

Interview of Dr. Dorrit Hoffleit by Leslie Lindenauer for the Oral History Archive, Connecticut Women's Hall of Fame, October 10, 2003.

LESLIE LINDENAUER: The following is an interview of the astronomer Dr. Dorrit Hoffleit. The interview is being conducted in the office of Dr. Hoffleit on October 10<sup>th</sup>, 2003. This interview is conducted in connection with the oral history archive at the Connecticut Women's Hall of Fame. The mission of the oral history archive is to record and preserve the voices of women who have been inducted into the Hall of Fame. Dr. Hoffleit was inducted into the Hall of Fame in 1998. The audiotape and transcript of this interview will become the property of the Hall of Fame, and will be available to scholars and historians, and others interested in the stories of Connecticut women. I am Leslie Lindenauer, Executive Director of the Connecticut Women's Hall of Fame, and I'm honored to have the opportunity to talk with you today, Dr. Hoffleit.

DORRIT HOFFLEIT: Thank you.

LL: So, good afternoon. I want to start with some biographical information, again, for the record, so that we have this at the beginning of the recording. Could you tell us please what your full name at birth was?

DH: [Laughs] Ellen Dorrit Hoffleit.

LL: Oh, Ellen! And when did you drop the Ellen?

DH: Oh, I never used it excepting wherever it says, full name.

LL: [Laughs] So I forced this out of you? Where and when were you born?

DH: March 12, 1907, in Florence, Alabama.

LL: And how long did you live in Florence?

DH: The first nine months of my life.

LL: Okay, so, and from there you moved where?

DH: To Newcastle, Pennsylvania.

LL: And you spent how many years there?

DH: From nine months until age thirteen.

LL: Okay, so a good portion of your childhood. And from where—to where did you move, after Newcastle?

DH: Cambridge, Massachusetts, because my brother was age fourteen and he was—well, his birthday was in the middle of the summer. When he graduated—he was fourteen when he graduated from high school, but he was fifteen by the time he arrived at Harvard [laughs].

LL: Oh my goodness. And how much older was he than you?

DH: Twenty months.

LL: Okay, very close in age, then. Who were your parents? When were they born, and what were their full names?

DH: Well, my parents both came from East Prussia, Germany. It was Germany then. I expect that I'd be called a Pole after World War Two [laughs].

LL: Maybe. And when were they born?

DH: I'm afraid I don't specifically know the dates. I used to know them, but at my age, you forget everything.

LL: [Laughs] That's quite all right.

DH: You mix it all up. But anyway, by mother was born in Königsberg, where her father was a professor of physics at the gymnasium. That's sort of like junior college now is over here. He was a physics professor. And her mother was a very good musician. Lovely person, but something was wrong with her; she—when my mother was a small child, her mother was taken to the insane asylum and lived there for seven years before she died. And after her mother died, her father married a person who was actually the cousin of the person who became my father.

But that step-mother and the child, early teenage girl by that time, they disliked one another intensely, and so when mother heard that, during the war,

that any women who wanted to help out in the hospitals at that time could get the nurse's training for free. And my mother thought this was her opportunity to get away from the hated step-mother. And her father was incensed. He said that with her bringing-up, with music education, singing lessons, private singing lessons, and all that, that that was beneath her, to become a nurse. Because what that meant for women in those days was washing the women's behinds [laughs]. That's all he could think of that a nurse would do.

So anyway, after she got her nurse's degree and was working in hospitals in Germany, she got a surprise letter from a gentleman who was then in the United States, and that was the cousin of the step-mother. And this gentleman wrote her a letter proposing marriage—big surprise. Well, she'd always thought, America [several words in German]. You know what that means?

LL: No, would you please translate it for us?

DH: The land of boundless opportunity. It translates as opportunities, but what it really meant was possibilities, not opportunities. But they always took it to be the other way around. So, it happened that the reason that this gentleman proposed to my future mother was that his mother had said that Kate Sanyo would be the right person for him to marry. And so, just on the basis of his by then deceased mother, he took her advice [laughs], and I think the only thing my parents had in common was that they wanted to be in America, because of that motto.

LL: Wow.

DH: Otherwise, they had almost nothing in common. She had grown up as a musician, private education and all that. My father was the eldest of five children, and when he was through with what amounts to grade school—or, high school here, he hoped to go to a university, but the family didn't feel they could afford that, so his grandmother said she would finance his university education. And what did his dumb mother say? Whatever was done for one of her five children

had to be done for all of them. And of course, she couldn't afford to send five children. Moreover, the other four didn't have his capability at all, and besides, two of them were girls [laughs]. So that's why he, when he was of age, he managed somehow to earn enough money to come to America.

LL: Interesting. Did your mother pursue her nursing after she married?

DH: Off and on, yeah. During World War One she was in great demand because of war-time conditions. And off and on she had temporary positions.

LL: Do you remember her working as a nurse when you were growing up?

DH: Oh, yes. After all, I was alive during World War One.

LL: Right. So what sort of impact did World War One have on your childhood?

DH: Well, I was the daughter of German-born parents, and therefore I was the enemy. They didn't—nobody in our community ever thought of the fact that Germans came to America to get away from Germany. But they thought of Germans as being—any German who was over in this country must necessarily now be a spy. And so, children had war games. They loved playing war games, and in me they had a proper enemy.

LL: So--?

DH: I was the daughter of German parents, German-born parents, and therefore being German descent, I must be the enemy. And so their war games were prophetic of the real end of the war, because I was a timid girl, and they were tougher men—boys, rather, and so with all their war games, they always won the war games. So it was, you know, prophetic of the future. [Laughs] I lost.

LL: Do you think your brother experienced that sort of persecution in the same way?

DH: He was more of a fighter than I was, and besides, he was always at the head of his class, so that I think they kind of were afraid that they might not win their war with him [laughs].

LL: Did your parents speak German at home?

DH: Oh, yes.

LL: So you grew up speaking both languages?

DH: Yeah. When I was inside the house I spoke only German, and when I got out the front door, I couldn't think of a word of German [laughs].

LL: Very interesting. What did your father do?

DH: Well, he had a farm in Alabama; that's why I was born there. But he had a job as a bookkeeper at the Pennsylvania Railroad, and whenever things weren't going well enough to earn a living on the farm, he went back to Pennsylvania to work there. So, when I was born, he was working in Pennsylvania; mother was taking care of the farm things, and things like that. They had a nice home there, but she was preparing for him to come back to his home on the farm at Christmas time. And she made all the preparations for Christmas.

A few days before Christmas, in the middle of the night, the house was afire. And, well, the house they had was originally a log cabin to which was attached a more modern house. And when the fire broke out in the dead of night, it was evidently arson. The reason it couldn't have been anything but arson is that those huge farms there, it would take quite a while after midnight for anybody to notice a fire in a smaller cottage quite a ways away. And the fact was that as soon as the fire was obvious, the neighbors were all there, ready to cart out anything that they could while the house was burning down.

LL: Wow.

DH: So anyway, I don't know whether my father was already on the way to Alabama from Pennsylvania when this fire broke out, or whether he was informed by neighbors of this, but at any rate, he arrived a few days after the fire. In those days, changes of trains all over the place to get from Pennsylvania to Alabama—this took quite a while. So anyway, he was very distraught. Mother wanted to

rebuild the house and stay there. But now, he just decided that he just couldn't bear the sight of things down there, so he just took—they all moved back to Pennsylvania. And I never went—well, we visited there once when I was five years old, and other than that, I have very little to do with Alabama.

LL: Do you—tell me a little bit about your brother, because I know that your relationship with him was very close.

