

Chapter 28

ANNE G. (HARRIS) TOLBERT

Boulder, Colorado

July 17th, 1996

VM = Vivian Moses; AT = Anne Tolbert; SM = Sheila Moses

VM: This is talking to Anne Tolbert in Boulder on July 17th, 1996.

Anne, what was your history before you came to Calvin and how did it happen that you joined him as a graduate student?

AT: Well, I went to Brooklyn College and I had a professor named Dr. Statler who had some connection with Melvin, I'm not sure what the connection was, but he had gotten Murray Goodman his graduate appointment (*at Berkeley*). He was very proud of Murray because Murray had done so very well. When I was graduating from Brooklyn College he said "how would you like to go to graduate school?" I had never thought anything about going to graduate school. I thought I would go and be a high school chemistry teacher and stay in New York City for the rest of my life. But, somehow Dr. Statler talked me into saying how wonderful it would be if I went to California and worked with this wonderful professor. I don't know how I did it, but I got the courage to do it.

VM: Had you been to California before?

AT: Never. I don't remember ever having been to California; I don't remember ever going very far from New York City.

VM: How did you get in touch with Calvin?

AT: This is what I was saying. Dr. Statler had some connection, I don't know what this connection was, he is the one who placed Murray. When he had this student, me, and I did reasonably well although I wasn't particularly gifted really, but he thought "oh, I could get another student". So he wrote another letter (*to Calvin*) and said "I have another student, and Murray has done so well, would you like another student".

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VM: So you had to do nothing. You just had to go there.

AT: I didn't even apply to graduate school. They just did this for me. It was wonderful. All I had to do was go.

VM: One day you got, presumably, on a train, and you went to California.

AT: I went to California. I actually car pooled with somebody and we drove across the country, and I went to California. Murray met me and helped me. He was kind of a mentor because he had been there two years. And he introduced me to the graduate secretary and introduced me to everybody in the laboratory. I knew nothing about what they were doing.

VM: You were going to be a graduate student in Chemistry. Did you meet the woman called Miss Kittredge? She was Lewis' secretary, I think.

AT: I met a woman, and I don't remember her name, who was the departmental secretary. Murray took me to see her and told me that she was the most important person that I would ever meet in the Chemistry Department and that I had better be nice to her. That was the person I met but I don't remember her name.

VM: That was Miss Kittredge.

SM: Can you tell me which year this was?

AT: I am pretty sure it was '51.

VM: So, when did you meet Melvin?

AT: Well, he was there. I don't have any memory of the day I met him. I kind of remember meeting Murray and the secretary. That was the big thing. I remember meeting Andy. I think I met them all before I met Melvin. I just arrived in the laboratory and found a room and just walked into this laboratory and they were showing me paper chromatography. I didn't even know what chromatography was! I was so green. I was so impressed because there were all these spots on the films. It was absolutely Greek to me. I didn't know what was going on. But, interestingly enough, they were such good people in that lab. that I soon caught on. I soon figured out what was going on.

VM: So you started working in the lab. straight-away. Did you take courses as well?

AT: I took courses but I didn't have a teaching assistantship so this was my pay.

VM: So you worked much of the time in the lab.

AT: The lab. work was my support. So I had to start right away working in the lab.

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VM: In terms of nuts and bolts and deciding what you were going to do in the lab. and stuff like that: how did you work this out? Was it with Melvin or with Andy or the others? What happened? Did you choose, did they choose?

AT: I certainly didn't choose because I, as I said, I didn't have a clue — I really didn't have a clue. I can't remember if it was Melvin or Andy. I was definitely working for Andy, but I can't remember if it was Melvin or Andy who assigned this project to me. And the project I had was to work with Lorel (*Lorel Daus Kay*), we worked together. She was doing sedoheptulose degradation and I was doing ribulose. They were, at that time, assumed that when we degraded them there would be a 1:1 correlation of the five carbon atoms, 1:1. They thought it was just some simple kind of mechanism where you just added two and took off two; I don't remember the story because I really don't remember it! But I remember we were going to come out with the same kind of results. That was assigned to me because they knew what they wanted done.

VM: Did you have any experience with sugar degradation?

AT: None. They were so nice. I don't know why I was so lucky to have been given this opportunity, it really was a waste.

VM: What were you going to do? Were you going to start with Lorel's technology and modify it in some way to deal with the ribulose, was that the idea?

