INTERVIEWEE: Dr. Elizabeth Bullitt
INTERVIEWER: Jessica Roseberry
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PLACE: Dr. Bullitt's home in Durham, NC

BULLITT INTERVIEW NO. 1

JESSICA ROSEBERRY: This is Jessica Roseberry here with Dr. Elizabeth Bullitt. She's a professor of surgery, an adjunct professor of radiology, an adjunct professor of computer science at the University of North Carolina in Chapel Hill. She's the first woman to complete the residency in the Division of Neurosurgery at Duke in 1981. Today is October 18, 2005, and we're here at her home in Durham, North Carolina. I appreciate your agreeing to be interviewed today, Dr. Bullit. I appreciate that very much. If you don't mind, maybe we could start with just a little bit of background. I like to ask people where they were born and kind of where they grew up, just a little for background's sake, if you don't mind.

DR. ELIZABETH BULLITT: Fine.

ROSEBERRY: Okay.

BULLITT: Do you want—?

ROSEBERRY: Sure. Of course.

BULLITT: I was born in Cambridge, Massachusetts, and I grew up in Massachusetts.

ROSEBERRY: Okay. Did you—

BULLITT: Um—

ROSEBERRY: Go ahead, please.

BULLITT: I was the child of a Harvard professor and grew up actually in a Harvard dormitory. That was interesting.

ROSEBERRY: That *is* interesting. So academics were in your family already.

BULLITT: Oh, yes. Yes.

ROSEBERRY: Great. Well, did you have aspirations go into any field in particular?

BULLITT: Well, I was interested in neurosurgery for a long time. I thought the brain was neat. It's false, but I think I had the idea that if I could touch it, I could understand it, and that is *absolutely false*. (*laughter*) But the brain is a beautiful thing, and I love the brain. So I was always, I don't know, since the age of thirteen or fourteen, I think, I was really interested in neurosurgery.

ROSEBERRY: So to be able to touch it is *not* to understand it.

BULLITT: No, it's like touching Jell-O. (*laughter*) If you poke too hard, you make a hole. (*laughter*) No, it's not the same thing as to understand.

ROSEBERRY: So did you know anyone who was a neurosurgeon?

BULLITT: No.

ROSEBERRY: No, just fascinated by the brain.

BULLITT: Yeah. Actually I thought the brain was very beautiful.

ROSEBERRY: That's neat. That's good. Well, I wonder if you could tell me had you heard anything as you kind of came through school and had you heard about Duke?

BULLITT: No, I really knew nothing about Duke. Actually, I ended up at Duke by accident, by the kindness of Dr. [Robert H.] Wilkins. But I was a resident in neurosurgery at the University of Colorado, and at that time, their program had some problems and was put on probation. I called around to find out if somebody else might have an opening for a middle-level resident, and Duke did, and so I ended up moving from the University of Colorado to Duke.

ROSEBERRY: Okay. Did you meet with Dr. Wilkins before that happened?

BULLITT: Oh, no; well, I flew out for an interview and talked to him, and we met, and I looked at the place. I was a little intimidated. (*laughter*) It was better than where I was at the time.

ROSEBERRY: What was intimidating about Duke?

BULLITT: University of Colorado was a small program, and Duke was a very large program and was also rigid in some ways. I was there very much, I think, during a time of transition, and it was militaristic. It was intimidating.

ROSEBERRY: So that came out even in—

BULLITT: Even in—yeah. Each place has a feel, and this had a very definite almost military feel.

ROSEBERRY: Can you tell me what you mean by "almost military feel"?

BULLITT: There were uniforms. Everyone had to wear a particular set of clothes. Ten or fifteen years earlier, it was apparently even more so. Men could not have beards. There were just a number of very close rules. It was expected that surgery would be your life, and this is true not just for Neurosurgery but was true throughout the Surgery Department I think. We were on call every other night—and no complaining. It was very much a Yes, Sir. No, Sir. No excuse, Sir, kind of environment. I remember being chief resident, being blamed. The elevators broke at some point, and somebody had to walk up the stairs, one of the professors, and I was railed at. All you can do is you say, "Yes, Sir. I'm sorry the elevator is broken, Sir. I'm sure they will be fixed soon, Sir."

ROSEBERRY: Were you responsible for seeing that they got fixed, or you just—?

BULLITT: Well, no! (*laughter*) I don't know a thing about elevators! You just accept responsibility for whatever happens, whether it's raining or not.

ROSEBERRY: Okay.

BULLITT: Yeah: Okay.

ROSEBERRY: Do you think that was unique to the Duke Department of Surgery, or is that—?

BULLITT: I don't know if it was unique. It was certainly different than the environment that I had come from. Neurosurgery has traditionally been kind of a hard-driven field that has taken people that tend to be very committed to surgery, to medicine. Duke was in some ways very much of that kind of old school. There was a wonderful man, Guy Odom, who was one of the leaders and shakers in neurosurgery as it was being developed, who was there when I was at Duke. He was older at that time but was still very much present. And he would expect somebody to walk behind him, carrying his briefcase. He was absolutely honest but extremely intimidating. There was a resident my own age, an equal, who I thought was a very tough guy, and at one point he had a patient that came into the emergency room and had a bad head injury and died very soon after coming in. Nobody's fault, but died. But this co-resident of mine *knew* that Guy Odom was going to ask about neck films, which is a routine on anybody with a head injury. So my friend took the *dead* patient down to X-ray (*laughter*) to have the patient x-rayed in the middle of the night, dead, just so he could have the X-rays to show Dr. Odom in the morning. That is the kind of place.