DH: I don't know anybody who has loved a sibling as much as I loved my brother. He—well, as you know, he graduated from high school at age fourteen, and graduated from Harvard at age eighteen, got his Ph.D. at twenty-one—

LL: That's remarkable.

DH: My fifth grade high school teacher was the teacher who had had my brother a couple of years before me, and when mother and I were taking a walk one time, we bumped into my teacher. And my teacher said to my mother, "Dorit isn't nearly as bright as her brother, is she?" And I thought, well, I just felt happy hearing that, because I thought nobody in the wide world could be better than my brother, big emphasis on the 'my.' But mother's reply was just devastating. She says to the teacher, "What can you expect? She's only a girl."

LL: What do you think motivated your mother to respond that way?

DH: Well, she explained that to me years and years later. Women, as you know, were discriminated against professionally, and mother felt that in her nursing education, after her nursing education, she was a better doctor than the doctors here in America. And so the reason she didn't want any daughters was because she didn't want any children who were going to be discriminated against. But of course, she didn't explain that to me when it hurt [laughs].

LL: And it hurt you immediately? How old were you, remind me again?

DH: Well, fifth grade. I was about ten.

LL: Ten? Yeah. And you didn't say—did you say anything to anyone?

DH: Oh, I never said—most of my life until after I came to Harvard Observatory, I was a good listener, and look and listen, but keep quiet. Nowadays I've made up for lost time.

LL: Do you think that hearing your mother say that at such a key time in your childhood had an impact on the way you've conducted yourself?

DH: Well, it may have, I don't know. All I know is that it hurt. And of course, if she had explained it to me at the time, but she didn't realize how much it had hurt, because I didn't say anything.

LL: Did you ever talk about it with your brother?

DH: No.

LL: In light of that, I mean, do you think that who your parents were had an impact on your choice of academic pursuit, and then career?

DH: Well, my mother was the big influence in the family, because she was more highly educated than my father. Anyway, she had pretty fixed ideas what were the proper studies for a girl, relative to what was proper for a boy. Of course, a boy could choose anything he pleased, because he wasn't being discriminated against because he happened to be a man. But, mother felt that there were certain things that were highly appropriate for a woman. They were music and fine arts, and embroidery, and if anything, modern languages, not Latin and Greek.

LL: What did she have to say about your choice of Radcliffe, then?

DH: Well, I wasn't too good in high school. I got good grades in drawing, and in mathematics, and in physics, but pretty mediocre in all the other things, so it wasn't altogether clear whether I could get admitted to Radcliffe or not. But, my mother encouraged me strongly to attempt to get in, because she didn't want her bright son to be ashamed of his dumb sister, because he always called me dumb. He always called me Lisien. And the reason for that is that Lisien, diminutive of Louise, was a German expression for what we call dumb Dora.

LL: Wow.

DH: And so, relative to him, I was real dumb. And so anyway, mother always criticized him when he called me Lisien, but I didn't mind that nice-sounding diminutive. So anyway, she didn't want—she wanted me to get educated so he wouldn't be ashamed of me. And somehow or other I managed to get into Radcliffe [laughs].

LL: Somehow or other! [Laughs]

DH: And I had difficulty in college to decide between mathematics and fine arts. And the Dean told me that I couldn't—in most colleges you had a major and a minor, but at Harvard and Radcliffe you had concentration, and distribution. So, you pick one field only, and the Dean told me I couldn't have both fine arts and mathematics, even though I maintain that geometry is the fine arts of mathematics, that didn't play any role there, I had to decide, one of the other.

So, I thought it over, and I thought, well, for fine arts, in the history of fine arts I might not do too well because I didn't do too much about religion, and the best of the painting eras were illustrating the Bible. And so I thought, well—and I wasn't too good at memorizing history, because political history never interested me at all. It was, you know, wars and politics, and I didn't like either of them. So, it became mathematics, and that was fine.

Radcliffe offered two courses in astronomy. One was open to everybody; the second of course was given only at the pleasure of the instructor, in case there were a minimum of four students. So I had to wait until my senior year to get the second course, and that was not exactly the best course under the sun, because the four students—one other student and I were mathematics majors—concentrators. The third person was a second graduate student in physics, and the necessary fourth—you know what the necessary fourth was? She was a sophomore who had taken Professor Stetson's first course in astronomy, but she

was majoring in English poetry. And she just adored the way Professor Stetson read Alfred Noyes' poetry to the class, because Alfred Noyes wrote some poetry about astronomy.

LL: [Laughs] The stars.

DH: So what was a poor professor to do with a class like that?

LL: [Laughs]

DH: Well, first semester he did fine by us, because Harvard had a transit instrument in a little student's observatory, and he could invite the Radcliffe girls into his observatory, a little bit of an observatory about a third as big as this office. And the transit instrument is a lot of fun. You use the transit instrument largely to determine coordinates on the earth. But anyway, it's fun. First, when I finished the project that we were supposed to do before it was due, so I had some fun with the telescope by myself. And what I did with the telescope, I thought, well, for what you use a telescope for, you usually steer clear of the poor pole, because it takes forever to cross the—there are five wires in the field of view, so you time with the—a star goes across those wires, in order to get the right terrestrial positions. And so I thought, well, I wonder how long it'll take the polestar to cross those five wires? Boy, that is the best lesson you can have for determining atmospheric problems, whereas all the stars that are near the equator zoomed across those wires, and you had to be on your ball to pick the timing at the right time. But the polestar, when it finally got to a wire, it moved back and forth, and back and forth, and back and forth across there, because the atmosphere was doing that! You know, I'm always annoyed that when people talk about atmospheric refraction, they don't use that as an illustration of what the atmosphere really does. It's a marvelous experience! The professor wasn't a bit interested.

LL: [Laughs] That seems like a shame. You used the word fun a couple of times when you referred to, and marvelous, and all this wonderful language talking

about, you know, the transit instrument, or the polestar. What did you consider fun as you were growing up, and did astronomy play a part in what you considered fun?

DH: Well, I guess I was about eleven years old, or so, when my mother and brother and I were observing the Perseid meteors during August. And Mother and I were evidently looking at approximately the same position in the sky; my brother was looking at an opposite position in the sky. Well anyway, mother and I both saw a Perseid coming from one direction, and another shooting star, and they collided—flew a couple of small sparks, and then it was gone. And we just gasped. And I think that if Mother hadn't seen the same thing I saw, I would have thought I was just imagining things, because that was so improbable that if I talked about it, I'd be hallucinating. But then, oh, after I was already a professional astronomer, some sailor at sea saw the same sort of thing in the sky, and that was written up as being something that would be likely to happen once in a few trillion years. And so that gave me an opportunity to say, "I saw it first."

LL: [Laughs] Excellent!

DH: [Laughs] So I wrote a note about this to the Canadian Astronomical Journal. And well, that was what really got me interested in astronomy, taking that first course in astronomy.

LL: Had you even had experiences with a telescope, for instance, as a child?

DH: No, we had a two-inch spy glass, you know, the kind that the sailor has at sea, and you pick up? It didn't impress me too much, because whenever I picked it up, everything was jittering like that. [Laughs] That didn't make much of an impression on me, except for my sad feeling that I didn't know how to use it. We didn't have any tripods for that kind of a telescope.

LL: When you saw the collision of the two meteors—that's what it was, two meteors?

DH: Yeah.

LL: At that moment, did you think about a career in astronomy, at all?

DH: No, I was just gasping at the beauty—well, you know, for me, looking at this sky, without a telescope or anything, this beautiful sky and all that, my dear brother taught me what he knew about the constellations.

LL: [Laughs] As a girl—I mean, describe yourself as a girl.

