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Interview with Janet Butel

Janet Butel Ph.D.

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TEXAS MEDICAL CENTER
WOMEN'S HISTORY PROJECT

Janet Butel

Interviewed by: Natalie Garza
Date: January 22, 2013
Transcribed by: Michelle Kokes
Location: Dr. Aday's home

NG: Okay this is Natalie Garza I am interviewing Dr. Janet Butel. Am I pronouncing your name properly?

JB: Butel.

NG: Butel okay. On Friday October 24, 2014 in her office at the Baylor College of Medicine. Can you begin by telling me your full name?

JB: Janet Susan Butel; my married name is Graham.

NG: Okay.

JB: I use my maiden name professionally.

NG: Well before we go on can you tell me why that is?

JB: Because I got married after graduate school and by the time I got married I already had a number of publications in my maiden name and just chose to keep that name to maintain the continuity of the name on the publications.

NG: Can you tell me when you were born?

JB: I was born May 24, 1941.

NG: And where were you born?

JB: I was born outside of Overbrook, Kansas on a farm. That's in eastern Kansas.

NG: So you say on a farm does that mean literally you born...

JB: I was born at home.

NG: At home okay.

JB: And both of your parents went to college is that correct?

NG: Yes and they both went to what later became known as Kansas State University. It had an agricultural college name at the time they went to college. It was most unusual in the farming community where I grew up that both parents would have gone to college at that time. I think it was especially unusual that my mother had gone to college. That was in the early twenties and many women didn't go to college then.

NG: What did they study?

JB: My mother was, I'm told, the only woman in the school of architecture and engineering. She was majoring in architecture. She did not graduate. She went for three years and then my parents got married and left. My dad, I don't even know what his major was. I think it was biology.

NG: And did he graduate?

JB: He graduated.

NG: So do you know anything about why she was this exception of going to college?

JB: I really don't. I've often thought that I wish I would have thought to ask questions when my mother and aunts and grandmother were alive. It just never occurred to me then and now there's nobody to ask.

NG: Right.

JB: So I don't know.

NG: Are there other... so she had sisters. Did any of her other sisters go to school?

JG: She was an only child.

NG: Oh okay you said aunts. I thought she had sisters. You mean like your grandmother's sisters.

JB: Yes, yes.

NG: Did they both work outside of the home?

JB: No, what happened was after my dad graduated and they got married he went to Cheyenne, Wyoming to be a weather man and they were only there for a couple of years and then he wanted to go back to the farm. He had been raised on the farm near Overbrook and so he went back and was farming with his dad and my mother was a homemaker/mother and she never had a paying job outside of the home. My dad was always very involved in community activities. He was active on the school board and the bank, the board of the bank, the local bank and the local farmer's union elevator thing. So he was very active that way.

NG: And so your whole childhood you lived on the farm?

JB: Yes.

NG: And what did they farm?

JB: Well in eastern Kansas it's not where you grow the huge fields of wheat that most people think of when they think of Kansas that's western Kansas so when I was growing up we had small numbers of livestock. We raised chickens and a few pigs and some cattle. And on the farm he grew soy beans and milo and some brome grass that we cut to feed the animals and they would make silage to feed the animals. So it was a variety of things. We always had a garden at home. Every year they planted a rather large garden actually so we grew a lot of vegetables for our own use and we had fruit trees so we

would harvest the fruit. My mother would can vegetables and we ate them all year around that way.

NG: What was it like, you know I think you described a little bit what it was like growing up but can you expand a little bit more what it was like growing up in that region of Kansas?

JB: The schools were small. So I went to a grade school that was down the same road that we lived on. It's called a rural school district. It was a one room school house, one teacher for all grades. But all grades were never represented while I was there. There were probably approximately ten kids going to that school and that's where I went for the first eight years. And then for high school I went to the local high school that was in Overbrook. It's called Overbrook Rural High School and it probably had about one hundred students there the time I was in high school and there were I think maybe eighteen or so students in my graduating class. So it was small.

NG: How did you get to the high school?

JB: There was a school bus. So to get to the elementary school we walked and to get to the high school there was a school bus.

NG: And you had siblings?

JB: I had siblings. I had four brothers, three of them were quite a bit older than me. There was a nine year gap between me and the three older brothers and then I had a younger brother who was three years younger than me. So I grew up surrounded by boys.

NG: What was that like?

JB: It was normal to me. It's all I knew.

NG: Were you always expected to go to college?