ROSEBERRY: How interesting. Did that go across Duke as well, do you think? Was that in other departments?

BULLITT: It was true of the Surgery Department in general. I can't tell you about Medicine or whatever, but I think it was true across Surgery. There are stories that [Dr. David] Sabiston, who was the chief of Surgery at the time, kept his residents for an undefined amount of time. Nobody knew when they were going to finish, and he could keep them for years and years and years. And they ended up excellently trained and very strong surgeons, but one of them did become an

extremely prominent transplant surgeon. The story is as chief resident, Sabiston sent him home to change because he didn't like the clothes he was wearing. He was like that.

ROSEBERRY: It was kind of what he wanted.

BULLITT: That's right. Yeah, the surgeon was kind of a little god, who ruled his—and it was *his*—own world the way he saw fit, and everything had to be exactly right according to how the little surgeon god saw it.

ROSEBERRY: Do you think that there's something about surgery or neurosurgery in particular that might be attractive to that kind of—you're talking about?

BULLITT: Well, yeah, I guess so. Certainly it's a field in which you make a mistake, somebody gets hurt, and so you do need things to be right in the operating room. You need the *correct* instruments and so forth. Also, at least in early neurosurgery, a lot of people died. A lot of the patients died, and you need to be fairly thick-skinned, I think, in order to accept that and be able to go on and do good work. I think it has tended to attract people that are fairly perfectionistic. Also, the brain is who we are. Um, yeah, so I guess so. I think there is something in the field that may attract that.

ROSEBERRY: It sounds like it was a fairly male-dominated—

BULLITT: It was.

ROSEBERRY: —field. Is that changing any?

BULLITT: Oh, absolutely. I mean, there are still many more men than women. I just came back from a meeting at the Neurosurgical Society of America, and I looked around, and I was the only woman in the room; so it still is that there are more men than women, but I think it's no longer considered unusual and extraordinary for a woman to be in neurosurgery. I'm at the University of North Carolina, and we've had a number of women come through. My husband is

now chief of neurosurgery at Duke, and he has a number of women or has had a number of women come through. I think it's now no longer—at the time, it was exceptional; it was considered a little *sick.* I had a number of people just outright wonder what my sexual orientation was. It really was not considered a normal thing for a woman to be in surgery, particularly in neurosurgery, but now there are quite a number.

ROSEBERRY: Was that flak from people in the department, or was that just kind of from people around?

BULLITT: Both. And not just at Duke, at you know, wherever I did my training. I was always the first woman in surgery at whatever institution I was at. I was the first one to join the staff at the Mayfield Neurological Institute, the first one to join the staff at the University of North Carolina, and I was always looked at somewhat askance and with the sense that anybody who was going to have anything to do with me was taking a risk because women really didn't belong in surgery. But I think that, given enough places that are taking enough risks, that yeah, women are fine. Some may be absolutely outstanding; some may be kind of bums, (*Roseberry laughs*) just like men. It's now no longer considered such an odd thing. I think that is one good way that our society has changed, I think, in the last twenty-five years, thirty years.

ROSEBERRY: So did you feel as if you were a pioneer when you were—?

BULLITT: No! All I thought was I was trying to survive! (*laughter*) It was hard. And it was lonely. I also remember, for example, when I was chief resident, I felt that—well, I told you that I was responsible for everything from the weather to the elevators. I felt at one point that my only contact with human beings was being yelled at or hearing people complain. I'd go out to buy things in a store, just so that I could have some—so I could say, Hello. Thank you very much. How much does this cost? Isn't that pretty? Just so that I had some human contact that

was not whining or angry. It was hard.

ROSEBERRY: Do you think that was particularly because you were female, or was that just the nature of things?

BULLITT: I think it's both. I think it was partly very much the nature of things. I think I probably had it somewhat worse. And also I took things too much to heart. I would have had a much better time if I could have laughed at them all. (*laughter*) And I think they would have given me a less hard time if I had just laughed at them all, but I took it all very seriously, and every criticism, I would try to just do better. I think that became a little bit of a vicious circle. That was my own fault, but I didn't know how to laugh at them.

ROSEBERRY: You must have been very dedicated to your field to stick around.

BULLITT: Well, I really wanted to be a neurosurgeon. I did. And I think that without that deep want, I wouldn't have finished it. But I wanted it. I really wanted it.

ROSEBERRY: Can you tell me a little bit more about what's fascinating about neurosurgery?

BULLITT: I remember actually when I was a medical student rotating through neurosurgery when I was at University of Colorado, actually, of going in and watching a craniotomy, where the head is shaved, and you take a piece of bone off and are looking down at the brain, and I was standing behind the chief surgeon on some stools looking at the brain and just saw it as they did the opening, saw the brain appear, and I just had this sense of happiness. This is where I belong. This is beautiful. And it really isn't beautiful. It's this glistening, gray, wrinkled thing, (*laughs*) but it's who we are, and it's what makes humans human, and it's what makes each of us individuals. I think—I told you this, but I think I really did think that if I could hold it in my hands and touch it, I could understand it. That's totally false, but it's a really beautiful thing. And you also have to be very careful. Mistakes pay dearly. And at the same time, you could be

a wonderful hero. It doesn't happen very often, but I think we've all had situations in which you get a young patient with blood on the outside of the brain, and the patient is getting sick very fast and is going to die. And if you can know that, see that, look at the eyes, know where to drill your hole in the head, you can save that patient's life and have them turn around and be great. That doesn't happen often, but it does happen, and it's so dramatic and so exciting to see the reverse happen right in front of your eyes. That's fun. That's neat. I saw a case like that early on, and I think that's also what helped decide me. But I like the drama. The only other thing that attracted me in the same way was cardiac surgery. And I remember thinking when I was an intern that if I hadn't gone into neurosurgery maybe cardiac surgery would be nice, and that also has the same kind of acute sickness that if you know exactly what you want to do, if you give the right drug, you can reverse something and make somebody well who was not well, who was dying a few minutes ago.