AT: That was the idea, I think. Was Lorel using osazones because I don't remember, but I think that was it, that was the first thing. The idea was to make compounds that you could then break apart and then count those and then make another kind of degradation where you counted — there'd be other atoms and just kept adding and subtracting. Every time we would finish doing this, we weren't the same at all. That's what I remember. I didn't have much faith in what I was doing because I didn't know how to do it; I didn't think I knew how to do it. I didn't go in there with the great confidence that I was going to really do a wonderful job. I didn't know what I was doing.

So when these didn't come out, I thought, well I didn't do it right. I remember a staff meeting we had where we presented the data, my counts and her counts and...

VM: Was this one of the Friday morning seminars?

AT: It was one of the seminar sessions where we just had to present this, you know, and everybody was really kind of uptight because these weren't the same. There was not this 1:1 correlation. It was really hard for me to defend this but I said "well, I think I did it right"; "this is the way I did it" and I told everybody. As it turned out, it was, I think, correct, and it was a more complicated cycle than they thought. But it was interesting because I went in really cold, really cold...

VM: ...and knowing nothing about photosynthesis?

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AT: ... nothing about photosynthesis, nothing about sugars. I don't think I knew much chemistry either because basically Brooklyn College was the City College of New York, a teaching college, and while I was there I had also taken education courses because I was going to be a high school chemistry teacher. So I wasn't very prepared to go in there and be a researcher. But, as I said, it turned out pretty interesting.

VM: In order to do this did you get your own ribulose? Did you run your own chromatograms, and so on?

AT: Andy would run these mixtures — he would do that — and they would run the paper chromatograms and I would take off the spots. From then on, it was mine.

VM: You had one of these little elution set-ups for eluting the material off the area of the paper which Andy had found for you?

AT: Yes. We just went on from there. They knew, they were ready, they had a project ready. I didn't think this up at all. They had it ready, they knew they wanted to degrade ribulose.

VM: That's usually the case with graduate students who don't know enough about the thing to design their own project; they develop that later. Where did you work, in ORL itself?

AT: I worked right in ORL...

VM: In the big lab.?

AT: ...in the big lab. Alex Wilson worked in that same lab. and Andy worked in that lab., and Bassham was in that lab., and...

VM: ...Lorel too?

AT: ...and Lorel. And Alice was the secretary...

VM: Alice Holtham, yes?

AT: ...and Marilyn was there; I think Marilyn was there. Maybe Marilyn wasn't; I don't remember.

VM: I think Marilyn might have been in Donner.

AT: She might have been but we saw a lot of her. Alice was the secretary right there (*in ORL*). I got to know all of those people. I was right there. As I told you the other night, there was this little room, a little shack behind ORL, and one of the degradations needed to be under high pressure and somebody told me what I was to do, turn this knob and this knob and watch this dial, they told me once and then I went back to do it. I fully thought the whole little shack and I were going to just blow

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right up because nobody was there. I was all alone back there, but somehow it all worked out and I did that little project.

VM: Did Melvin come in a lot of the time and talk to you in detail about what you were doing? Because he was your thesis adviser formally, wasn't he?

AT: He was formally my thesis adviser but my memories are that it was more Andy; I think it was more Andy.

VM: Did everybody talk with everybody else in the room? Did everybody know what you were doing and you knew what they were doing?

AT: Yes; well, they probably knew more what I was doing than I knew what they were doing. What I was saying was that there was a lot of communication, it wasn't secretive at all. It's just that if you ask me what everybody was doing, I couldn't tell you and that's probably because I just either don't remember or didn't understand at the time what all everybody was doing. I had a relatively simple project.

VM: I wonder if this sort of thing happened: as you got data, you and Lorel since you were working close together, got data and were talking about it, whether everybody else joined in and tried to interpret it, all at the same time. Was it that close, that people were constantly aware of what was going on, or was it longer intervals than that when you made some sort of formal presentations?

AT: I think it was longer. I don't have a clear memory of people standing over my shoulder, trying to figure out what the count on that carbon was. I don't have that feeling, I don't remember that, but I remember presenting it at one of these seminars and having people really sit down and start thinking about what did this mean, did it mean that the cycle was different than they had previously thought.

VM: In the end, of course, they resolved this — were you there when they began to get the complicated schemes of the transketolase and transaldolase?