DH: Timid, quiet, industrious. I loved gardening and flowers and drawing. When I was high school age, I enjoyed trying to draw cartoons of my famous brother. [Laughs] Not complimentary, but he was pleased.

LL: [Laughs] Did you date boys?

DH: No.

LL: Never?

DH: No. I happened to read a book about Mendelism. I guess that's the right word. Well, anyway, I read in that book that when sometimes characteristics that are transferred from one generation to the next, sometimes skip a generation, and that you inherit not from your own parents, but from your grandparents. And since my grandmother died in the insane asylum, and since I was a peculiar child, unlike the other children, I thought I'd better not risk that. So I made up my mind quite early in my life, I think I was about ten or eleven when I read this book. I never told my mother what conclusions I drew from that, because she would have given me lots of reasons for saying that might not happen, but where I was peculiar relative to other children, and having this as a background, I thought that was the best thing for me to do, was not to transmit that disease to another generation. And that was a lucky thing for me, because if I'd gotten married, well, maybe I would have gone insane, too, especially the way some children behave. [Laughs]

LL: [Laughs]

DH: And I certainly wouldn't have been able to do all the night work necessary for doing astronomy, because that wasn't proper for a girl who lived a mile and a half away from the observatory, to do night work. That was in the days when, you know, well hardly anybody had a car [laughs], and certainly not a popper like me.

LL: You described yourself as peculiar. Is that by your own definition, or the way you felt?

DH: Oh, I think the way other people treated me made me aware of my deficiencies.

LL: Can you talk about that a little more?

DH: Oh, no, why talk about that anymore? I told you about how I was discriminated against because I was the enemy German.

LL: When you decided to go to college, did you have any other choice of college besides Radcliffe?

DH: Oh, sure. I had a wonderful—the lady who looked after students who were supposed to take College Board Exams was my physics teacher. And she somehow took an interest in me, and she knew I was now doing well in languages or history. I was all right in history, but not good. And so she was afraid I might not be able to pass all the examinations that I should, so we decided I'd apply to the Normal Art School in Boston, too. And so, fortunately I got admitted to Harvard about a week before I got admitted to the Normal Art School, which was my second choice. And so, if that had come first, I might have gone there, just because it came first and I didn't expect the other, but the way it turned out, I got into Radcliffe, and once I got past the distribution requirements, then I could choose the subjects that I wanted.

LL: So, for the record, could you tell us when you entered Radcliffe, and when you graduated, and what your degree was in?

DH: I graduated from high school in 1924 and was immediately admitted to Radcliffe, and I graduated there in 1928. And then I couldn't get a job. I wanted a job teaching geometry, high school math, but I couldn't get a job, so I decided to try some graduate studies at Radcliffe, and come Christmas time, I got an offer of a job at Harvard Observatory, which I tried out during Christmas recess. And they accepted me, so I told them that I wanted to finish that first semester, so I'd get credit for those courses. And so I got my job at mid-year's, and I stayed at Harvard until World War Two broke out. And when World War Two was over, I eventually returned to Harvard, which was absolutely wonderful, at about forty percent of the salary I was getting at Aberdeen, where they wanted to keep me. But I wanted to do my astronomy, and Shapley wanted me, too.

LL: And again, for the record, Shapley is—tell us who he is?

DH: Dr. Shapley was the Director of Harvard Observatory. Well, during the time before World War Two while I was working, I was employed to work on variable stars. I was doing all right on those. But then I remembered my shooting star experience, and so I knew that there were a lot of photographs in the Harvard plate collection that had meteor trails on them, and so I came back evenings and Saturdays and Sundays, and I pulled out all of the plates that were known to have meteors on them, and I did a paper on meteor light curves, and then I put that on Shapley's desk when I had written it up. I got a call to his office, and he looked very stern. That's the man. And he says, "What's this?" looking very accusingly at me, because I was being paid to work on variable stars, and here was a big paper on meteors. I says, "That's what I came in evenings and Sundays to do." Well, he grudgingly accepted that.

And then when the next college year started, I got another call up to his office, and this time instead of looking glum at me, he looked sheepishly smiling. And Dr. Bock was sitting next to him, he was Professor. And Shapley

says, “We were just thinking, why aren’t you continuing to work toward your Ph.D.?” I had my M.A. at that time. I says, “Oh, my, I don’t think I could ever pass those examinations.” And he says, “Go back down to your office and think it over for a few days.” So I went out to my office, and within ten minutes Bart Bock came into my office. And he sat down on my spare chair, as far away as you are now, and he pounded on my desk, and he says, “Dorrit, if God recommends that you do something, it is your duty to do it.” Well, I’d already made up my mind, but they had to know that I was dumb and I wasn’t going to surprise them by having them discover that. So anyway, you can see why I have a great admiration of that person.

Well, I had a wonderful time, those five years that I was at Harvard after the war. His successor didn’t like me. At the end of the war I was persuaded to stay there for a few years because they were starting the V-2 rocket things there, and I was having a good time with those. That wasn’t war work, working with the V-2 rockets; that was the introduction to space flight, which was astronomy.

LL: And this was at—was this at Aberdeen?

DH: That’s Aberdeen. So anyway, for three years after the war, while I stayed at Aberdeen, I was supposed to spend three months of every year, until I was ready to come back, at Harvard. And while I was on my tour of duty at Harvard, I got a phone call from my supervisor at Aberdeen, who said there was going to be a night firing of the V-2 rocket, and that an astronomer at Mount Wilson was putting artificial meteors on the V-2 rocket head, so that when the rocket reached highest maximum, then the rocket would explode those meteors, and we’d observe some artificial meteors. And so Dr. Johnson, my boss, knew I would be interested in that, and so he said I’d have to hurry up; there’d be a plane leaving in a day or two from Aberdeen to White Sands, where they were watching that.

And so I went to Shapley and told him that, and of course it was all right with him, because I could spend any amount of that three months that I was to be at Harvard distributed at my convenience. So I went back there. Well, that flight was an absolute wonderful flight. Everything went just right. But then while I was back on duty at Aberdeen, I was invited to another flight, which was a daytime flight, and none other than Dr. Menzel--we didn't know this at the time, but Shapley's successor—was there to observe that too, because he was interested in solar-terrestrial relationships, and this had a bearing. And so when he saw me there—he didn't know I was going to be there, but when he saw that I was there, he said he deplored the small salary I would be getting if I went back to Harvard to work with Shapley. Now, if I would work for him, “under our large government contracts”--

LL: [Laughs]

DH: Well, I thanked him and I said I'd think it over, and when I got back to Harvard I found that during the war, all those years during the war, the superintendent of Harvard's southern station had been taking stellar spectra for my Harvard project, and he'd taken several hundred such spectrum plates. And so I went to Menzel, and I said I thanked him for his offer, but I said, “I think in view of the fact that these plates were all taken for me, it's my duty to do those. And if, when I finished working on my spectroscopic project with those plates, he would still want to hire me, I would at that time be very glad to consider it.”

Well, I thought that any professional astronomer would understand that, because I had Ph.D. in that field in which I wanted to continue, for which I got these spectra. He was just miffed. He didn't say a thing to me. So, when Shapley retired, and everybody expected Dr. Bock to be his successor, these two people who had been working in California before they came to Harvard wanted to become the Director. And they didn't like Bock because he wasn't working for

them. So, he did his darnedest. I had got—in lieu of a good salary, I had gotten tenure at Harvard, which meant all the world to me. So, he couldn't fire me because I wasn't working in his field. But he fired just about everybody who had been working directly for Shapley, or for Bock, or for me.