ROSEBERRY: That's a very intense kind of—

BULLITT: It's very intense, yes. But also a lot of people die, the same way as if you're interested in heart disease.

ROSEBERRY: How was the training at Duke?

BULLITT: It was tough. It was, again, very rigid, very militaristic, and I wasn't used to that kind of environment. I was hit, and nobody had ever hit me before. It was just different. I'd be sworn at, and you just—it was "Yes, Sir. No, Sir." At the same time—it's funny—the person that was the most abusive in some ways to me was Guy Odom, but he was also the person that—or a person that I held in very high honor, who was *ab*solutely honest and would tell you *exactly* what was on his mind with nothing held back. He had a lot of influence on me. And I think in some ways it was Guy Odom I really wanted to please. And he never admitted that women were

good in neurosurgery. Even decades later, when I'd come back, he'd boast about his *men* in North Carolina, and I think he never really accepted that women could be neurosurgeons and could have a job. Blaine Nashold was there at the time. He was very kind to me and was one of the few who actually would help me learn to operate. That was another difficulty. I think many felt that women just weren't suited to be surgeons, and so I wasn't always given opportunity to operate, which is hard if you're trying to learn to be a neurosurgeon. But Nashold was very kind. And Wilkins accepted me into the program, so I'm always grateful to him. It was not fun. (*laughs*) It was a hard time. I'd never been hit or sworn at.

ROSEBERRY: Was that in the context of surgery?

BULLITT: Oh, yeah. Oh, yeah. Yeah.

ROSEBERRY: It's mind-boggling.

BULLITT: Yes, it's different. It's different. And times really have changed, and a number of the ways in which I was treated at that time—not just at Duke but wherever I came from—would be against the law now. There now are, I think, rules that govern behavior at the workplace and how women can be treated and so forth. I think sometimes there are now too many rules. (*laughs*) People may be *overly* sensitive. But certainly a lot would be against the law as to how I was treated at that time. But it is because of people like me, I think, coming up that the laws now exist. You would get groped in the elevator, too. That wasn't just Duke. That memory actually came from the University of Colorado, and it wasn't the University of Colorado only, either. It was a societal kind of thing at that time.

ROSEBERRY: You were invading men's turf.

BULLITT: Yes. And when I started—also it was not Duke; it was before that. There were no rooms for women to sleep in, so I slept with the men. That was fine with me. I mean, we were

all tired. But there was one woman in my class who was just embarrassed to do that. She slept on the scales where they weigh dead people. There were no accommodations for women in surgery. There were no changing rooms for women in surgery, so the women surgeons changed with the nurses, and the male surgeons had—you know, the men were surgeons, and the women were nurses. And there weren't any male nurses. I'm sure male nurses would have had the same kind of funny feeling as female neurosurgeons, but if there were any male nurses—and I don't think there were any then—they would change with the doctors, who are male, and certainly any women who were surgeons changed with the nurses. That kind of thing puts a disadvantage to training because there's a certain amount of discussion that just occurs in the lockers, in the changing room, and if you're not with the other surgeons, you miss out on the discussions, and that wasn't intentional by the male doctor, female nurse division; it just was part of the assumption that women weren't surgeons, and all these kind of little ways in which I think women were at a disadvantage. It's completely different now, at least at the University of North Carolina where I am now. There are male doctors' changing rooms, and there are female doctors' changing rooms; and there are male nurse changing rooms, and there are female nurse changing rooms. But thirty years ago, that was certainly not the case. I forgot what you asked me.

ROSEBERRY: If you were not able to do surgeries, if some people said, We don't want you to learn how to do surgeries, what were you doing at the time? What did they have you doing?

BULLITT: Oh, stand and watch or stand and retract or—

ROSEBERRY: So you were filling nurses' duties then as well almost.

BULLITT: No, it was more like I was useless, and I could stand and pull something out of the way, but was not somebody to be trained with interest. Nurses had a function, and the nurse's

function was to serve the doctor. And oh, there was a wonderful scrub nurse who was there, probably the best scrub nurse I've ever met. And she's the kind of person who just would pay total attention. No word spoken. Always knew what the correct instrument was to be coming up. She was wonderful. But I was not being trained as a nurse; I was going to be trained as a surgeon, and that was just very uncomfortable, I think, to many at that time. Maybe not even consciously. I remember at one point somebody had a very interesting case, and a number of us as residents went into the room to look. He one by one called each of the others over to look through the microscope and see this case and didn't call me. And so at the end, I sort of waited for my name to be called, and he didn't, so I said, "Could I come and look, too?" And he said, "Oh, oh, of course, come and look." And I came and looked. But unlike the others, he was pointing out, "Here is this structure, here is that structure," he just didn't say anything. So I came, and I looked, and I'd already asked special if I could come, too, and I felt uncomfortable. I should have asked him to point out the same things to me he had pointed out to others, but I was by that point feeling uncomfortable, and I didn't. I think my training suffered in a number of ways. That is a specific example. But it was like that. And I think it wasn't always intentional. I don't think I was left out intentionally; it's just that I was the woman, who didn't matter. It's changed, again. I think times have changed.

