in certain areas in the mathematics department. Exposure to parts of mathematics which seemed to us were important. And so we did make changes in the curriculum and they were quite substantial.

Since that time, there have been some very substantial changes with a trend toward giving more in the way of applied mathematics in what is called "operations research." Actually, I had had some experience in applied mathematics; when I was in the Air Force I worked at applied mathematics and even what is called "operations research," but I wasn't instrumental in bringing those things into our curriculum here. I had very little to do with it.

By that time there were some other people who were younger and more eager than I was and did more of that. We got some experts though. I must say, it hasn't always been easy to keep the experts when you have a field that it's very much the case that there is a demand for those people and they can command high salaries and high salaries are paid by other places than the University of Montana, so it's hard to get them here. We have been lucky enough to get some, and we've really done quite well, but it hasn't been easy. We never ceased trying to keep up, trying to do what we could for our students, and developed what we thought were good programs for them. Innovations all the time.

Another thing that I had a good deal to do with was innovative; actually it was a national initiative. In the late '50s and early '60s there was a national initiative with the National Science Foundation, a lot of programs and so forth for retraining teachers. We had a quite ambitious summer institute going for fourteen years I think it was, fourteen or fifteen years for high school teachers of mathematics. It was quite generally recognized as one of the strong programs both from the standpoint of doing a good job of what we were trying to do and being one of the more demanding ones. These institutes were all over the country, but each one had its own flavor which was defined by the people who taught in it, people who directed it and taught in it. Ours was one of the ones that was more demanding of the students. Our entrance requirements were

high and our students got more mathematics in their four years than most cases, all but a few of the other institutes. That was something that professor Meyers and I had the most to do with here over the years and we were rather proud of what we managed to do. That was from 1960 to 1974, something like that. So, yes, there were changes.

AP: Have you noticed any changes in the students themselves as far as attitudes.

BB: Yes. I dislike generalizing about that. People will talk about this in our coffee room in our department. There are people who make generalizations about the students and they say the students nowadays are one way or another, not what they used to be. I'm sure they're not what they used to be...they're different. They bring cups of coffee to class and things like that. That didn't happen 30 years ago (laughs) and some things certainly have changed. I even sometimes take a cup of coffee to class. They think they have a right to pop bubble gum in class too, and I really admit that I don't like that.

But there are some differences. It certainly is the case that students are much more casual these days about signing up for a course and then dropping it. It certainly is the case that they have a different attitude toward the grade point average. They are more concerned about that number called the grade point average than really makes sense; except that it is probably somebody else that isn't making sense. Probably there are people who have jobs to award to somebody or other, people who read transcripts, but don't read them really carefully, who place more emphasis on that and the students know that and therefore the wrong or inappropriate emphasis becomes...it isn't the students fault, but he responds to it by being very conscious of it. So that difference is there. Whose fault it is I don't know, but I'm sure...

Students are more casual about attending class than they used to be. I'm capable of complaining about that and I think a lot of instructors, maybe all instructors, are. I don't know. There have always been some very good students. When I first came here one of the students that I was exposed to, we were exposed to each other and learned quite a bit with each other's help, I think, was Jack Silver who was definitely an outstanding, brilliant, young mathematician and has made a great career for himself in learning and logic. I superintended in some of the learning and logic, but he taught me more than I taught him. That was a real pleasure.

Also in the very early years there were some other very fine students and three of them are my colleagues now. Dr. Mannis, Dr. Grey, and Dr. Yale are in the department who I knew as students in the early part of my teaching here. It was a very great satisfaction to see them go ahead and go away and get their degrees and do excellent work elsewhere and then come back to where they apparently had a satisfactory undergraduate degree. They are leaders in the department trying to develop it as I was mentioning before: try to adjust and lead and develop new things for the benefit of students, and those people are leaders. I hope that maybe I had something to do with making them into the people they are. They're admirable enough that I can take satisfaction in thinking that I helped a little.