And he did everything he could think of to make me uncomfortable. He came to my office and he says, "Nobody should have a whole cabinet full of plates in their office. You put those plates right back in the stacks." Well, they'd never been in the stacks, because they were the ones that were taken for me. But I didn't argue anything. And then instead of giving me some work in astronomy to do, he was revising everything in the observatory, and he was going to set up exhibits in the rotunda, which is the room below the dome, which had bookcases around it and was a nice working place. He wanted to put exhibits suitable for children in that, and he wanted me to go on a tour of several places to see how to make these. Well, I did his bidding, whatever he asked me to do, regardless of what I thought about it.

LL: Did you feel that your relationship with him had something to do with gender, with the fact that you were a woman?

DH: I think it had to do primarily with the fact that I was going to work on my project instead of his project, only that. He was completely egocentric. He fired everybody who wasn't working in his field. And he couldn't fire me, so he gave me everything to do that was—had nothing to do with my field, nor with his. He could have—you know, he could have made me stop working on my field and force me to do his work, and I would have done it. But to give me everything that—and the exhibits he finally set up!

Well, the only thing of mine that got incorporated in that is that I found out about fluorescent painting and how to do that. But I didn't do that myself. He got somebody to do it who had been an art student in Germany, who was a

Russian by birth. An exile from Russia who studied in Germany, and then exiled from Germany because he was both a Russian and not a German. And when Cecilia Payne went to Germany to give an invited talk there, he interviewed her, and asked for a job at Harvard, which she graciously found for him. And so they got married, and he was the painter who painted the most gosh-awful, garish thing. That is, if he had painted those things at a distance of about from here to across the street, they would have looked pretty good. But if you're in a room where there's a big pier in the middle of the room, and then about not more than four feet between the pier and other things around the wall, you put a painting which was as garish as that thing. You know, you felt you had to bring in your dark glasses to go past that [laughs].

LL: [Laughs]

DH: So, when there was a dedication of these new things, then he asked me to stand up and take a bow for having designed these exhibits, which had—the only that I did, besides Sergei's painting, was that I suggested that they paint the ceiling of this room under the dome, which was a curved ceiling, to plot the naked-eye stars on there. And somebody actually did that, but I didn't do it, I suggested it. And that was a good suggestion. But all the rest of it—[laughs]. Well anyway, I finally simply resigned. You just couldn't work with a man like that. And Dr. Bock, who was expected to be the director, because he was Shapley's choice, and he did a whole lot of work with the students, whereas Menzel worked only with those students who had specifically chosen him as thesis advisor.

LL: I want to—and I know at this point, you went on to Yale, actually. But I wanted, before we leave graduate school and your early career, I wanted to ask a couple question about that. You entered graduate school at a time when very women were in graduate school for almost any profession—

DH: Well, in some subjects—English literature, there were always plenty there, and history was pretty popular, too, a subject in which I was not good. I'd do the history now, but it's the history of the subject that interests me, not politics.

[Laughs]

LL: I would imagine—do you happen to remember how many women there were in your class in the sciences?

DH: Oh, in physics there were, oh, about a dozen students. I don't think there was anyone in my whole class, the class of '28, that majored in astronomy, but there were quite a few girls who were in graduate school in physics. Fewer in astronomy, but the numbers kept increasing steadily.

LL: Do you think the fact that you were a woman in the sciences in graduate school shaped your experience in graduate school?

DH: No. The only thing was that, well, in graduate school, you had to register and pay your tuition to Radcliffe College, but then the professors aren't going to give a special course for two or three girls. And so, women were allowed to attend the Harvard classes and graduate courses, but they got the—and they were graded the same way. We were just part of his class, but he had send—most of his students got Harvard grades, and we got Radcliffe grades, but the Harvard President always had to countersign all the Radcliffe degrees, to confirm that they were the equivalent of Harvard. And of course, for the graduate degrees, they were Harvard. We just got graduate degrees from Radcliffe, but all the work was done at Harvard, and a good many graduate students who were not Radcliffe graduates, they resented getting Radcliffe degrees, [laughs] because all they had to do was register at Radcliffe, and all the rest of the time they were over at Harvard. It was a crazy arrangement. That's where Yale was better, because Yale admitted women as graduate students, but never until recent years as undergraduates.

LL: How interesting. As a graduate student, who were your mentors?

DH: Shapley, Bock, Epic, and a few other people, some of whom—well, I also had a course with Whipple. Whipple is an excellent meteorist-scientist, but he wasn't a very good teacher. But, I learned a lot from him, but not in his course.

LL: [Laughs]

DH: [Laughs] I learned a lot, during his course, from him, but not from his teaching. He somehow didn't have a good speaking—somehow, when he gave lectures, they sounded as though they were something he had to do, not something he was excited about. Whereas, he was really tremendously excited in doing the research as such, but he was not very enthusiastic about teaching as such. He already was good for a thesis advisor, because that's doing research, but just, you know, teaching the standard courses, he just made it sound as though it was boring, even though you were excited about what you were learning from him. But you were not inspired by him, because you had the yearning for it, and he didn't inspire. At least, not me?

LL: Did you have any female mentors as a graduate student.

DH: Well, to some extent, Cecilia Payne. She, of course, could not be a professor, but she could do plenty of teaching. But not listed in the Harvard Catalogue.

LL: And why was that?

DH: Because women were not allowed to be professors at Harvard. She was the most discriminated woman that I know of.

LL: That's remarkable. I want to—I don't want to leave the graduate training altogether, but I think that your experience right after graduate school, at Aberdeen, especially during the war—that's the Aberdeen Proving Grounds—is something that very few women had an opportunity to engage in, particularly during war time. So, if you could talk a little bit more about that experience.

DH: Well, it was at Aberdeen that I really experienced discrimination against women. I was supposed to go down there to supervise a crew of mostly women to do computing military trajectories, but the person who had drafted me to come there was a Harvard person who also was a reserve in the Army, and he was stationed at Aberdeen at the time. So, he kept writing me to persuade me to come down where I was desperately needed, you know, the kind of talk that you do if you want to get somebody to do something you wanted done.

And so, it was after I had agreed to come that he then wrote me that because the director of the Ballistic Laboratory would now allow a woman to have professional ranking, would I come down at a sub-professional ranking, but I'd get the same salary as the men were getting for a professional ranking? And I thought, well, as long as I'm of German descent, if I don't come down, it will be held against me. And so what, the war wasn't going to last forever, so okay.

So, I did my duty, and things went along moderately smoothly until one day the Inspector-General of the Baltimore district of the U.S. Army came to visit the laboratory on a day when he knew that the director of the laboratory was not going to be there, but in a conference in Washington. And he didn't want to see the director of the laboratory, he wanted to see a person that he noticed had a Ph.D. and had a sub-professional ranking, and he wanted to know why. Well, he also wanted me—he came just shortly before lunch time, so I didn't have any lunch, and he was going to leave at two o'clock. He gave me a long interview, and then he wanted me to write it all down before he'd leave at two o'clock. Well, a few days later, when the director came back from Washington, he heard about the Inspector-General, and so he said—the Inspector-General had said to me that I would eventually be getting a professional rating, because what the director was doing was not only not just, it was illegal.

LL: [Laughs]

DH: Against civil service. So, the director got the head of the computing laboratory, or which I was a part—not my specific supervisor, but his supervisor. He told that supervisor of mine, who was a Major in the Army, to come and tell me that there's no room for professional women in this laboratory, that he was to make sure that I did nothing but sub-professional work, because if I did only sub-professional work, it didn't matter what degree I had. And he, Major, was supposed to make sure that I did that.