ROSEBERRY: Good. I'm glad. (*laughter*)

BULLITT: Me, too. Me, too.

ROSEBERRY: Sounds hard.

BULLITT: Yeah, it was hard. It was hard. But at the same time, I did finish and ended up well trained. I was able to go out into private practice, which I did initially and do just about everything and then eventually came back to academia.

ROSEBERRY: So you did have some opportunities in there to learn.

BULLITT: Yeah, yeah, yeah. It was enough. I still feel uncomfortable, though, when I go into the building, and I've been offered since to join their neurosurgery department as a member of the faculty, and I can't. I just walk into that hospital, and I just get this wave of discomfort and sort of sadness. I couldn't. I don't want to go back there. And at the same time, I am grateful to them. I did finish. (*laughter*) It would have been much worse if I hadn't, if I'd been fired or whatever.

ROSEBERRY: Maybe we can just talk in general about some of the people there.

BULLITT: Okay.

ROSEBERRY: You talked a little bit about Guy Odom, but I wonder if I can ask you about Dr. Sabiston.

BULLITT: I didn't have much contact with him. He was the head of General Surgery and was a person with a marvelous reputation, but I really was not under his direction, and I would look at him from a distance and think he was very interesting, but I had enough to deal with my own tiny Division of Neurosurgery.

(*tape 1, side 1 ends; side 2 begins)*

BULLITT: There are all sorts of stories. I told you the one of his sending the chief resident, who ultimately became a world-famous transplant surgeon, home to change his pants. But he never told me to go home and change anything. Anyway, I had to wear a uniform, so there wasn't (*laughs*) any choice. So no, I did not have a great deal of contact with him.

ROSEBERRY: What were the uniforms?

BULLITT: Oh, the men all wore white pants, white shirts and white jackets, and I had a little white skirt and white shirt and white jacket. You know, white is the most inefficient color to put

people in in a hospital. (*laughter*) I don't know why white, because if you're working, it gets dirty. We were not allowed to be dirty. It had to be clean and white and crisp at all times.

ROSEBERRY: What was the gentleman wearing who got sent home?

BULLITT: I think it was on a weekend, and he had plaid pants on. He got sent home to change clothes. I would never have dared to wear plaid pants. (*laughter*)

ROSEBERRY: What about Dr. Robert Wilkins?

BULLITT: He was the chief of Neurosurgery when I was there. He's very interesting. He was a gifted editor and during the time that I was there was editor—he may even have begun the journal called *Neurosurgery* and did an excellent job at that. Was also editor of a number of books. Was very interested also in the history of neurosurgery. Brought out a number of little books on the history. Very knowledgeable about a number of aspects of neurosurgery and of its history. I didn't have a great deal of contact with him either. He was the person who was kind to accept me, but then I think after that, I think I was kind of ignored. I was kind of looked at as a body to fill a slot and to take call. But he knew a great deal, and I was in awe of the knowledge that he had at the time. Other people there: Wes [Wesley] Cook, who was a marvelous character, who—I like Wes—who used to be a rodeo rider and then went into neurosurgery. Was a very, very bright guy and had been interested in research at one time, but at the time I was there was a clinical neurosurgeon and who left neurosurgery a few years ago to start his own cattle ranch here. And just somehow a very colorful, interesting person. [W.] Jerry Oakes was there at the time. He was a pediatric neurosurgeon. He's moved on now, but we used to meet for a number of years after—my husband and I. We'd have New Year's dinner together, even though he was out of town. And Guy Odom I have already told you about. Also a totally—a little tiny—or just a little short man, and when he yelled, his neck veins would stick way out (*laughs*), and you'd

feel absolutely tiny. "Yes, Sir." And Blaine Nashold, who was very, very kind to me. He was the person I think who was—the one person who was genuinely kind to me during the time that I was there.

ROSEBERRY: Did you meet your husband during this time?

BULLITT: Um-hm. He was a resident a year ahead of me. When you're living that kind of life, the only people you meet are the people in the hospital. There's just no time for any kind of outside life. If you're taking call with your fellow residents, you really learned who they are, and you learned who's a liar and who's a bullshit artist (*laughs*) and who worked really hard and who's good and isn't really recognized for being good because maybe they don't talk very well or whatever, but you really get to know the people that you're working with. And oh, my husband was gold. He was honest, and he was good. We'd been married for now twenty-one years, almost twenty-two years.

ROSEBERRY: And he's now—?

BULLITT: He's chief of Neurosurgery.

ROSEBERRY: Has he been at Duke?

BULLITT: Yes, he's been at Duke for over thirty years, thirty-five years. He came there as a resident and stayed.

ROSEBERRY: Can you tell me a little bit more about the time commitment you were talking about? You didn't go outside that little world.