JB: Yes, it was always... I don't remember any time when it wasn't assumed that I would go to college. I should point out it was always assumed that I would go to Kansas State. It's not that there were other options. That's where I was going to go but I was going to go and that's what happened.

NG: And is it because it was close because it was the local.

JB: No it was further away. The closer one was University of Kansas. But both of my parents had gone to Kansas State and one of my older brothers had gone to Kansas State so it was you know a family tradition.

NG: Right.

JB: And there was no counseling in the high school to make any suggestions about, "What are your interests?" you might want to consider "this or that" nothing.

NG: Did the rest of your brothers go to college or just the older one that you mentioned at Kansas State.

JB: Three of my brothers went to college. One stayed on the farm and has been a farmer in the same area and very successful at it.

NG: And so the ambitions that your parents had for your brothers did you feel were never any different for you?

JB: You know I don't recall them ever pushing me to do anything in particular it was just the expectation, "go to college and get educated." They never said "you should think about doing this or doing that" and I don't think they ever did that for my brothers either.

NG: Do you think it was out of the ordinary for a young girl to be encouraged to go to college?

JB: Quite a number of people in my high school did not go on to college. So it was a little out of the ordinary. I should say that I remember when I would go visit friends at their houses I would notice that there weren't very many books or magazines or newspapers in their house. Our house was always full of things to read. So I think that was a little unusual for that period of time and that location.

NG: Did you begin at this age or in grade school or in high school to become interested in the sciences? When did that develop?

JB: Well you know I can't remember for sure. What I do remember is that in general the classes the courses in high school were pretty boring and I found the chemistry class to be most interesting. And so I thought, "Well I want to be a chemist because that seems to be interesting." And so when I went to college I started off majoring in chemistry even though to be honest I had no idea really what a chemist did. And then of course you had to take other courses besides chemistry courses and there were a number of biology courses that had to be taken and I discovered I really liked the biology courses. The chemistry courses were not nearly as interesting to me once I broadened my horizon a little bit so I changed my major to bacteriology at that point.

NG: Do you think, kind of stepping back a little bit, do you think that your mom having gone to college was a big influence and that maybe it normalized the idea?

JB: I'm sure it was I just don't remember anything specific that she said. But it had to just make a big difference in maybe what we talked about or you know how things were explained or maybe that's the basis of what was an assumption that I would go onto college. I'm sure it had a big effect. And in fact in honor of this I started a scholarship last year at Kansas State and named it for them.

NG: Oh that's nice that's wonderful. I bet it felt really good to do that.

JB: It did.

NG: When you were taking your science courses at Kansas State were there very many other women in the classes with you?

JB: No there were not. Sometimes I would be the only girl in the class. Sometimes there would be one, maybe two others. But there were not very many that's for sure. It actually didn't bother me though. I just sort of accepted it that, that's the way it was.

NG: Did it bother other people? Was anybody hostile towards you or treat you differently?

JB: I don't remember any hostility. I think sometimes there was a little standoffishness. They probably didn't quite know what to do with me. But I don't remember hostility.

NG: And just in general what was the environment at Kansas State like?

JB: I loved it. I joined the sorority. I had many friends and to make some money I worked in a bacteriology lab. I was paid part time as a student and I loved doing that. And just as an aside this was an interesting story. The head of the lab that I worked in for two or three years was named Dr. Eisenstark. He was a professor at Kansas State at that time and then you know I lost track of him. I think it was about maybe 5, or 6 years ago I was giving a talk at the American Society for Microbiology and at the end of the session this gentleman came up and I recognized him right away it was Dr. Eisenstark. He was still active. He's 90 now I think and then the next year he invited me up and I gave a memorial talk at the University of Missouri where he is and it was just great. I was

surprised he remembered me but he remembered the things I did, it was remarkable. And so I think the value of doing that was I discovered I really liked being in the lab.

NG: So yeah that was a good opportunity to be able to have that work.

JB: Yes.

NG: Did you feel like you had mentors there within the department?

JB: I don't feel like I've hardly had mentors at all which is something that's different now for the younger students and I think it's wonderful. Because I certainly had no mentors in high school, no counselors. There was really no counseling at Kansas State that I can remember, as far as career counseling. I like to think the only counseling that I got was this one teacher when I think I was a senior said, "You should go to graduate school." And it had never occurred to me. "Oh graduate school well maybe." But I really didn't get any career counseling at all. I sort of just took it one step at a time. Now there's a lot of talk about mentoring and I really would have like to have had mentoring. I'd like to have had mentoring as a young faculty member. I would have liked to have mentoring when I became a chair. There wasn't any back then.