Well, you know, a Major has to say, "Yes sir, yes sir," to his boss, a higher ranking person. So, that's what the major told me. He said otherwise, if I didn't want that, I could transfer to the Pentagon, which did have room for professional women. And so I says to—I got up some fighting spirit. I learned how to fight, and how to talk at Aberdeen. I said to the poor Major, "Since the Colonel will not deign to talk to me himself, you may go back and tell him I accept neither of his two alternatives. That is not what I came here for." Poor quaking Major had to obey.

LL: [Laughs]

DH: So I went to the head of the Proving Ground to find out from civil service what I should do now. And I was told, "Oh, just stick it out. There's nothing he can do about this. You will get the professional rating. What he has been doing is illegal." He was up for promotion to General, and for what he was doing to me he didn't get the promotion.

LL: Wow.

DH: So, finally, the Major of course at this point was to supervise all of my work, to make sure it was sub-professional. Well, that meant I could no longer supervise the other workers, so I was just one of his personal assistants. And he got all the requests for computing to be done by other departments, not having anything to do with his major work, but any routine computing that had to be done for anybody, to

him. And so, he gave that to me. So, I was just handy. I could do all the miscellaneous things.

And so I was doing some work for a Dr. Johnson, who was—during peacetime, was an authority on cosmic rays and physics, but he was head of what was called ballistic measurements, designing new equipment that always had to be tested with trial firings, and so on. And I got all of those computings, reducing them, observations made with brand new equipment. So, the request went from Dr. Johnson to the Major, from the Major to me, from me to the Major, from the Major to him.

And so one day when I was really fed up, because at the Major's staff meetings, everybody's supposed to talk about how well standard projects were progressing, directives received, computations started, computations in progress, computations completed, tables forwarded—he had a bulletin board, you know, to fill in from each of the section heads all of those things that were being done. And then when he came to me, I told him what I was doing. He says, “Look at that production board. How does what you're telling me fit onto that production board?” I said, “Well, since you're my personal supervisor, I thought you'd be interested in what I was doing.”

LL: [Laughs]

DH: You know, my character changed completely at Aberdeen?

LL: Why do you think that was?

DH: Timid person, always, you know, do what you're told, and be happy you can do it.

LL: Was it the time or the place that made your—that made you change?

DH: Well, it was the treatment that I got. It was the Colonel.

LL: So, that's a mixed blessing [laughs].

DH: When my final promotion came through, and after I—while I was still working for the Major, but doing work for Dr. Johnson, I noticed that Dr. Johnson didn't leave his office at quitting time because of traffic and things. So I made sure that he was in his office after working hours, and I stayed after working hours most of the time anyway. So I went into him, and I handed him this last one thing, and he looked very pleased, which pleased me. And so we talked a little bit, and I said to him, "Dr. Johnson, can't I work for you directly? It seems such a waste of time that you send this directive to this person, and that sends it to me, and then back to him, and so on. Why can't I just work straight for you and eliminate all of this? It would come through faster." Well, he looked real pleased. He says, "I'll ask the Colonel." Oh, he must have seen my face drop. "Well," he says, "The Colonel is in Washington. I'll ask Kent." Kent was the civilian associate director. And Dr. Johnson and the associate director were very close friends, so the next day I got transferred to Dr. Johnson while the Colonel was still in Washington.

LL: [Laughs] An end run. Were there other women working at Aberdeen at the time?

DH: Oh, lots of them, doing the sub-professional—

LL: Sub-professional. There was another woman doing professional work, but she was not a war time employee, she was a standard employee. She had gone to Aberdeen when she'd had a terrible accident, and she had become crippled, and so she couldn't continue her teaching career. And so she worked directly for Mr. Kent, the associate director, so she had no problems like that. Her problem was simply that she couldn't be promoted from the highest sub-professional rating. You see, I had the highest sub-professional rating there was, and the boys who had just gotten out of college got the same salary at a professional rating, and six months later got promoted. But I couldn't be promoted from the top. Where do you do from the top, except pop off and drop out?

LL: Right.

DH: So, anyway, after I'd been working happily with Dr. Johnson, somebody in a staff meeting had asked for some—well, the Colonel had gotten a letter asking a certain job needed to be done, and Aberdeen was the place to do it. And Dr. Stern, who was the culprit who had invited me to Aberdeen in the first place, spoke up and said, "I think Miss Hoffleit could do that." And so the Colonel says, well, turned over to the Major, and he says, "Why don't you ask her to do it?" And the Major says, "She isn't working for me anymore." "Oh? Where is she working?" "She's working for Dr. Johnson." "Why is she working for Dr. Johnson?" "I guess because she likes Dr. Johnson."

So, when that meeting was over, there were a number of people who always went out to lunch together with me, so when they came to pick me up to go to lunch, they were all just laughing their heads off, and then they told me. Naturally, I was certainly working for Dr. Johnson because I liked him, because I like any supervisor who not only likes what he's doing, but knows how to transmit that pleasure to his students or underlings. And that's what Dr. Johnson did. So from there on, life was pretty nice down in Aberdeen. And those V-2's were lots of fun.

LL: It sounds fascinating. The V-2—I know you said it wasn't a war time project, but it had applications?

DH: Well, the V-2 rockets—they were called A-4's in Germany—they were designed by a group of Germans who really had space flight in mind. But then when the war broke out, they offered their services to Hitler, and Hitler thought this was just a crazy new stunt, so he at first declined, and they just stayed on working on those things. But the people themselves knew that their vehicle was military valuable, but they had no control over that. So anyway, when the war was getting worse and worse for Hitler, he went back to these space flight physicists,

and enlisted the help of these now called V-2 rockets, which were then fired from Germany over the channel into England, and did a tremendous amount of harm there.

LL: So this was the technology that was being brought here?

DH: So anyway, when they brought them over here, the first thing they wanted to do with them was not to develop them as military equipment, because the war was over now. But they were shooting them up. Well, that was just fine for several years, but then the military decided that this was not a project for the Army. The Army was supposed to be working on military vehicles, and this was [laughs], this was space exploration. And so they took the high-altitude and new rockets that were being designed at Aberdeen for higher altitude things, when they ran out of V-2's to play with. So, that was none of the business of the military, of the Army. The Army's supposed to fire land against land, mainly. So they took it away from Aberdeen, and transferred all of that kind of work to the Navy. Navy was exploration.

LL: Interesting. So you left Aberdeen, and returned to Harvard, for how long?

DH: Oh, it was between five and six years. I left Harvard, I think, approximately a year, maybe a year and a half, after Menzel took over. I couldn't stand him anymore. It hurt me badly, because he had two daughters of whom I was very fond [laughs].

LL: Were they--?

DH: By that time—oh, I had done things with them when they were small children, but by now they were late teenagers. I think the oldest one had—yeah, I guess they were both already graduated from college by the time I went back to Harvard. So, anyway.

LL: You returned. You had just come off of war time experience at one of the premier Proving Grounds in the world, arguably.

DH: Well, yeah.

LL: Did you re-enter Harvard with a—how do you compare the second batch of years at Harvard with the first batch of years at Harvard?

DH: Well, under Shapley, they were similar, because while Shapley gave orders what was to be done, he also took into consideration both the abilities and the likes of the people, and because I had demonstrated with my meteor paper that I could do research on my own, he was very encouraging in that. As a matter of fact, when it was time for me write a thesis, after I'd passed the required preliminary courses—the ones that I thought I couldn't pass—he said, when it was time to decide on a topic, he said, "You've been working on variable stars, on meteors, and on spectral classifications. And on your thesis, you can write your thesis on any one of those three topics." And so, I thought it over, and I thought, well, the spectral classification was the more difficult of those three subjects, but it was also the most important. And so, I picked the spectral classification things, and I got a lot of encouragement from him, and also from Miss Cannon who was a routine worker, but she was more in the nature and one to encourage me, but what she was doing—well, I already knew how to do, because I had done it when I was supposed to do it. She was merely classifying spectra on what we now know were criteria for the temperature of the star, whereas what I was supposed to be doing was that there were two criteria in the stars, for one, the ordinary spectra classes, they could be divided into—for stars of the same temperature, they could be either high-luminosity or low-luminosity.