BULLITT: Oh, no. Well, you were on call I think it was every other night as a resident, and when you're chief resident, that's the worst. That's when you're ultimately responsible for everything. There was one time I didn't even go home for thirteen days. It's because something just kept coming up every night. I didn't change my clothes. I just never got home. It was a

huge time commitment. And when you did get home, you generally would get home at nine, ten o'clock at night, and you had to be in at five or six in the morning, so you just had time to sleep generally and then come back. Now it's really changed. There now are limits to the number of hours that residents are allowed to work. And I think in some ways the pendulum has swung too far the other way. I think that the environment at the time I went through was not good. Everybody—you were tired all the time. I did develop a skill, which I still have. I can go to sleep anywhere, in any position. If I am on a huge long plane trip, no problem. I can just close my eyes and go to sleep. I can sleep on the floor, I can sleep sitting in a chair, (*Roseberry laughs*) I can sleep just about anywhere, and that's a useful skill. But it was learned of necessity. And I think that way of—you know, we were treating patients, and to have people that chronically tired I think was not probably in anyone's best interest. At the same time, I think the pendulum has swung too far the other way, and now there are very much limits on the numbers of hours that residents can work in the hospital. But I think that the training may suffer from some of that. They don't see as much. There was a feeling at the time I came through that you were really committed to the patient, and if a patient was sick and you were assigned that patient, you would stay there until the problem was solved or till the patient was taken care of. You were *there* for that patient. It wasn't a set of hours in which you would clock in and clock out and say, Well, my time's up. I'm going now. Bye. It was more a sense of you were going to take care of the people. They were our patients. And now they're considered "clients." Even the words have changed. (*sighing*) Ach. I don't know. In some ways, I like the old way better, even though it was brutal, in that it did imply you were dedicated. You were there because you cared. If you didn't care, you got out of the field. Only the people that cared were in it. And now it's much more a clock in, clock out. They're clients; they're not your patients. It's more of a

business relationship.

ROSEBERRY: What do you think brought about that change?

BULLITT: I think there were a lot of different reasons and many of them good. I think that our society right now is much more careful about how blacks and women and all sorts of different groups are treated. I think there's an attempt to try to make things reasonable in professions in terms of hours and so forth. But I don't think good medicine can really be practiced by time clocks. If I'm sick, I want a doctor. I want somebody who's going to be there for me. And we were all there for the people for we regarded as our patients. They were not our clients. Money was never considered. I don't know. I mean, I knew that some patients had insurance and some didn't, and there was some difference, I think, in how patients were treated if they had insurance or if they didn't, but I don't know, we of course took care of patients that didn't have insurance. It kind of came as a shock to me many years later, after I finished, the progressive concern with paperwork and billing and having to fill out the forms so correctly so that you could bill correctly. We never thought about billing. You were interested in the surgery, in the anatomy and in what does the patient need. Now it's very much turned into a form thicket in which there are whole courses on how to fill out the forms and how to do your billing. Again, although I understand that the old way was difficult, and I suffered through it, and it's not ideal, I don't like forms, either. (*laughs*)

ROSEBERRY: You need to find a happy medium between those two worlds.

BULLITT: Yes, to find a happy medium, that's right. I think that's right. It *has* changed. It was very much for dedicated people.

ROSEBERRY: I know that you have become very interested in technology.

BULLITT: Um-hm.

ROSEBERRY: I was wondering if you could talk about how, during your time at Duke, how technology was used.

BULLITT: It wasn't. That interest really came quite late. I was at Duke early. I finished in [19]'81. If there were personal computers at that time, they were in a very, very early stage. Everything was handwritten. I don't think there were personal computers at that time, or if there were, only a very few people had them, certainly not us. The interest in technology actually came much later, after I finished. But they had, although no technology, marvelous things like—Odom had a library of histology slides, slides that you'd look at under a microscope, that had tissue that was taken from various types of brain tumors generally. But physical, not electronic images stored on a computer but physical slides, thousands of them in this whole room with boxes of slides. There really wasn't technology much at that time. But that wasn't Duke, that was just the time.

ROSEBERRY: What about kind of cutting-edge techniques of the time?

BULLITT: Duke tended to be very slow and very conservative. I think one of the things they had was that people who trained there—they tended to recruit their staff among people who had already trained there, and so for good or for bad, there was a single right way to do everything. And I'd come as a middle-year resident, and one of the common problems that all neurosurgeons must deal with is shunts, in which, often for children, fluid pockets get too large in the brain, and so you put a tube that leads from this fluid pocket and goes under the skin and drains extra fluid into the abdomen. Neurosurgeons over the world gets lots of those cases. One way to test if the shunt is plugged or not—if you're worried: Is the shunt plugged up? Is the person sick?—is to sterilize a small area over the tube, and there's often a little spot where you can stick a needle in and draw fluid and test: What is the pressure, and, Does the shunt seem to be working? When I

was at the University of Colorado, that's what we did all the time. When I came to Duke, one of my first cases was a child with a plugged-up shunt, maybe, so I went down to the emergency room, and knew I was doing exactly the right thing and sterilized the skin and tapped the shunt to measure the pressure, and the shunt seemed to be fine, and the pressure was low, so maybe the kid just had a cold and it was nothing. And I came back in and happily reported that I had just tapped the kid's shunt and was met with absolute horror. It was *unheard of* to stick a needle through the skin to tap a shunt, because it was felt you might contaminate it. At that time, the only way you were supposed to handle a shunt was to take the patient to the operating room and put them to sleep and open the whole thing up. And I thought I was going to be fired right then. Later on, I think they got a pediatric neurosurgeon who said, "Yes, it's okay to tap shunts, and that really is the right way to do it." But Duke tended to be very, very conservative and to keep with time-honored methods that had worked in the past, but not really to be breaking edge on the new things. It was very, very, very conservative. Not everyone would even use the microscope, for example.

ROSEBERRY: That's interesting, because when I think of Dr. Sabiston and his department, I'm always hearing about research and experimental surgery, and I think of that as being kind of—

BULLITT: Yeah. Well, Nashold was doing some experimental surgery.

ROSEBERRY: With stereotactic, is that—?