NG: What about living away from home for the first time?

JB: I just took it as a natural step. It wasn't traumatic. I was excited about going to college. It wasn't that far from home anyway.

NG: So after you graduated, you had this one person tell you, you should go to graduate school. Did you apply right away?

JB: Yes.

NG: You did.

JB: So I had to take the GRE and then it was, I think it was during my senior year I believe it was during my senior year when I had this one bacteriology course. There was one lecture in the course about viruses and I think it was bacteria phage was the topic of that lecture and that introduced me to viruses. It was the most fascinating thing I had ever heard so I said, "That's what I want to do." I looked around as best I could. You know the internet didn't exist then. I think there were two graduate programs devoted to virology in the United States. One was here at Baylor, Joe Melnick's department and there was one in Saint Louis. So I applied for and got accepted to come to the virology program here at Baylor. That's how I ended up here.

NG: And had you applied to the other program as well?

JB: No.

NG: Why then Baylor?

JB: Partly it was because my older brother was living in Houston at the time.

NG: Okay so some familiarity.

JB: There's not a lot of thought that went into this, I mean it just happened!

NG: Well it did take quite a bit of thought to even figure out that there were entire programs dedicated to the study of viruses.

JB: And I don't even know how I did that. At other places there would maybe be a virologist in a microbiology department. So I thought, "Well why not go where there's a lot of virologists?"

NG: Right, well that's good because I do think if you don't have mentors and as you are going along in this process you don't know what the possibilities are if nobody is telling you so I think it does take a lot to discover what's out there.

JB: You know I don't know if I did it all by myself or maybe there was a teacher I asked or somebody pointed me toward maybe advertisements to look at graduate programs in microbiology I just don't remember that to be honest.

NG: Can you describe the transition from Kansas State to coming to Baylor?

JB: Well it was a change. The environment was obviously different. I met a lot of new people. I felt accepted as you know being in the graduate program in the department. I never had any second doubts about coming here. I had to learn to get around in a big city. Of course Houston was a lot smaller then than it is now. But compared to Manhattan (Kansas) and compared to Overbrook it was certainly a bit city here. You know I took graduate courses. I had no problem and I was excited about learning all of this new information. Of course I was working in the lab which I was really excited about. And I don't recall any transition problems at all.

NG: What was the medical center like at that time?

JB: It had a lot more open space. I think it was all surface parking. There were trees. I remember quite a few trees. I think probably every institution has gotten bigger since that time. So there weren't as many people in the medical center then. Baylor was a lot smaller then than it is now. But I was focused on virology and the graduate program and just accepted that the medical center is what it was.

NG: What about the women at this level of education? Were you finding that there were more women?

JB: At Baylor at that point?

NG: Yes.

JB: There were women on the faculty. Yeah there were some women in the graduate program. There were women post docs. Certainly there were more men in all those capacities than women. The virology department had more women at different levels than many other departments did. There were not very many senior women in positions at Baylor at that time or for some years after that.

NG: What do you think the reasoning is for that?

JB: I think that it's an ongoing process that we are still dealing with today. That not as many women were going to college and not as many women were going on to graduate school in probably any of the topics. Even when I was in college the push was that everybody should be married by the time they graduated from college and if not, "Oh my!" I didn't get married but it's a good thing.

NB: Well that's what I was going to ask you about next. Since [marriage] was the expectation what was outside opinion about you continuing your education?

JB: Oh it was all unspoken. I think I was always viewed as a little bit different because I was the one who helped tutor people and I had the best grades in the sorority house and in most of the classes that I took. So I don't think people were surprised that I was going on because I don't think I was exactly "typical" of everybody. My parents certainly never pushed me to get married. They didn't have any problems with me going on to graduate school. They didn't know what virology was but if that's what I wanted to do that was fine. This was in the 60's and there weren't many women, certainly not in the sciences. A lot of the [women] who had been in college didn't go on to graduate school and so then of course you aren't going to find many as faculty members if they haven't gone through the process. So it's taken years you know for the numbers to

increase. And we have seen, I think that increase occurred more readily in the biological sciences than in say physical sciences. I don't know why that is, it's just my observation. I think that's true. There were not very many women going to medical school at the time that I was in graduate school. My husband was in medical school at this same time and I think there were three or four woman in his Baylor class at that time. Now 50% of the class is women. So we are seeing a huge difference and it will show up further down the road. I think we've seen a change in the experience of seeing women in all different positions in the medical school and graduate school now so that's been a huge change from the time I started.