One of the things that I might say is that our department, mathematics, has been really a leader in the kinds of developments that I was mentioning, curriculum developments. One area where it's definitely been a leader is teaching teachers. When I was first here one of the members of the

department was Professor Joseph Hashisaki. He became a very good friend. He and another member of the department, John Peterson, wrote a book for teaching elementary teachers—mathematics for elementary teachers. It was a really innovative book. At the time, it wasn't usual for elementary teachers to be taught any real mathematics. They wrote a book and it was very successful. Their book was called *The Theory of Arithmetic*, a few years later in the development we introduced geometry and it was on geometry for elementary teachers and that was innovative. It was being done here and we were one of leading places.

Actually I wrote a book which was not a success. It didn't sell many copies. I thought it was good book, but it didn't catch on, but this was part of the development that has led to the current situation. In the current situation there are the usual requirements for prospective elementary teachers. Well, at the University of Montana, it's a whole year of mathematics. At some other places, it may be a little less, but again, we tend to be a leader in that. We ask a little more and try to give them a little more than most places. One of the leading textbooks still is by the University of Montana mathematics department members. Three actually. One of the three has moved; he's gone now to Oregon. Johnny Lott and Greg Billstein here are authors of what is definitely one of the leading books in that field.

I recall when we were planning the courses on which that book was based, of course it turned around the other way. The book was based on the courses, but then it got so the courses were based on the book. At the time we were doing planning, what we were planning was what the curriculum ought to be: can we make this stronger, can we make this better? I was personally involved in the planning that was going on for this thing. Of course, there is some satisfaction in feeling that you perhaps made a contribution to the progress of that book. I think the University of Montana has been a leader in that and I did a little bit.

AP: What did you or do you like best about the university?

BB: That's a tough question and I will give you some answers, but unless I just manage to forget all about this interview, I'll be thinking of things that I ought to have said for a long time. (laughs) So I'm sure I won't give you what I consider a satisfactory answer. I said that when I came here I found a congenial department. It's more than that: it's a congenial atmosphere in the university. That really means, more than anything else, the faculty. People throughout the faculty have always been, generally speaking, people who are interested in doing the best they can to make the University of Montana as good as it can be.

They really work at that. A lot of them, like me, are here because they thought this would be a nice area to be in. Of course, they also did enough looking at things to think they'd like to be at the institution itself. A lot of people are here for the environment which does mean the town and the mountains as well as the university. The common interest in the area, liking it for one reason or another, is something that probably helps make the faculty feel good with one another; helps the congeniality.

Generally speaking, what I liked is the interest in the educational enterprise, the academic enterprise. The feeling about what's important, what should we do, that it really is important to do things for the good of the students. We never seemed to stop trying to do that. Of course, I

like the fact that there's really quite a good (in the usual terms) cultural environment here. The music is good. Over the years the drama has been pretty good; it used to be better than it is now I think, but I've always enjoyed some of those kinds of things that the university makes possible and makes available.

I had a good deal of experience in the faculty government; the senate. Also I've been rather active in the teacher's union. I had a lot of contact with people from all over the campus and I liked that. I knew more people better than many of my colleagues do I think. I found meeting from all over, interesting people, is part of what I liked. As I say, there will be other things that I will think of for weeks.

AP: And that's fine too Bill, if there are other things that you feel you need to add on to this certainly we can get together at a later time too.

BB: Okay, if I think it's really important?

AP: Yeah.

BB: Well you know, it seems to me that you may discover (I don't know what you're reading but if you are doing an oral history that is in history) things that some people bring up that other people don't mention and that you may want to go back and find out more about. I don't know whether you're planning to do that, but it would be legitimate and valid for you to do that.

AP: Actually right now there are about eighty people on the list, so I'm just trying to get at least as much as I can in this summer time, and then at some point and time, I may have to go back and have another session. Obviously in a two hour session there is only a surface coverage.

BB: Yeah, and people don't know what to talk about. I was out on the mountain yesterday with Phil Wright and he said you talked to him or he had talked to you Monday. So we were talking about this kind of thing and we agreed you don't know what you ought to say.

AP: Well I know in Phil's case there were some stories that he didn't want on the tape.