BULLITT: Well, he did that, but that wasn't experimental. He looked at DREZ lesions. Dorsal root entry zone lesions. He really invented an operation. That certainly was new. And talk about technology, he also had all sorts of electrodes. He would try to do all kinds of recordings on patients, particularly for spine kinds of operations. But I think in general it was pretty conservative. General Surgery, I can't really speak to.

ROSEBERRY: Okay. But Neurosurgery—

BULLITT: But Neurosurgery, yeah, it tended to be quite conservative.

ROSEBERRY: Okay. Well, were there other things about Duke itself that you noticed, just kind of in general?

BULLITT: I like Duke Gardens. (*laughs*)

ROSEBERRY: Yes. I do, too.

BULLITT: I don't know. I was so caught up in that little tiny world. That really was my life at the time. I was just working all the time or thinking about work all the time. I really don't think I noticed very much else (*laughter*) of Duke, which is kind of too bad because it's a very rich environment, but I really was just so focused on: I was going to finish Neurosurgery, I was going to do this, that that's really all I saw at the time. My now-husband, who was the resident a year ahead of me, we didn't even date then. And I remember he'd say things like, Well, there is a Neurosurgery party coming up, and I know you don't have a date, and I don't have a date, so (*laughs heartily*) let's go together. (*laughter*) Really, I didn't have any other life. That was just what my life was at that time. So I didn't notice too much (*laughs*) outside. It's funny.

ROSEBERRY: I understand that there was another woman there as well?

BULLITT: They accepted a woman into their neurosurgery program, Carol Ludolph, but they fired her. She was there before I was there. So I was not the first one accepted, but she got fired. And since, they've had a number, lots and lots and lots. But at the time, I was not only the first one to finish neurosurgery residency, I was the first one to finish *any* kind of surgery residency at Duke. It was not a female-friendly environment. (*laughter*)

ROSEBERRY: It seems crazy that it's as late as the eighties.

BULLITT: Well, it was very conservative. And again, they had ways that were true and trusted,

and they just had to stick to those ways, for good or for bad. And you ended up coming out of the Duke training not very flexible, I think, but you knew one way to take care of almost every single thing that might come your way. You didn't have a sense that you could do option A or option B; and in fact, in neurosurgery, often there are many ways approaching the same problem. But you'd come out knowing an option A for everything, and that has good and bad, because you never hesitated. You knew what to do almost no matter what came in. But you know what? When you go out into the outside world and see not everybody does option A. It's like tapping a shunt. Nobody would have tapped a shunt. The thing to do would be to take the patient to the operating room. Well, tapping a shunt is really okay. So it tended to be very conservative, to rely on ways that were true and trusted, and then for good or bad to teach everybody coming through that there was a way, with this whole historical precedent, to deal with each problem that a patient might have.

ROSEBERRY: Do you think that was Dr. Wilkins's influence? I mean, it sounds like it's been that way for a very long time, but—.

BULLITT: I don't think that was Wilkins's influence. I think it was there long before him. And I think he may actually have tried to modernize a little bit. I think he was one of the ones that really tried to bring in the operating microscope. No, it was well before him, I think. And certainly it's changed now. My husband is very interested in research and the cutting-edge of things and gives courses on all sorts of things. It's changed now, but it was just part of the environment at that time.

ROSEBERRY: The woman that you talked about that was there before you, was that the same woman that had trouble sleeping in the—

BULLITT: No, no, that was actually not a story from Duke; that was actually from earlier than

that, when I was a medical student, rotating through Surgery. That was not at Duke; that was at another institution. But no, they actually had a room that was a single room, and whoever was on call had that room, so that actually was not a problem at Duke.

ROSEBERRY: Okay.

BULLITT: Again, the problems I had were not just Duke's problem; it was a societal feeling or sense, whatever.

ROSEBERRY: But maybe a little less so in Colorado?

BULLITT: It was there, too. It was in Colorado that they didn't have any beds for women on call, on Surgery, and fine, I slept in the room with the guys. (*laughter*) Somebody slept on the dead person's scales because she felt uncomfortable. No, it really was kind of that we were—and I remember—this was also at Colorado—and I don't know whether it was a kind thing or a cruel thing, but at one point, the head of Surgery or somebody high in Surgery pulled me aside, just to talk privately, and said, "You better really think about if you want to be a woman in neurosurgery or not, because you are going to be up there on a stage, and everybody is going to be looking at you. And you have to decide if that's what you want to do, because if you do well, that's fine, but if you have trouble, everybody's going to be looking at you. And just think about it." And in some ways he was right. I don't know whether it was a kindness or a cruelty to kind of point that out, but I think it was kind of a truth. Yeah, you got looked at, you got judged. You got picked at a little bit. People always wondered about you. What would really hurt my feelings—again, this was not just Duke; it was Colorado and Minnesota and even Cincinnati later—would assume that a woman in neurosurgery was probably homosexual. And I wore real spike high heels. (*laughing*) And Duke may have had a rule about costumes, specific clothes, but they didn't have anything about shoes, and they didn't have anything about earrings, so I

wore real high spike heels and long, dangly earrings, just to try to—you know, I was female, too. I might be being a surgeon, but yes, I was—I was female: Look at my earrings. Look at my spike heels. (*laughs*)

ROSEBERRY: Did you have any difficulty with patients or families of patients?