And so, Miss Cannon didn't pay any attention to that whatsoever, because Pickering had said that was only a criterion for the quality of the spectra, and not for the quality of the stars, even though three great people objected to that: Hertschbrom, and Russell, and Shtruve were three very prominent young astronomers, a generation younger than Pickering, who was Miss Cannon's

mentor. And so, she obeyed what Pickering said and thought, and did what she was told. Miss Morey and other of his assistants did what she thought best, and introduced a second criteria. And for that, she was discriminated against, because he hadn't discovered that. And he said that criterion was only quality of the pictures and not of the stars, even though these three other—but those three professors who objected to Miss Cannon's not using the second criteria, they were a generation younger than Pickering. So, how did they dare object to what a Harvard professor was doing?

LL: And this had to do with the luminosity?

DH: That whole ten volumes of classifications that Miss Cannon had done were seventy-five percent of the time a waste of time—

LL: So, rendered obsolete?

DH: --because the criteria that she states in the introduction that she used, she could have used only in her initial work, which was on the bright stars only, where they had spectra this long. She was using them with spectra that were a couple of millimeters long, where you couldn't even see the lines in them unless they were emission lines. And so she kept on. And Russell asked Paine whether she could find out what criteria Miss Cannon really used for those fainter stars, because she couldn't see the criteria that were in the introduction.

So that according to me, nine-tenths of what's—of the stars that are in Cannon's ten volumes—the criteria that she claims in the introduction she did not use. They were a lie, as was used. She used the distribution of—not the intensity of the lines, but the distribution of the background between the lines, knowing that red stars were [unclear], and blue stars had most of the light at the blue end of the spectrum. But there could be innumerable divisions there between those. So that, although she deserved all the honors she got because of her industry, and all that,

and it was for many years the only real catalogue available, so people believed it—but she—how she classified stars she never revealed to anybody.

LL: So, was that work supplanted, really, by the Bright Star Catalogue, which is—  
-?

DH: Oh, no. That work was eventually replaced by people at Mount Wilson and at University of Michigan. University of Michigan put it on an easily classifiable scheme, whereas the people at Mount Wilson actually measured lines. There are certain lines in the spectra that are the same for all stars of that type, and other lines that vary with the luminosity. And the Mount Wilson people did a tremendous amount of work, which I used as my model for my thesis, because what was now called the MK classification, which was two-dimensional, that was not established until actually after the war.

LL: Do you think that there were advantages or disadvantages to being a woman in the profession when you entered it?

DH: Well, as I say, at Harvard I didn't—under Shapley, I didn't note any discrimination, excepting that it was probably so in the salaries. But I never questioned that. I wanted to work there, and I'd work under whatever conditions would let me stay there.

LL: Did you even consider changing careers, once you had started in astronomy?

DH: Huh-uh. Not once I got started. Once I got started on the meteors, I was sure I was going to stay at Harvard as long as they'd let me. But now, Yale Astronomy Department is pretty much the way the Harvard department was under Shapley. Yale is how a much better place for students than Harvard is, for graduate school, that is, because Harvard Observatory, having run short on funds, they welcomed collaboration with the Smithsonian Astrophysical Observatory, which was then transferred to Harvard. And now, most of—they're doing

wonderful work in research, but paid research, and not students. The students are sort of second-fiddle now. Whereas, here they're the main thing.

LL: You came to Yale when?

DH: '56.

LL: And what were your earliest experiences here?

DH: Well, they were pretty much like Aberdeen. I'll tell you how I happened to come here. The person who was the head of the Maria Mitchell Observatory on Nantucket was about to retire, but the organization felt that they could pay only half-time, because they didn't have enough funds for both her pension and a full-time astronomer. So they offered me the job for a half a year, and the person who was supposed to have been looking for her successor was the Chairman of the Astronomy Department here, Dr. Brower. And so, when I was applying for the Nantucket job, he offered me the other half of the year here.

That's—and I was supposed to be Miss Barney's successor, but what I found out when I came here is that I wasn't supposed to do my individual thinking; I was to do routine work, just as I was to do routine work at—it was extremely important work, and I was glad to do it, but it was less interesting. But I was glad to do it because in reducing the spectral results I got at Harvard, to get real absolute magnitudes, instead of just luminosity criteria, without stating what the luminosity was, you needed a lot of trigonometric parallaxes, and proper motions of stars, to calibrate those luminosity classes. I thought, well, here I come to Yale to get the data that I needed for calibrating the spectroscopic data.

But Brower was kicked out of his other observatory just before I came here, and when all that work was under Schlesinger's care here at Yale, Schlesinger was a world expert on what we call astrometry, whereas Brower was an expert on celestial mechanics, which is mathematical astronomy—really amounts to a few observations, and a lot of theory to account for the observations.

But he didn't know anything about the estometric problems. He thought he knew, but he certainly didn't. He thought that—well, Miss Barney didn't do anything except her astrometry. He gave me everything under the sun to do besides, because he knew Miss Harwood wanted her job back down on Nantucket, so she was doing everything to make life miserable for me. I don't know what there is about me—everybody wants me to get miserable and leave.

LL: [Laughs]

DH: So, he gave me not only the work that she'd been doing, but also the parallax catalogue, which Miss Jenkins had been doing, and also the library, which nobody had been doing. When the library was moved, I found that they had classified it up in their other station according to whose office the books were in, because they didn't have one big room for a library.

LL: [Laughs]

DH: So, Brower asked me, could I classify the library as soon as it came out of dead storage for the time that he didn't have a place? And I said, "Well, if you let me classify it on the system I'm accustomed to," which is the American Library Association, because I was temporary librarian at Harvard for a while, too, when the real librarian got sick. So, he said as long as I classified them. "Just, you arrange the books and classify them." So I started doing that, and I got all the books on the shelves the way I wanted them, but no call numbers on them yet. I was just beginning with the call numbers to put on those books when Sterling Library, the college library, decided they were going to classify all the books in Yale on the same Library of Congress system, which differed violently from what I had.

LL: And they took over classification at that point?

DH: So, they took over the classification. And when they were all ready to change the locations on—our library was, the room that we had in the first building

we were in, was not big enough for all of the books. So anyway, they were going to reshelve the books according to their system. So I told them to start with the textbooks and the treatises. And when they got ready to do the serial publications, I said, “You can see this room isn’t big enough for all of our books, and we’re growing fast. Why don’t you just leave the serial publications on the shelves the way they are, until such time as we have better room to--?” And so they agreed to that as long as I was going to do it, not they. So all the books got put on that shelf.

And then when we moved into this building, and this Professor Larson was put in charge of the library, above the librarian, he didn’t like the arrangement of the textbooks [laughs]. And so he arranged them on the system that he preferred: his system. They just put another designation above the—like this one for example. Here is the Library of Congress system--

LL: With the letter there?

DH: And the H is the category in which this book is to be sent. All of the H’s are in the order of these letters, but there are other books that come between these numbers, and so on, which have another designation. So I look to see how Larson had arranged those books, and they were pretty close to what I had—very close to what I had. And then, what did he say? “Don’t bother to rearrange the serial publications, they look all right the way they are.” [Laughs] So they’re still on my system.

LL: [Laughs] And that’s what we see when we go in the library today?

DH: Yeah. The books are on the Library of Congress system, but on different subdivisions. So, library history is, I think, very interesting history.