BB: He mentioned that.

AP: And yet they were delightful stories and significant stories that I didn't see any harm in talking about, and even you know, his accomplishments that I really felt needed to be part of his history.

BB: Yeah, he mentioned that and said that he felt that he didn't want to seem to be bragging.

AP: I wish he would have at least mentioned some of those things.

BB: Yeah. (unintelligible)

AP: Okay. One of the questions that is of interest and I do get different perspectives on from every single person, there were probably several different administrations you worked under and

what it was like to work under those presidents and some of the characterizations?

BB: That's the kind of thing where people you're going to talk to (including me) may want to tread lightly in some areas, but I'll mention a few things.

McFarland was first. I was new to the campus then. There was an awful lot of controversy about McFarland. There was a lot of bitterness; people felt very strongly. I knew that, but I didn't understand the conflict at the time and I really never straightened out in my mind who...

[End of Side A]

[Side B]

BB: ...kind of atmosphere and one felt uneasy about it. The next administration, well there was a place holder for a time...I forget his name. Castle, I think. But the next administration was Newburn's administration. I was among the people who considered that an unsatisfactory administration. During that time the mathematics department lost faculty and the mathematics department felt that it didn't get the kind of support ought to have had and deserved to have had and that the university deserved to keep the mathematics faculty somewhere near up to strength.

As far as mathematics was concerned, we were very disappointed in that president. Of course, we weren't alone; there was a lot of dissatisfaction with him. He was, more than any other president that we've had, hard to communicate with, with the faculty. He essentially kept the faculty out of his office. It has been in the custom of recent presidents to welcome the faculty to come see them if they want to and talk things over. His was not an open administration. That makes things difficult. It may be that that was the old way of doing things. Newburn wrote a book about how to administer universities. He felt he knew how, but it wasn't right and it wasn't effective. It didn't work here. (laughs)

It was kind of funny. Of course the teacher's union was following the situation very closely and it was at that time the faculty senate was established. The teacher's union and the AAUP both worked at setting that up and making a proposal for the constitution of it and getting it ratified and so forth. Newburn did allow it to be established and then when it was established, Newburn and the faculty senate were at odds quite badly. The teacher's union had the feeling that Newburn needed to learn how to do things better.

Then when he resigned, he made speeches in which he blamed the union for trying to get rid of him. Of course we were trying to make him do a better job than he was doing, that was what we had expressed to ourselves at any rate. We hadn't said we what we want to do is make this man resign, but he gave us credit for that, or blame. It was kind of funny.

Then there were other administrations. I remember the Johns administration. Johns was careless in some ways. He managed to get a building or two made. I say he was careless in some ways because he supplied himself with a fancier car than he really needed and that was considered to be an unnecessary thing to do.

Pantzer, Bob Pantzer was president next. He was the president (of all the ones) whom the faculty liked best or remembers most favorably. That was kind of a funny thing too there. He was brought to campus as an assistant to McFarland. He was not an academic person; he was a lawyer, but he had worked in public administration. There was a good deal of question of whether he really belonged in the kind of job that he had. When he became president there was still question as to whether he had the right kind of background. He did try to understand things and he did understand things very well and was really, well, I think had a more harmonious relationship with the faculty than anybody else of all the ones before or since.

I remember once there was a question about the loyalty oath. Of course the union and the

AAUP...In those days the union didn't have a contract. The union was an organization which was present and it was trying to foster good relations between faculty and administration and trying to do things that were best for university, I always thought or I wouldn't have had anything to do with it.

The AAUP was rather similar. I was active in both and it was kind of a policy of both of them to work together. So for several years for example, I was on the executive boards of both and was part of a conscious effort to coordinate our efforts when questions came up. If there was a question that involved academic freedom or something of that kind in some way, then we would be working together to try to get the administration to understand what it had to do. Sometimes what it had to do was trying to get the Board of Regents to understand. This was on an informal basis; we didn't have a contract. We would make the contracts that were necessary to get the work done.