NG: Had you met your husband already when you began going to graduate school?

JB: No I met him here.

NG: Well that's what I mean I'm sorry while you were enrolled in classes?

JB: Yes he was in medical school and I was in graduate school when we met.

NG: Okay but you didn't get married until.

JB: We got married after we graduated.

NG: What was your research on?

JB: Well for my Ph.D. is that what you are asking my dissertation?

NG: Yes.

JB: It was on this amazing virus that had just been discovered as a contaminant in the polio vaccine called Simian Virus 40, SV-40. Dr. Melnick who was the head of the department the virology department was very well known for his studies with polio and the use of the polio vaccine. So when this contaminating virus was discovered it was of great interest but also some cause for concern because so many millions of people had

been exposed to this virus as an unknown contaminant in polio vaccines. So it was discovered just a little bit before I arrived. He thought this would be a good topic to work on. It was a great topic to work on and to this day I am still researching on this same virus and group of viruses. So it's been a continual part of my research from the very beginning.

NG: What did you discover at the time about the virus?

JB: Well at that time there was really nothing known about the virus. While I was a graduate student we discovered that it encoded a new protein that was a viral protein and we showed that it wasn't part of the virus particle but it was made when the virus was replicating. So it was necessary for virus replication. And this same protein was discovered in tumors that were induced in experimental animals by the virus and so it was called the tumor antigen or T-antigen and that has turned out to be a model oncoprotein and it was not just what we did or I have done subsequently, but many, many people many labs have studied the T-antigen and it has helped us understand how cells get transformed and convert from a normal cell to a cancer cell.

One of the things that my lab showed after I was on the faculty was that you needed continual expression of that T-antigen protein in order for transformed cells to stay transformed. When you inactivated the protein, we used temperature sensitive mutants, then the cells reverted back to a more normal phenotype and this was something new. That here's a viral protein that has to be continually expressed in order for the tumors to stay like cancer cells. And the studies with T-antigen like I say by many people have revealed functions of cell proteins that the T-antigen modulates their activity or inactivates their activity that is also involved in transformation. So SV-40 has turned

out to be a wonderful model tumor virus and it has revealed lots of knowledge about the process of carcinogenesis that's applicable to cancers that don't even have an infectious ideology. It's been an exciting time.

NG: You said that in order for it to build up to tumorous that it has to be continually expressed. What do you mean by that?

JB: Well so if you have cancer cells or in this case let's say we are dealing with cells that we had transformed in tissue culture. So we did the experiment using temperature sensitive mutants of the virus and the protein that was temperature sensitive was the T-antigen protein so that we transformed cells with these temperature sensitive mutants and did assay in vitro and they grew like transformed cells, tumor cells, and then when we raised the temperature and grew them at a little higher temperature where we knew that, that protein was now damaged and it couldn't function. The cells no longer expressed the properties of tumor cells but they reverted back to behaving and growing more like normal cells and the inactivation of the T-antigen in other experiments also showed that the virus was not able to replicate and make new virus if the T-antigen protein was not functional. So the point is it's a viral protein that's necessary for the virus to be able to replicate and make new virus and it just happens that it also changes the control of normal cells so that they can grow more like tumor cells.

NG: So when you graduated what did you do after that?

JB: After graduation I got married and...?

NG: So was that an agreement that after you both graduated that you?

JB: Yeah we had it all planned.

NG: Why wait for graduation?

JB: We were busy being students.

NG: Okay. So was he graduating at the same time?

JB: Yes. So

NG: And your husband's name I'm sorry.

JB: David Yates Graham and he's an M.D. And the plan was that we were going to go to NIH and I was going to do a post-doctoral fellowship at NIH because there's some very well-known virologists at NIH at that time and David was going to do clinical studies at NIH. But then what happened was there was a war going on in Vietnam and unexpectedly to us David got drafted and he went into the army. By the time he was called up I was already pregnant. He got orders that he was being sent to Vietnam and so I decided I was going to stay in Houston to see what happened. I didn't know a soul in Washington D.C. and here I was going to have a baby while he was gone. I had no family, nobody back east and of course who knew if he was going to come back from Vietnam and so I didn't go to NIH for a post doc I stayed at Baylor. He spent a year in Vietnam.

Our daughter was born while he was gone and then when he came back he did his second year in the army at The Man Space Craft Center as a physician in the Astronaut program. Then we were getting kind of settled here and we forgot about trying to go to NIH and he did his residency and fellowship then at Baylor and I went on the faculty here and so we got established here. And periodically we would look at a job someplace else but it was very difficult to find two jobs at the same place for our particular interests and it just never worked out. We ended up staying here.