LL: Absolutely. You mentioned the Mitchell Observatory. Could you talk a little about your experiences there?

DH: Yeah. Miss Harwood and I were good friends when she was active.

Although she was paid full-time by Nantucket, she was allowed to go wherever she

pleased in astronomy for half of the year, the winter half, when things are a little cooler down there. So, I got well-acquainted with her there, and we were good friends. She learned a lot about her own field from me. Although she's recorded as being the first Director of the Maria Mitchell Observatory, that's true so far as your looking up literature and so on goes, but the person who actually directed the Maria Mitchell Observatory was none other than her Harvard boss, E.C. Pickering, the Director of Harvard Observatory, because when Pickering was an advisor for the Nantucket-Maria Mitchell Association, who owned Maria's telescope, and he thought that the Maria Mitchell Observatory should be more than just a building with memorabilia of Maria, but have a real observatory. So first, the telescope itself was to be used, but at first only for public open night, things like that. But Pickering then encouraged the managers down there to build a new observatory building next door to the Maria Mitchell birthplace, and install a professional telescope there, a photographic telescope there.

And when that was installed, it was after that telescope was then installed that they looked for a director for this new observatory, and Margaret wanted that job, and Pickering told her she wasn't qualified. But the people that were qualified didn't want the job, so finally he was reduced to choice between two people: Margaret, and another person who was a Mt. Holyoke graduate who had majored in astronomy. Margaret could not have majored in anything of the sort at Radcliffe because at that time with maybe one course available, and I don't know if even one was offered for undergraduates at that time. So anyway, Margaret was Pickering's employee, and this other person liked the appearance of what was being built in Nantucket. So, they were left with these two people who were, you know, assistant-type people, rather than already professional people.

LL: So neither of them had their Ph.D.?

DH: And so Pickering decided, well, since Margaret had grown up in Massachusetts and spent all her life there, whereas the other candidate was a native of California, the Californian might not be as useful on Nantucket in winter times as Margaret Harwood would be, and also it was real nice that since Margaret could be where she pleased half of the year, and she pleased to be at Harvard the other half of the year, that Margaret was the better of the two. So those two ladies because life-long enemies.

LL: [Laughs]

DH: Well anyway, Margaret was doing very excellent work while Pickering was live, because he directed everything she did. All the projects, with the variable star fields, he let her choose which area in the sky to do looking for new variable stars fit in with the Harvard program, so she picked the Scootum cloud to work on. So Harvard continued to take plates of the Scootum region as well as other regions, but didn't employ anybody else to work in that region.

So he directed all of her work until he died, and then when Shapley came, he just took it for granted that she was the director of an observatory. He wasn't going to do anything. He was interested in what she was doing, and published her results, as usual, in the Harvard publications, but he didn't do anything to direct her work—that was her business. And so she kept floundering, wondering. When Shapley decided that he'd change from Milky Way variable stars to high-latitude, because he needed mostly to know about the distances of the stars, and there was so much interstellar absorption that you couldn't get accurate distances yet, there wasn't enough knowledge of photometry then. So that if you switched the stars of either way, above or below the Milky Way, then there'd be less absorption to bother with, so you'd get a good approximation.

So when he did that, she came into my office, and she says, "Does that mean, when he stopped all the Milky Way and switched to high-latitude, does

that mean I should stop my work on the Scootum cloud?” And I said, “Well no Margaret. There are lots of other reasons for doing variable stars than what Shapley wants done. After all, you’ve got a lot of peculiar variables that are extremely important, and you can’t use those for distance determinations yet.”

But, well, you know, I was a younger generation. How would I really know? And so, she just spent more and more time on public open nights, which Pickering and the superiors down on Nantucket said should not be discontinued, but the founder of the Maria Mitchell Association said that research should be the primary interest in the astronomy department. So she made public open nights the primary, and Shapley, when I was supposed to go down there, he wrote to Brower, who was the Chairman of the search committee, and he said, “I despair Miss Harwood’s ever finishing her life’s work.” And Shapley was right, she never did finish it. Some Dutchman helped her finish those stars that she and her assistants had gotten periods for, but half of the stars that had been discovered by her assistants never got published.

LL: Wow.

DH: In other words, Pickering was the Director of the Nantucket-Maria Mitchell Observatory, and she, well, anyway. Pickering died in 1919, and I went to Nantucket in 1957. So, for those intervening years she did a little—a little here and a little there, always wondering, should I or should I not? Not thinking as to: why am I doing this? She was doing it only because she had started it, but it was slowing down because she didn’t think it was wanted anymore.

LL: So that was almost forty years of down time at Maria Mitchell. And then you came in, and what happened?

DH: Well, what happened then was that since I did not want to finish her work, because I knew she would be dictating to me. What she wanted at retirement was to have somebody come in to do all the work, but she’d oversee it all. And so, I

neglected her region just because she was around. And she was permitted to use the observatory whenever there were no students around. Well, she came in and bothered the students a lot until finally the President of the organization told her to keep out of the way. So, anyway, that's a long story about how we won that war, eventually, too.

LL: The Maria Mitchell Observatory has consistently had the reputation as a training ground for young astronomers.

DH: Well, that was my project.

LL: Yeah, could you talk about that?

DH: Yeah. When I first took the job, I looked into it and thought, what is this small observatory useful for? And I thought, well, this work on variable stars is something that doesn't require too much talent, but if you treat it the right way it will be an incentive for people to think about what is it useful for?

And anyway, so I thought that it would be nice if I would get undergraduate students there, to give them an introduction to research. They get plenty of introduction from textbooks, and most of the teaching in undergraduate astronomy was textbook work, not doing the things--and doing computations and things for which the answers were already known. But research means doing something where you don't know what it's going to lead to. And so anyway, I thought this out, and I was doing part-time teaching at Wellesley at that time. And so I went up to the President of Wellesley and asked her if she could give me some advice, this is what I would like to do on Nantucket, what did she think of the program? She listened patiently to me, and then she says, "What you're planning to do, you ought to charge tuition." [Laughs]

LL: [Laughs]

DH: Well, that was the best recommendation I could get. So, first year I got two girls, because I got only that much space to house them. And then gradually I was

awarded an attic room with four beds in it, so I could have four students. And when boys applied—it was for girls only because it was a memorial to the first woman astronomer in America, and the housing arrangements didn't allow me to be coeducational in, you know, in the bedroom [laughs].

LL: [Laughs]

DH: So anyway, it worked out fine. And the most gratifying thing about my program on Nantucket is the tremendous number of girls who are now much more famous as research astronomers than I am.

LL: How many girls went through that program with you?

DH: One hundred.

LL: Wow, that's amazing.

DH: One hundred girls and three boys.

LL: [Laughs] How did the three boys sneak in?

DH: Well, one young man came into me, this was shortly before the summer season started, and begged for me to take him in on my research training program. And he begged and he begged, and so I finally said to him that I couldn't give him housing. If he could afford to get his own room and pay for it, I couldn't pay him any more than I was paying the girls, because I didn't have that much money. So, if he could get his own room, and get only what the girls were getting, whereas the girls were getting their one bed for free. That was fine with him, he was perfectly glad to get his own room. And when the President of the Association found I had a boy who was paying his own rent off, it was a black eye for the Association, to have only one boy, and not getting all the benefits that all the women were getting. And so he found this boy another attic room for free. The room he had had two beds in it, so the next year I could take two boys [laughs].

LL: Two boys! [Laughs] You have a hundred young women who went through the program, and they're all considering careers in astronomy during the late fifties

and sixties, still at a time when girls weren't expected to go into the hard sciences. What advice did you give them?