I remember one time when I was involved and going to see Bob Pantzer about one of these things. I think it was a matter of a loyalty oath or something. I had very pleasant conversation with him and he understood and then he went ahead and took the stand that we felt was right. It was right. I would still say it was right.

So on that and some other things, he was approachable, he seemed to be able to understand things, and he seemed to have the courage to do the right thing. Around 1970 or '71, the same time that the incident at Kent State took place, there were rallies and so forth on the campus here and it was necessary for those situations to be met without leading to violence one way or another. Bob Pantzer handled that extremely well. (Unintelligible) communicating with everybody and people were able to express what they wanted to express.

There was no suppression of feelings or public expression of opinions and that kind of thing, but also no real troubles. I think Pantzer handled that situation extremely well, so we were grateful that we had somebody who could. He wasn't confrontational. In some ways, he was the best and I was glad he was there at the time he was.

Other people since...He was called Bowser, but that isn't quite right—Bowers. Maybe that shouldn't be on tape, but that's all right. That was kind of a joke people did call him. Maybe that should be preserved today. Anyway, Dick Bowers...Koch, he's gone now and his predecessor Bucklew. Bucklew, Bucklew, Bucklew. They, I think, were trying to do a good job. I think it's a difficult one. Maybe I've just gotten older and a little more sympathetic with some people, but I think they were trying to do a good job. I think it's a hard job. I think there are always going to be things less well done than what one would hope. I'm not thinking of things very specific now, except that one of the things that a president has to try to do is to get good support from the state for the university. There is no question that that has to be done. The general climate these last several years has not been such as to make that possible. The level of support from the state is less than it needs to be to make the university as good as it could be, as good as the faculty wants it to be. One thing about the faculty, I guess I've essentially said it before, it wants the university to be good for kids. It's a very loyal faculty here. It isn't true of everyone, but generally speaking it indicates.

The presidents have tried. They wanted to do the right thing. There have been professional administrators, professional education administrators. One of the difficulties I think is that they come from the educational establishment and they come here for a while and have the job of running the university. They have their idea of what is possible or what should be. They are not (before they become associated with the University of Montana) a part of the University of Montana and they have to acclimate to that. That takes some time and maybe they don't quite do it.

Did Koch really become part of the University of Montana? Well, I think they appreciated a lot about the University of Montana, but they came from somewhere else and then they went somewhere else and perhaps didn't develop the kind of dedication that somebody else might have. Somebody else who is really sort of "of Montana" or "of the University of Montana". Bob Pantzer was a Montanan. He had been a lawyer in Montana and had been a student at the University of Montana. He had worked in the administration here at other jobs for quite a while before he became president. So he was of Montana in a sense that Bucklew, Bowers, Koch, were not and thus had a disadvantage.

I have (unintelligible) grasp of how George Dennison is doing. I wish him well. He has Montana roots that can't be otherwise than unhelpful. I just hope that he, with the help of all of the people who ought to be helping him, can do a good job.

AP: What's your philosophy, or your attitude, or your approach to teaching? I know that's a real general question but some people are really able to have a set philosophy or kind of a goal or what they feel want to have accomplished.

BB: Well, yeah I suppose I certainly have some philosophy of—I don't know whether it's what you are talking about or not—but my philosophy of teaching relates to my subject—mathematics. I want my students to get a good idea of what mathematics is, so I'm not particularly interested in their getting facts. I'm interested in their learning how to do. That's what is going on in mathematics—people are doing things. And then understanding, I really want them to understand.

I have a theory or a notion that I sometimes state—and I think I overstate it—but I sometimes say that a lot of people or maybe most people never really understand anything. And I think if that's right, it's a shortcoming of our education. We try to teach people things and we get the idea we're going to teach them and we'll know that taught them something if we give them a test and they get the right answers. So we find ourselves teaching them to come up with the right answers. This very often means we are teaching them to, well inducing them, to absorb a fact or to be able to state a theorem or to add two and two and produce the right answer. We do this perhaps because it's easy to test, but have they really understood how various notions fit together to make a theory? Do they understand—I shouldn't say why, it's more a matter of how—how notions are put together logically so that you come out with something that really makes sense? Now mathematics is perhaps more concerned with that than any other subject. As a matter of fact, in a sense, that's what mathematics is all about. That's what I want to try to get across to students.