NG: Was your brother still living here when your husband went to Vietnam?

JB: Yes, yes, and his parents were in town. He was from the area so his parents were in Houston and you know I had my Ph.D. advisor and his wife were still in Houston. They left a few years later but they were here then and the Melnicks were very wonderful and supportive. I had a lot of friends here.

NG: And so he served as a doctor in Vietnam?

JB: Yes. It was called a flight surgeon but that's a misnomer because he was in the army not the air force and he was an internist he was not even trained really to be an internist yet, not a surgeon. But he was attached to a helicopter group. It was a difficult time because back then there were very few news reports about what was going on in Vietnam in the war. You didn't hear reports like now multiple times a day there will be reports about what's happening any place in the world. There was no communication to speak of. You could write letters and it took a long time for a letter to go back and forth. He arranged every now and then, one of his people he met, some friend, I guess one of the pilots would go somewhere and he was the HAM radio operator and so when this guy got to wherever he could get to he would call me. And it was nice he would day, "Hello – over" I would say, "Hello – over" "How are you? – over" "I'm fine – over." It was hard to have a conversation but at least I would know David was okay.

NG: Yes.

JB: So that was a hard year.

NG: That year were you doing post doc work here at Baylor.

JB: Yes.

NG: And then when you finished your post doc work you got onto the faculty right away?

JB: Yes.

NG: Was that difficult at all I mean was there a major process to apply to be on the faculty?

JB: Not that I'm aware of Dr. Melnick appointed me.

NG: And you have two children is that correct?

JB: I have two children.

NG: When was your second child born?

JB: My second child was born two years after my first child so it was after David got back from Vietnam.

NG: A boy or a girl?

JB: The older one is a girl and the younger one is a boy.

NG: Okay so how was that balancing especially when David was away? And still when he comes back and is fulfilling his duty, how was that being able to...?

JB: Well it's always hard to balance having a family and a full time job at a medical school but we managed. We were fortunate I think in the sense that we could afford to have a nanny come to the house to take care of the kids and so I didn't have to worry about finding child care somewhere. And they never had any serious illnesses so it's not like I had to deal with some ongoing physical problem or something, that was good. Being on the research side I had more flexibility with my timing than say clinicians do where they have to be at the hospital or a clinic at a certain time. So that I could maybe come in a little later or if something happened I could leave earlier. I had more flexibility with timing. And I think I'm a good organizer so I could organize things and plan for whatever had to be arranged or taken care of even when they were in school. They went

to school not that far, we lived close to the medical center and the school was nearby so that I could even get away if there was some activity that I needed to be at when they were in elementary school. Flexibility is really important when you are trying to do both and I had enough flexibility that I could make it work. But I think you have to be (it helps) I think it helped that I'm an organized person and I could plan well. I always take work home at night and I did even when they were little so I could work on whatever I took home after they were asleep. That's how we handled it.

NG: And was everybody within the department kind of accepting of that or nobody ever thought, "Why do you get to go with your children?"

JB: It's not as though maybe... pardon me, maybe I'm misleading you here. It's not that I was gone that much. I'm just saying on occasion if I had to be gone then I could be. But normally I was here. I maybe came in you know an hour later than some other people did that's all.

NG: So were you teaching and doing research from the very beginning?

JB: Yes I did some lectures. I can't remember exactly what year I started teaching in graduate courses but I wouldn't have been on the faculty for too long until I started doing lectures.

NG: And then did you teach throughout your career have you taught?

JB: Yes until I gradually did less and less after I became a chair just because of time constraints. Last year was the first year I didn't give any lectures. But at one point I was the course director for one or two graduate courses but I turned those over to other people over time because I had different duties that I needed to spend time on.

NG: And how do you like teaching?

JB: I always enjoyed teaching but I like the other parts of the things that I've had to do too. I wouldn't say that I was totally passionate about the teaching to forget about all the other parts of my responsibilities. I enjoyed it. I thought it was important but it was just one of multiple things that I did. And like I say time became an issue so I phased out of giving many lectures and it was only graduate school lectures. I never talked to the medical students.

NG: And so your research throughout this period you continued to do research?

JB: Yes I've had a research lab from the beginning. That was the most fun part.

NG: What about funding?