AT: I was there when they started working on that. As I said, I was there from '51-'53 and I think by '53 they had figured it out; they had figured out at least a pathway. I am not sure they had all the reactions; I don't remember.

VM: You were part of that discussion?

AT: As much as...yeah. It wasn't that people...people would listen, they didn't shut you out because you were a graduate student. If you had something to say, they would listen. It was a wonderful group. I had no feeling as if these people aren't treating me well in any way. I was just in awe of all of them. I thought they were all so wonderful and so smart.

VM: All the time you were there?

AT: Uh huh.

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VM: Did you never feel entirely at ease with them professionally?

AT: No, never, never. No, I never did. When I came in with such a weak background and probably today a student would never get into a group of that calibre with my background.

VM: What about your relationship with the other graduate students? Were they, too, awe-inspiring?

AT: There weren't very many graduate students. My memory is not...unless it wasn't correct: in that group. I'm trying to think of who the graduate students were.

VM: Murray, of course, was a graduate student, and Alex Wilson was a graduate student. I don't remember who else were graduate students.

AT: I don't remember it. There weren't a lot of graduate students. It wasn't a heavy graduate student group. It was a group of professionals doing professional work with some graduate students in there. I always felt that the social life was wonderful, they had parties and they had...

VM: Wonderful in what sense. You say they had parties?

AT: What was so great about it? I was in awe of them that way, too, because here I came from New York, had never gone skiing, never gone to see mountains, never done any of these things that these people would do every weekend. They would have group ski parties or...

VM: And you would go?

AT: Yeah; everybody was invited, so I just went and did it?

SM: Did you learn to ski?

AT: No. I went up there but I never did learn to ski.

VM: Where did you live?

AT: I lived in a rooming house. I didn't have an apartment, just a room, just a room. I was, as I said, socially and intellectually very green.

VM: Well, I presume you learned.

AT: You learn a little, you learn a little. As time goes on, you do learn, yes.

VM: You were there for only two years in which time you wrote your PhD thesis?

AT: No, I never got a PhD. I only took a Masters degree.

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VM: Was that your original intention?

AT: No. But after the first year, I married another graduate student. He got a job at Harvard so we left. So I took a Masters.

VM: Which field was he in?

AT: Physical chemistry. Nothing to do with Melvin.

VM: When you did this work with them, and published with them, which name did you publish under?

AT: I think by that time, because it was toward the end, I published under Harris which was my married name.

VM: Did you use the initial “Z”? I seem to remember.

AT: “Z” was my maiden name, Zweiffler.

VM: So you published under that name of Anne Z. Harris.

AT: That’s right; I think I did.

VM: I haven’t looked recently, but I remember your name was on at least one and, no doubt, more than one paper.

AT: Not too many but it was on that same topic. The only thing I did was that cycle working with the sugars, the degradation. That was the only thing I did.

VM: That was the subject of your master’s dissertation?

AT: Yes, that was the subject of my master’s dissertation.

VM: Do you remember now who was on your thesis committee?

AT: No.

VM: You didn’t have any trouble with it, did you?

AT: No, none at all; it was so easy. It was so easy: when I think of what graduate students go through today and I think back how easy it all was, I think I should have gotten a PhD and gone on and did something. But I didn’t. That’s too bad.

VM: Now, of course, you’re married to Bert Tolbert and indeed have been since 1958?

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VM: ...9, and did you know Bert at the time?

AT: Yes. We have talked about this. Once, only once, during that time and before I got married he came into the lab. one day and said “would you like to go for a ride in the mountains” and I said “sure” and we went for a ride in the mountains. That was the only social contact I ever had with Bert. I always thought of him as kind of one of the older guys.

VM: Did you know the people in Donner?

AT: No, not really.

VM: You didn’t have any reason to go over there?

AT: Whatever was a group party, when they would do these ski things or these picnics or whatever, but I didn’t work in Donner.

VM: And you didn’t have any reason to go over there in the normal course of what you were doing?

AT: No, most of the stuff I did was with Andy in the Old Radiation Lab.

VM: How do you regard the time there? Do you look back on it fondly? Did you enjoy yourself?

AT: Yes, I think so, I did. I really think it was a time when I really learned so much about so much of the world that I had never ever thought about — just the countryside and seeing California and seeing ski resorts and seeing mountains. And then all these people! I’m trying to think. I think Melvin had won the Nobel Prize already by the time I got there. When did he get that?