BULLITT: Actually, I had one person when I was a medical student who asked me not to do a rectal exam. He felt uncomfortable. And I remember being in the emergency room, and I can't remember whether I was a medical student or a resident. They had somehow stalls separated by curtains, and I was in one, seeing somebody. It must have been as a medical student. There was a woman in the stall next to mine who I couldn't see but I could hear through the curtain. The guy in that room was saying he didn't want to be treated by a woman, and she just retreated and gave up and said, "Okay, I'll find somebody else." And I remember thinking that wasn't effective and that somehow—I mean, a patient has the right not to like a doctor, and a patient has a right to get rid of somebody, but I figured nobody was going to get rid of me just because I was a woman, at least without a fight. I had early on a couple of things in which somebody would seem to be uncomfortable, and I'd say, Well, would you like a man? Do you think being a man—fine, I'll get you the janitor. Would you like the janitor? He's a nice man. And then the patient would laugh and say no, and everything would be fine. But I think a lot of it is kind of in the attitude, and what patients really want is somebody competent and somebody who cares about them, and it actually is much less important if the person is male or female, but they need to have the sense that that person really does know what the person is doing, the person is going to do a good job, and also that person cares about him. I think a lot of how the patient feels is kind of how the doctor comes in and presents himself or herself. Actually, I would come in and I would intentionally try to stand straight and talk directly to the patient, really pay attention. I

had much more difficulty with the medical hierarchy than I did with patients. I did—way long after, when I was actually working at University of North Carolina, I did have one patient ask to be reassigned to another doctor, but I was eight months pregnant at the time, (*Roseberry laughs*) and was sticking out to—my stomach stuck out, and he was worried I might go, like, to labor if I scheduled him for surgery. I mean, he was a nice guy and a fun guy and was not mad at me, but he was afraid I might go into labor. And so that was okay. I laughed with him, and we reassigned him to another person. And I certainly have had patients that I have liked better than some. Some patients I've got along wonderfully with, and others may not have liked me particularly and may have gone on to another doctor, but that's true for—that doesn't have anything to do with being a woman; that's just part of the nature of the job and interactions between people. But my problems were really very few with the patients. It was more with the hierarchy.

ROSEBERRY: When did that begin to change? You were talking about how it's much better now, and I'm just wondering when that shift began to happen.

BULLITT: Well, I think it's been slowly and gradually. When I came out, I was the first woman to join the staff at the Mayfield Neurological Institute. And there was apparently—I was paid $40,000 a year, and when I joined the staff, it was tiny. And when I joined the staff, they apparently—I didn't know about this until later—they just didn't think I was going to be able to do it. And then when it became apparent that I was, I had a *huge* practice. I ended up, by the time I left, just an enormous practice. But they kept giving me retroactive raises. (*laughter*) Initially they gave me the worst secretary and a little teeny office, and it was explained to me very carefully that the good office was being reserved for somebody good, and I wasn't, and then I got moved to the good office at some point. I mean, I ended up friends with a lot of those

people and liking them, feeling good. But at the time I came in, they didn't think I would do it. Then I married my husband and moved to Durham and wanted a job in neurosurgery here. Well, nobody would take me. I was very honest that I was planning to have children, but I also said, I'm dedicated. I will be good, believe me. They would *laugh*, because the idea of a woman in neurosurgery was funny to begin with, but the idea of a woman with children in neurosurgery was ludicrous! And right now it would be against the law to laugh, but nobody would take me seriously. So I found a job in a lab and managed to get a little teeny appointment at the University of North Carolina where I would take calls once a month or something, but at least my toe was in the door. The door hadn't closed.

(*tape 1, side 2 ends; tape 2 begins*)

BULLITT: Well, this is tape two. I was talking about how things changed, but I couldn't find a job when I came here, and I did. I was honest. Actually, I was going to have two kids in two years. I had three kids in two years because the second one was twins. (*Roseberry laughs*) I came back to work each time immediately. But I couldn't find a job, and I tried private practice, I tried academia. Nobody would even look at me. But again, I did have my toe in the door at the University of North Carolina, and about six years later, the division got into some difficulty for a number of reasons. Their chief left, and for a number of reasons, they couldn't appoint any of the active neurosurgeons at that time as chief, so they appointed me. So I came out of the lab to be acting chief, and this also was viewed as a move of desperation on the part of the administration, who had no other choice. (*laughter*) And this was terrible. But I was a good acting chief and held onto the residents. We managed to hire new people, continued to process the patients—and I really didn't want to be chief, but—so as we interviewed other people, that was fine, and eventually they hired a new chief. But then part of my condition was, You appoint

me an assistant professor, a regular job not just a peon in the lab. And at that point, then, I had gotten my own office, I got a parking place (*laughs*), I got a salary (*laughs*), which I wasn't—I was chief at $30,000 a year, which was double the salary they'd been paying me before. And again, this all would be against the law now. But I was grateful. (*laughs*) But I also was a good acting chief, and I was competent. And then I did get a job. I mean, they put me in as a neurosurgeon, and I did research as well as clinical practice then for quite a long time. But I was real. I had an office. I had a name on the door. And I advanced quite quickly from assistant professor to associate to professor, but I suddenly was accepted into the system. But if it hadn't been for that kind of brief time in which the department had run into difficulty, then I would still have been left in the lab. And it still was slow even then. When I first came, one of the residents wore a little gold pin in the shape of a pig, and he was proud of it. He said he was a male chauvinist pig. Again, that would be against the law now, but it was just accepted as part of the ethos, and you feel a little uncomfortable talking to somebody who tells you he's a male chauvinist pig and wears a little gold pig on his shirt. But that was just the way it was. But once a few people have gone through, and they're okay, then it becomes easier for others to accept them, and then some female residents began to become accepted, and they did fine. Once you build up a certain critical mass, then the pressure just goes away. Some women are good, and some women are bad. Some men are good, and some men are bad. But you aren't automatically bad because you're a woman. And I think right now, in neurosurgery at the University of North Carolina, it's very even. People are looked at from the basis of merit, not what they look like. And I think that's true at Duke now, too. So some things have changed definitely for the better. That's for the better.