JB: Well funding is a horrible issue now. For the last 6 or so years with the cut backs at NIH and the issues with NIH funding it's the worst that it's been in the entire time that I've been doing this at all. So it's a great concern to me for my faculty, for the young people that we are training because it's very difficult now. Throughout, I won't say it's ever easy to get grants but looking back it was certainly easier in the past than it is right now. So I've had funding throughout my career not just from NIH but from other sources and it wasn't just on the one virus that we talked about it was on other, on a variety of things. You end up trying to find support for research from different sources and we were able to do that and I've been involved in Dr. William Shearer and I put together the Center for AIDS research here at Baylor. That was a source of support for many people working on HIV/AIDS in multiple departments here at Baylor. So we did things like that. But it's a great concern at this point about what is the future of funding for bio medical research especially basic biomedical research. It's hard to predict.

NG: Did you always have to go after your own funding? Did you have help in the beginning?

JB: In the beginning, I think I got my first grant... I can look it up it was in the early 70's but at that point there was a large grant that the virology department and the pharmacology department had together, something about cancer that Dr. Melnick and Dr. Bush headed and much of our research was supported through that mechanism for a number of years. But mostly I've had to get my own support. I hold an endowed professorship called the Joseph L. Melnick Professor of Virology named after the chairman of the department and my boss and I've held that professorship since the 80's and that has helped cover some research expenses. It helps defray part of the salary for a person so that has been an enormous help over the years. It's not enough to run an entire research operation but it provides badly needed help.

NG: So I don't know a ton about scientific research. Does your research, you said your whole career you've been studying this virus. Does it veer from that or are you discovering new things about it?

JB: You are always asking new questions because the field is moving. I have done things with other agents besides that particular virus but that has been part of what I have done. I mean you have to stay current and you apply new methodology and with science every time something is figured out it just raises new questions. So you take the next step and you figure out, well what are the questions that now can be addressed in the system that you have under study and what methods would you use to address those questions and how would you design the experiments to ask this new point and why is it important

that you need to know that? What would it mean? What would be the significance if this actually worked the way you are proposing? So it evolves each year.

NG: In one of the write ups that I got it says that you study the biology of DNA tumor viruses, do you feel like you have already described that in our discussion? When you say DNA to me that is very recent research.

JB: So viruses fall into two very general categories they either have DNA as their genetic material, or RNA as their genome and there are known tumor viruses in each of those categories. So when I say DNA tumor viruses it's talking about this general large grouping because they tend to function differently from the group of viruses that have RNA as their genetic material. And so that's what I meant by that.

NG: And so the impact of your research is in understanding better the causation of...?

JB: It's the mechanism of how normal cells can be changed into cancer cells. I think experiments that we have done in the past help us understand how the SV-40 virus replicates and what are some cellular tropisms that means what cells can it infect. What cells does it replicate in? If it doesn't replicate does it do something in those cells? What is the host range for the virus? So we have looked at different animals and we've figured out what it can do in human cells. We even found evidence that it probably infects humans on occasion at least in certain parts of the world. So it's hard for me to say what is the most important thing that we have done; I can't do that.

NG: So you run a lab and you have students that you mentor within the lab. Can you talk about that part of your job and that experience?

JB: Having students and post docs in the lab is really like having a lab family because you get very well acquainted with them. You work... you see them every day. You help

them plan experiments. You talk about the data. You talk about what does it mean. What would be the next thing to do? You work together on writing papers. You plan presentations with them and so it's a very close working relationship and a student may be here five years or so. A post doc can be here anywhere from a year to you know they can change titles and be here for ten years. So some people come and go but I'm talking about the ones that stay for a certain period of time. They really become like family in many cases. And so it's a wonderful relationship. So I have a group of people that's like my work family almost over the years and we've stayed in touch with many of them.

What was your question?

NG: I just wanted to hear about the experience of that and whether or not you set out to be a mentor to them I think just being the head of the lab that you end up...

JB: Well you know we didn't use to hear the word mentor all the time.

NG: Right.

JB: But as the thesis advisor it turns out the thesis advisor is the mentor. Now that's the terminology that's used and we talk about other mentors for students and post docs and junior faculty to help address other needs. The other people on the student's thesis committee can be mentors in certain ways because they can often times have some different skills and different expertise, different background from say the Ph.D. advisor that the student can benefit from. So we didn't use to talk about mentoring our students. It was more training our students to be able to become trained, independent, creative thinkers to be able to go out and do what they want to do, knowing they can't all go out and start labs like we've done in the past. We have to train them so they can go in a lot of

different directions and figure out where their niche is going to be. So that was just assumed to be part of what thesis advisors did. It's mentoring.