VM: Oh no, it was ’61.

AT: Oh ’61. So he was working on it — I mean people were talking about it. He hadn’t won the Nobel Prize. I knew there was something about him: he had had the heart attack. That’s what he had: he had a very serious heart attack and I was always looking at him and wondering if he was going to die because Murray had told me that it was very, very serious, and that he wasn’t going to make it. I knew there was something about Melvin that worried me or made especially (*anxious*). I was always a little bit afraid of him. I think I still am. I don’t think I have ever talked to him comfortably in my life.

SM: ‘You mentioned yesterday that you had a very good relationship with Gen. Tell us something about that.

AT: I just think Gen was such an open and wonderful person. I thought of her as a mother figure, I really did. She wasn’t that much older than I was but she just was so caring and took care of people if they needed anything. She was just very wonderful. After I

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left Berkeley and when I came back the second time, that was when I was having marital problems, and Gen just jumped in and took care of me and was a mother to me. I have always loved Gen. Melvin was there, but he didn't have any people skills. I never knew if he wasn't interested or if he was just wrapped up in his chemistry. Gen was a simply wonderful woman.

SM: Right from the beginning you formed a friendship with her. How did that happen?

AT: I can't remember just exactly how I met her. She was so...whatever situation it was that she was doing with the group, I just felt like she was a terribly wonderful person. As I said, I got more friendly with Gen the second time when I came to Berkeley. That was when I met Bert, too.

SM: When was that?

AT: I left in '53, about '56, maybe, I came back. I'm not sure when I...

VM: You came back to do what?

AT: At that time, my husband got an instructorship at Berkeley so I came back.

VM: Were you working in Berkeley?

AT: No, and I didn't work. I really never worked in chemistry after I left...

VM: After your Master's.

AT: That's right. Really, as I said, that's why I know so little about what was really going on. I never did anything much with chemistry.

VM: What has your career been since then? Since it wasn't in chemistry, what was it?

AT: I didn't have very much of a career. Actually, I did work. I worked a couple of years in Boston at Massachusetts General Hospital for...can't remember the guy's name now...somebody who is now a professor out in Arizona I think. When I went back to Berkeley, I didn't work. I had my first child then and I just stayed home and was a mother. After I got divorced, I did go back to work for a little while and I worked for — I must ask Bert who I worked for because he knows and I don't — someone in the biochemistry department...

VM: in Berkeley

AT: ...in Berkeley, somebody who did B₁₂ or B₆ — B₆.

VM: Not Clint Ballou?

AT: No.

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VM: Ed Snell?

AT: Snell.

VM: The Texan.

AT: Yes. I worked for Snell for a couple of years. During that time, Bert came back for a semester or summer or something — I don't know why he came back to Berkeley — and, because we had friends in common, we just met again and this time it took. So, when I married Bert and came back here to Boulder, then I never worked in chemistry again.

VM: But you did other things.

AT: I took care of two little girls and tried to have some more children and finally had two more little girls and took care of those, so we had four little girls. I didn't do very much until my youngest child was nine years old. I was 50 years old, at which time I started working here at the University of Colorado in Boulder doing clerical work and eventually became an accountant;.

VM: That's what you are doing now?

AT: That's what I'm doing now professionally. I'm an accountant for the University of Colorado.

SM: Earlier on when we were talking, you mentioned working together with Alex Wilson. Having met him, I am sure that many funny things must have happened with Alex around. Can you remember any stories?

AT: I really don't remember stories, although yes, he was a riot to be around. I do remember that often in the lab. things just don't go right. Other people would say just expletives, you know "oh darn" or whatever, but not Alex. Every time something went wrong he would come out with "life presents a dismal picture". I never knew what it meant, I didn't know the literary reference, but I have this memory of that. That's my memory of Alex. If anyone asks me what I remember of Alex, that's all I remember.

VM: One of the things that Alex told us was that when he was doing his big experiments he roped in everybody else in the lab. to help him. I don't know whether that was happening when you were there, or maybe you had gone already.

AT: I don't remember helping Alex at all.

VM: OK, so presumably...

AT: I either wasn't there...

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VM: Well, I think we may have...You said that you had little to remember. You haven't had that little.

AT: Not very much.

VM: Maybe it's run out now. Thank you very much and it's there for posterity.