If something is hard enough to do, I don't think if people take that as their goal, I don't think they'll ever cease having to work on it. I don't think we know how to do it, I don't suppose we'll ever really know how to do it. I think that when people really do understand how things stick together that's when they begin to grasp what it means to say that a theorem is beautiful because it's a result of putting concepts together, seeing how one thing follows another, how they all fit to arrive at an easily stated and conceptualized fact which is called a theorem. To do this, you really have to use your head. We sometimes express it to our students by saying "mathematics is not a spectator sport". I'll say to my students, I can't really teach you anything. I can help. I can place things before you, but if you're going to get this you've got to think about it. You've really got to absorb some of these things and then work at putting them together. When you can do that, then you will really understand something. People who just learn a stream of facts are not understanding things. I think there are too many people, as I say, hardly ever do. We perhaps never do really understand something. That's not a very good explanation I guess, but that is an explanation more than anything else what my philosophy about teaching is. Did it make some sense?

AP: Yes. What do you feel is your greatest accomplishment, or accomplishments, during your years at the university? You may still be in that process since you're still here.

BB: Oh, I don't know. I guess the greatest accomplishments are having seen some students who went on to satisfying things and accomplishments. Some of those I mentioned I am now working with, but there are others. (unintelligible)

AP: What are some of the challenges that you met?

BB: Well, I don't know. (laughs) I was the chairman of the department for a while. Our department adopted a rotating chairmanship. I think it's effective. It tends to be true about mathematicians that they'd rather be teaching than doing mathematics. They wouldn't like to be pushing paper around and administering things. So they dislike being chairman. They also (I don't think it's only mathematicians) don't like to think of somebody as boss, [of being] somebody else's underling. If I ever called anybody "boss" it was a joke. I didn't feel I should and I've never felt that anybody should call me boss. Otherwise I meant it as a joke.

Serving as chairman is a chore, but somebody has to do it, so that's been our approach to it. We had a system in which we had three year terms. The idea was basically that everybody ought to expect to take a turn sometime. I would have liked to avoid it. I always thought that I wouldn't really do that very well, and it would be all right with me if I didn't have to and never did it. I think probably there are some people for whom that is the case, in spite of my saying the expectation is that everybody do it. There are probably some people who it is just as well that they don't. I was sort of hopefully thinking that I would slide by.

Then in 1975 I had what wasn't an official university sabbatical, but it amounted to a sabbatical year. Our department had gotten a grant from NSF for innovative Ph.D. programs. One of the things that was in the grant was what amounted to a sabbatical year for three people in the department for a year. At any rate, I had one of these that year and when I got back after that, (this was in 1975) another person who had been chairman had just finished his term and the

department was finding it difficult to persuade anybody else to agree to be chairman. There was a feeling that having just come from my sabbatical and having been working on some new things in mathematics, what I really ought to be doing is working those and shouldn't be burdened with being chairman. But nevertheless, there seemed to be no way out of it. Nobody else was going to do it, so I said okay, I'll be chair. So, I took my turn. (laughs)

I guess that was sort of a challenge, but a particular challenge came up rather soon in that term and that was one of the things that happens now and then. There was an effort in the university to take a look at some of the programs and maybe cut back and save money or something by terminating some programs. Our Ph.D. program came under fire and we had to defend it. We were defending it against the commissioner of education. And so I had to be the leader of the department at that time and we did manage to defend that. It was a challenge. It was a challenge not just for me, but the whole department. And the whole department worked very hard on it and we managed to come through without significant loss.

AP: If you had the chance to go back in time, what would you do differently or what memory or experience would you want to relive?

BB: I don't think there's anything I would do different. I guess if I have a philosophy, it would be the philosophy that Harry Truman was famous for: there's no point in ever looking back or regretting.

[End of Interview]