NG: Right and I guess wanting to know that experience and did you enjoy that part of it and what did it mean to you?

JB: Yes, I just felt like that was part of my responsibility once I agreed to take a graduate student. It's time consuming, I found it rewarding, and I think it was an important part of what we did.

NG: You have been several youngest and first's. Youngest promoted to associate professorship.

JB: That's what I was told by the guy who used to be in charge of keeping those records back in 1998.

NG: And to full professor but also the first woman to receive an endowed chair and various other things. Does that on reflection mean anything to you? I would imagine that probably as it's happening you are just doing your work but on reflection does that hold any significance for you?

JB: I'm happy to be able to say that it happened. I don't know if it means that much. I think probably the most significant thing was I was the first woman chair at Baylor and that was I think a landmark at Baylor at that time and it was I think almost 10 years before the next woman chair was named. Now we are seeing many more women chairs here at Baylor so that's changed a lot and that's good. I think the significance or the importance of that and what I think I helped accomplish, even before I became a chair, I was on a lot of committees. A lot of committees at Baylor. There were times when I was maybe the only woman on the committee or there were only a couple. So I set out, I tried

to perform well and work hard so that they couldn't use... so that if there was someone that didn't think women should be having any positions of authority at Baylor that they couldn't use me as a bad example and say, "Well you know we tried with her and it was a disaster." And that didn't happen. So I think that over time I performed well and people just sort of accepted, "Okay," and now we see many more women in senior positions at Baylor. So over the years there's been a real change and that's good. I think the students coming in now don't even know, they don't appreciate what it used to be like.

NG: Do you think there were ever any obstacles or maybe not obstacles but hostilities or negativity surrounding your positions as you began to move up?

JB: Well, I was never aware of any overt hostility. Now I have no way of knowing what may have been said you know behind the scenes. When I became chair what I think was extremely helpful was I felt welcomed and accepted by the other basic science chairs. I especially remember that Bert O'Malley and Salih Wakil were very welcoming and it was great and I think Harris Busch was too. I didn't have that much contact with any clinical chairs then. There's only one woman that's a clinical chair even now. I'm not aware of any hostility. There were no overt things said to me that made me worry about that but like I said I don't know what may have been said in the background. I always think Dr. Bill Butler must have been courageous. He was the one who appointed me as chair the first one.

NG: As you are moving along in your career did you have goals that you wanted to meet beyond research you know in administration and things like that?

JB: No I would say when I first came I was very naive and I had this image that people who were chairs of departments were extraordinary human beings with very

special characteristics and skills and they were just above the rest of us because they were heads of departments. Then I was elected to be the basic science representative to the executive faculty. This was in the mid 70's and that was a meeting we call it academic counsel now where the chairs meet. I was surprised because over those two years I came to realize the chairs were like everybody else and gradually I came to realize I could do what they were doing. They weren't on pedestals they were human beings, they were like everybody else. It's not that I wanted to be a chair but as Dr. Melnick was aging and it was clear that there were going to have to be some changes I felt like I knew what faculty members needed and that if I had enough authority I could design, arrange, plan, make, put in place, activities that I thought would really benefit faculty and trainees. So I was at about the same time I was asked to look at a position actually at the University of Texas across the street and I was very close to taking that position and I told some people at Baylor that I was doing that and that was when they approached me about succeeding Dr. Melnick as the chair here. I opted to stay here instead of moving to the University of Texas.

NG: And what do you feel that you have accomplished as chair?

JB: Oh that's a big question because it's been... I started off at the time that I succeeded Dr. Melnick as chair that department had been named as the Department of Virology and Epidemiology and when they made me chair they switched the name to the Division of Molecular Virology because there was no Epidemiology left and so my accomplishments there were that while I was chair working with the school we got old space renovated. It was very out of date and we equipped [the space]. I recruited faculty members, many of whom are still here, to bring more modern and molecular based

approaches into the department because prior to that the technology and the approaches that were used were very different but times were changing so we needed to add new approaches, new technology. I broadened the number of virus families that were represented by recruiting people working with different agents. This made a much better training program for the students because they got exposed to a lot more. I made sure that we got activities going in areas that I thought were really important for a new virology department like HIV/AIDS. That was a new disease and it seemed to me any virology, good virology department needed to have activities in those areas so I made sure we added that expertise. It was during that time that Dr. Shearer and I started the Center for AIDS research and got NIH funding for that.