ROSEBERRY: In the field of neurosurgery that does kind of require so much dedication, is it

difficult to balance—

BULLITT: Home and—

ROSEBERRY: —home and work?

BULLITT: Yes. And I was unmarried during all—I didn't get married until I was three years out of training. I had then my children very late. I think it's a mistake to have children during your residency. I think that if you are married during your residency, that could be a good thing or bad thing. If you've got a good, stable marriage, it's a plus and a support, but if you're fighting somebody at home at the same time you're trying to do this terrific commitment in terms of work, it can make things worse. When I was on the faculty, I have seen one woman come through who did get pregnant and deliver a child during her residency, and I think that's a bad mistake, because, A, she's going to be out during some of the time related to childbirth itself, and B, then she's really torn between the new child and her residency, and I think the training suffers. It's also not really fair to the co-residents who have to pick up the slack for somebody who just can't be there; so my recommendation to women in neurosurgery is either have the family first and get them over the acute baby stage and then do your residency and have a good childcare system so that you aren't responsible, or have them later, which is what I did. Neither one is perfect, but I think it's a mistake, personally to—now, probably it's against the law to say that, too, (*Roseberry laughs*) but my real bias is it's a mistake to have children during that kind of residency.

ROSEBERRY: But later there's a little less pressure. I mean, as a professor or—.

BULLITT: You have a little bit more control over what you can do, yeah.

ROSEBERRY: Okay. Well, would you like to tell me about your lab now?

BULLITT: Now my life is the lab. (*laughter)* I got progressively interested in technology,

actually, long after I finished Duke, and had a hobby of computers and just fell in love with my computer and how to program it. I ended up, actually, after I'd come back into full-time neurosurgery, I would go and operate and see patients in clinic and then come rushing home to my computer and program most of the night. (*laughs*) I guess I was always in a setup that, well, you only sl—I would sleep four hours a night, and I'd somehow gotten—maybe I learned that during my residency. But it means there are a lot more hours in the day, and I'd come home and work on my computer and got very interested in medical imaging and computer-guided surgery and computer research, and then thought, Well, I'll bring it into my real life, and took some classes and computer science courses. And then said, Well, I really will bring it into my real life, and got NIH grants to study particular things. I'm actually now pretty close to 100 percent NIH-grant funded. And about three years ago I decided, This is now where my real love and commitment is, and I left active—I mean, planned and with a graceful exit over a year, all my patients notified in advance and so forth. But left clinical practice so that I could do full-time research, so that's what I'm doing, playing with my computer.

ROSEBERRY: So how does it work? Is it you're able to see 3-D images of the brain?

BULLITT: Yes, of the brain. And our group is particularly good at defining blood vessels from medical images, and there are a great many things you can do with blood vessels. And we're looking to help guide some kinds of surgery, in which a tube is put into a blood vessel and guided up into the brain. We can help with three-dimensional information, which right now they're not using. There are also diseases that you can diagnose by changes to vessel shape. Right now, we think we have a new and potentially very exciting way to diagnose cancer, based on changes in the shapes of vessels that you can define from high-resolution images. (*laughs*) I guess right now that's my addiction. It's fun.

ROSEBERRY: So does someone practice on the computer with the image, or would they be guided as they were doing surgery?

BULLITT: We have a number of different applications. One of my grants is for surgical guidance, and we're developing methods that actually during surgery will help tell the person how to direct the catheter and which way to go and what the patterns are downstream, where they can't see yet. The other one isn't so much for practicing surgery, it's to A, diagnose: Does somebody have cancer or not?, and B, to say, Is the person getting better with treatment or not? It's interesting: right now there isn't a good way, if you have a brain tumor, to tell early if a treatment is effective or not, and so a patient may be receiving ineffective treatment for quite a long time before it becomes obvious that it's failing. We think that by looking at these blood vessel shapes and the changes in blood vessel shapes that we can tell quite early whether or not the treatment is working.

ROSEBERRY: So it's a map of a specific—

BULLITT: Yeah, each one is a specific person, yes. Now, we also have the database of a hundred healthy people, and we use that as kind of a reference standard for some of this diagnosis. We can do all kinds of statistics: by age and sex and whatever, on what is healthy and what is the healthy range. And each new person, we can compare statistically to this database. But no, we're very much—for guiding surgery, that *has* to be patient specific because everybody's a little bit different, and so that's all very patient specific, and for the diagnosis and staging of disease, that also is very patient—so we get images of *that* person and work with images of *that* person.

ROSEBERRY: And they're kind of hooked up to something that will leave—

BULLITT: No, they go into a scanner. Nothing touches them, but they put their head in

something that looks like a big doughnut hole, but the doughnut's around them. It takes pictures, and then the images come out on the computer, and I take the images.

ROSEBERRY: Good. Is there anything that I have left out today?

BULLITT: I think you've been very thorough. Thank you very much.

ROSEBERRY: Thank *you* very much. You've definitely gone through some tough times and were able to come out well on the other side.

BULLITT: I'm happy now. That's really what counts. I've got a family; I've got a job I love. It was tough, but Duke was very kind to take me at that time—and let me finish. (*laughs*)

ROSEBERRY: That's right. Okay, we'll—

BULLITT: Thanks.

(*end of interview*)