DH: Oh, I didn't give many advice, excepting, you know, if I knew of places to apply, yes. But of course, if they wanted to teach, well, the women's colleges always took women teachers, right from the beginning. That was beginning with Maria herself. So, for getting jobs in a women's college, if there was an opening, a woman was welcome. But in other jobs, well, that depended on whether they felt that the woman was better than the man. I think that places like Harvard and Yale didn't, for routine jobs in particular, they weren't looking to see whether a person was a man or a woman, but to see who was best to help with the routine tasks. And routine tasks can sometimes be quite interesting, because you can think about what they are useful for.

LL: How many of the hundred girls who came through the program with you have gone on to become astronomers?

DH: Well, I can't say for sure, but I've been in contact with twenty-five of them. That's pretty good.

LL: Oh, my goodness.

DH: And a high percentage of them, of course, were married, and not all of the married ones continued working, at least not professionally. Raising a family used to be a full-time job [laughs].

LL: On that subject for just a moment—so, you're working at Maria Mitchell Observatory, and you're working at Yale. Was there ever a time when you felt people questioned the fact that you were a single woman in a profession without a family?

DH: No, I don't think so. Of course, at the time when I graduated from Radcliffe, it was still a case of where women graduates decided between a family or a career, not and, but only or. So that a high percentage of young people in my era were

still having that choice: either/or. At least until the students were old enough to take care of themselves.

LL: Could you talk a little bit about your major accomplishments? Not—I guess—in the second half of your career, at Yale and at Maria Mitchell.

DH: Well, I think my major achievements were sticking it out in places where I wasn't wanted [laughs].

LL: [Laughs]

DH: You know, it's just wonderful. This horrible colonel, whom I prevented from getting a promotion at that time eventually got the promotions and all that, because he was very good in his real field. He did his best to encourage me to stay at Aberdeen when the war was over. He said I could have any salary I wanted. And so I went to Harvard at forty percent of what I was getting [laughs]. And I got Christmas cards from him every year until a year or so before his death. And I still get a Christmas card from his daughter. I think that's a big achievement.

LL: How about some of your—I know, you seem unanxious to talk about—some of your publications, which are numerous?

DH: Well, yes. The first assistant that I had here at Yale was the wife of a graduate student, so it was a long time ago that she was my assistant. But we kept occasional Christmas cards, or so. Well anyway, she got a copy of my autobiography, and she was highly impressed by all the things that she didn't know about all the hardships in my life. She didn't realize that I had gone through all these troubles here at Yale, and so on and so forth. But she said, she read it all, but then when she got to the bibliography [laughs] that was just too boring.

LL: [Laughs]

DH: So, why talk about them? It's a long list, that's what matters.

LL: [Laughs]

DH: Anyway, you know, that book is full of misfortunes, but the responses I get from them is about how entertaining it is [laughs]. All my misfortunes they're laughing at.

LL: Well, I think that's because your readers, and the people who know you, can see your sense of humor about them, too [laughs]. We hope we're laughing with you. I do want you to highlight a couple of the achievements that you're proudest of, apart from the scrappiness you've exhibited.

DH: Well, I'm very pleased that I wrote that paper on meteor light curves, because that is really was got Mr. Shapley really interested in me [laughs], and he was a good mentor even after I left Harvard completely, because he fought for me at Nantucket when Miss Harwood was as bad as she was toward me. And the fact that his daughter is still writing me occasionally is very, very gratifying.

LL: Other publications you'd like to talk about?

DH: Well, I really liked what I was doing for my thesis on those spectral classes, I think. I was unhappy when I had to discontinue that, but I was working mostly on southern stars, because Harvard had a southern station, and they had plenty of people working on northern stars. But anyway, that thesis paper, I think, was one of my achievements that Shapley's responsible for. And, the things that I've done here? Well, people like the history that I wrote about this observatory. Being a bad historian in most respects, the history of astronomy is fascinating. That was fun writing that. I did all of that after I was officially retired from here; that's when I could do what I pleased.

LL: When did you officially retire?

DH: In 1975.

LL: So, you were here for over twenty years?

DH: [Laughs] Yup.

LL: And you're still here [laughs], thirty-five years after you retired.

DH: Well, I've been here since 1956. That's going on half a century. That's what I'm famous for now, is my age.

LL: [Laughs] Have you done much teaching here at Yale?

DH: Well, when I first came here, or after I reached age 68, I wouldn't have been allowed to teach anyway, except on a volunteer basis, and when I first came here women were not teaching—like Miss Payne, not teaching officially. I taught a high percentage of Harlan Smith's courses, so that—I was never listed as a professor at all, I never had that title anywhere, but I did have teachers, and a few of them still remember me as their teachers here.

LL: Did you like teaching?

DH: What I was teaching—when I was teaching the subjects I liked. You see, I was welcomed in my first years here for teaching because this institution was dealing only with astrometry and celestial mechanics, and the astrophysicist they had, Dr. Belt, he had—the students told me that he had said that the graduate students weren't worthy of his valuable time. So that couldn't have encouraged much in that field, though he did have some good students, but not as many as he would have had if he had been nicer to them. In other words, like Menzel, he kept the ones that were doing what he wanted to have done.

LL: Did you find any difference in working with or teaching with girls or boys?

DH: Not really. No, it's the subject that mattered.

LL: If you had any part of your life to live over again, would you change anything?

DH: Well, yes. I think I would change the way I was born and all my young years. But if you'd changed them, then I might not have learned how to cope as well as I learned. So I don't think I would have changed it. If I had to look forward to all the bad things that happened to me, well then I might have thought that I would have changed things. But looking back, well, blessings in disguise.

All the hardships taught me something, and they taught me how to cope. So I was prepared to fight back. If it had all been good, I wouldn't have known how to fight.

LL: Are there any questions that I haven't asked you that you think that I should ask you?

DH: That's your job [laughs].

LL: [Laughs] Touche. Is there anything left that you'd like to add?

DH: Yeah, there's one thing I want to ask. Are you going to put Ida Barney in?

LL: [Laughs] Are you trying to get me to say this on the record?

DH: No, just off the record to me.

LL: Well, I can't guarantee that. Those decisions aren't made by me. They're made by—

DH: Yeah, but you can propose her—

LL: Absolutely, you bet.

DH: Because I really think she belongs there. To think that one individual could do that many volumes all by herself, because even all of those volumes where Pickering is coauthor or principle author—he was the supervisor—he did mighty little of what's in those first half dozen volumes.

LL: For the record, I will have to—and certainly, Ida Barney, on your recommendation as an astronomer, will be considered, and we'll propose here, and her name will be put forward.

DH: I'd be delighted.

LL: I would like to say for the record that since this is an interview with Dr. Dorrit Hoffleit that the same could be said of your work on the Bright Star Catalogue, that while there are others who are listed there, a good portion of the work over the years was done by you.

DH: And still has to be done.

LL: [Laughs] Yeah, and still has to be done.

DH: That's a job that never ends, because as long as astronomy advances, and more techniques are invented for observing—you know, who would have thought you could observe stars by x-rays? Well, no matter when you publish a book, it's out of date as soon as it's off the press.

LL: Absolutely.

DH: The last edition, 1982, is still being used.

LL: That's amazing. Well, I thank you very, very much for your time today.

This has been wonderful, and thank you so much for adding to the Archive at the Hall of Fame. This is a tremendous asset for what we try to do. Thank you.

DH: Incidentally, do you want articles or books about women in general?

LL: Absolutely, yes.

DH: Because I have a number of books that eventually I wanted to give to people that might want them.

LL: Well, that's exactly what we would be able to do.

DH: You might just take a quick glance at one shelf behind you, which has only small things on it. This shelf.

End of Interview.