I added things that I think made a very academic environment like research retreats and put money into having seminar speakers from all around the country to introduce so that the students and the faculty could meet with various well known scientists. Then when the decision was made to merge the Microbiology Department with the Molecular Virology they made me the chair of the new combined department. At that point they spun off the immunology section from the old Microbiology and Immunology Department to be separate. That was a very challenging job because it meant putting together two groups that had very different experiences and different expectations. It took a while to get common policies and procedures worked out to combine the graduate program and to combine various activities. I had to try to take care of big discrepancies in salaries that people had. The thing, oddly enough that really kind of helped us feel like a unified department I think was tropical storm Allison when the medical center was flooded because when that happened we called people in. The power

was off, our freezers were going to thaw we were going to lose reagents and experiments and the school was able to somehow or another get dry ice delivered. And so each day we had faculty members and students and all kinds of people from the department come in and we carried dry ice up the dark stairs, hot dark stairs because it was in June to try to put dry ice into freezers to try and save our samples. This meant some of us were on the 2nd floor, some on the 7th floor, the 8th floor, the 9th floor so everybody was working together. When all was said and done and finally the power came back on we really had gotten acquainted better and had worked together to solve a terrible dilemma and it helped us feel more like one department.

NG: We only have about 10 minutes. I wanted to ask you if you can articulate the importance of having women more in the sciences in positions like chair and faculty and things like that.

JB: Well I think the main reason to have women in any of those positions is that women are smart, they have clever thoughts, they have great ideas, they can deal well with people, and it makes no sense to try to not take advantage of 50% of the brain power in the United States or in any country for example. You read all these papers about women sometimes approach things differently from men. I think there's some truth to that. But I think the main thing is that there are some extremely talented women in the medical center, extremely talented women here at Baylor and it's just great that we are taking advantage of what they have to offer. We are a much better place because of it.

NG: What do you think the future is for women in the sciences and in medicine?

JB: Oh I think it's getting much better because like I mentioned 50% of the women in medical school, at Baylor I know those statistics 50% of students are women now at

Baylor. At least 50% of the graduate students are women. I don't see any biases against hiring women faculty. We look for certain topics maybe or skills that we are looking for to hire somebody and then we look to see who is available but I see no biases against hiring women or getting women promoted. All of those are good changes. I think the clinical departments are lagging behind as far as finding women chairs. Hopefully that will change in the not too distant future. I read like I'm sure you do that there's a dearth of women in computer science. So the advances for women in biomedical side of things and biology is not happening equally in all areas of science but I think it's a question of encouraging girls, starting young and in high school. If you are interested in science then pursue it. They get discouraged.

NG: What about the pay?

JB: I don't know the statistics for most places. I can promise you that there is no discrepancy in pay in my department.

NG: Does that have anything to do with you being in your position or has it always been that way?

JB: Well as long as I've had any knowledge about it I've seen to it that there is no difference in pay in the department. There may be some individual differences but it reflects circumstances not male versus female.

NG: What kind of advice would you give to women not starting out but women that are in graduate school and pursuing these careers?

JB: Just to follow their passion and to realize you've got to work hard and don't be discouraged with set-backs because we all have set backs and I would say don't take anything personally. If something happens that you don't like don't think that people are

out to get you. We all have some set-backs. But there's no reason not to pursue their interests.

NG: And finally what do you see as your future?

JB: Well that's a good question. I think that my horizon is getting close. I don't know.

NG: So currently though your official position is the endowed chair?

JB: I'm the Chair of the Department of Molecular Virology and Microbiology and as chair of the department I hold an endowed chair called the Morrow Chair but that's for the chair of the department and then I have for many years held the Melnick Professorship.

NG: Okay. Is there anything left that you thought we would talk about or that you think we should know?

JB: No if you think of any follow up questions you can always call me and ask or if you want some documentation maybe I can send it.

NG: One thing I always ask is that you know you've been in so many committees like you said that you've served on various committees within Baylor and have had honors and awards and things like that but is there anything that stands out to you that you are particularly proud of?

JB: Well I really appreciate the recognition say in the last several years of Women in Science and I got a Bioscience of Houston Award in 2013 there was the Hearts of Gold recognition just this year from the Medical Museum and the Harris County Medical Society Group. There is this being part of the history here. I received in the past a Women in Science recognition lectureship through the American Association of Cancer

Research. The reason I appreciate that is that it does highlight women in science and I think that's part of what we've been talking about that women should be encouraged to pursue whatever their interests are and they can do science and have a family and do what they want to do. It's not easy but it can be done and it's very rewarding.

NG: Okay well thank you.

JB: Thank you.