An Interview With Dorrit Hoffleit

Kristine Larsen
Physics and Earth Sciences, Central Connecticut State University, 1615 Stanley Street, New Britain, CT 06053

Received May 26, 2009; accepted May 28, 2009

Abstract An interview with Dr. E. Dorrit Hoffleit, Senior Research Astronomer, Retired, Yale University, conducted by Dr. Kirstine Larsen on October 7, 1994, is presented.

1. Introduction

This interview was conducted in Dorrit's office at Yale University on October 7, 1994. This is a verbatim transcription with the exception of minor editing.

2. The interview

Kristine Larsen *(l)* with Dorrit Hoffleit in 1998

[I've always heard you referred to as Dorrit, but come to find out your real first name is Ellen.]

Well, my father named me Ellen, my mother named me Dorrit, and the woman in the house always has her way. Which is better, because there are very many more Ellen's than Dorrit's around. On the other hand, a great many people think that that name is male and so I get a lot of mail over the years addressed to me as Mister. So when I made a mistake in a publication of the AAVSO recently, you know about that [concerning the name of amateur astronomer Alika Herring], well I finally got even. And there are so many names like Evelyn, Marion, and so on which can be either, and then of course if you don't know the nationality of a person, then [a name] spelled "Jean" can be a man or a woman—a man if you're in France and a woman if you're over here. And then when you're dealing with all nationalities you can't say that certain names are really male or female, because they get transliterated and transcribed [and] they could be either, and I assume that most names that end in an "a" are women. Well, you can have fun when you've made the mistake and then I say in my case I finally got even.

[Tell me about your family—do you have any siblings?]

Oh yes, I have a brother [Herbert]. He's gone now. He was the important person in the family. He was very, very bright; he was kind of a genius as a child. He got his Ph.D. from Harvard at age twenty-one. Classics, and that was a subject in which I was very poor because learning new languages requires a good memory and I always had a bad memory. I didn't mind the mathematics because there you don't memorize anything, you just think it through, but when it comes to a foreign language you don't think through, you have to know. One of my grade school classes I had the same teacher that my brother had had a few years previously, and my mother and I were walking down the street one day [and] we bumped into my teacher. Mother and the teacher started talking about various things and the teacher says "Dorrit isn't as bright as her brother, is she?", whereupon my mother says "What can you expect, she's only a girl." I was deeply hurt, but years later my mother told me when I told her how I was hurt by that (it was true of course, but you know, to say that to the teacher), [she] said "well I really didn't mean you, I meant her." Well, I didn't see much of my father. I think I was his favorite child, though. He left home when I was nine years old and so I saw almost nothing of him after that. Yes, he [brother] was about ten years older than I, and I just worshipped and adored him. Nobody had a brother like my brother.

[Did he help you with your school work?]

No, he graduated from Harvard the same year that I was supposed to graduate from high school in Cambridge, but Harvard commencement was a few weeks before high school was out so I came into my Latin class in the morning and my teacher stopped me as I was entering her class and she said she had just read in the morning Herald that somebody with my name graduated magna cum laude in Classics from Harvard—"was that by chance any relative of yours?" I said "Oh yes, that's MY brother," big emphasis on the "my." "Humpf, I should think he would have helped you with your Latin."

[Sounds like your teachers weren't very helpful.]

No, no, hardly anybody was really helpful to me. My mother supported me a whole lot but she had good European ideas on the difference between girls' and a boy's education, and she thought music and fine arts and things like that, and fancy work, needlework, were the things for girls, whereas I wasn't very good at any of those. I was pretty good at drawing, but not in music. It didn't occur to her that her husband was partially hard of hearing and that some of her offspring might inherit that branch of the family, whereas she had been brought up in the conservatory, singing and piano. She'd left home because she had a stepmother and they didn't get along very well together, so she saw an ad about girls going into nursing and when she went into nursing her father seemed (he was a college professor), he seemed mad. He didn't bring up his daughter to wash the behinds of old women (that's the idea of what nursing was) and so he disinherited her. And so she married a cousin of the stepmother.

The only thing they had in common was that neither of them was happy in Germany.

He was already over here; that was the attraction, to come to America. It was called "land of boundless opportunities," but the real translation is possibilities, not opportunities, and in their case it worked in the reverse. So any way, my mother's goals were accomplished. My brother became a professor, like her father, while I wasn't exactly good college material because I was poor in Latin, and you know in those days you couldn't get into Radcliffe without Latin. But anyway she had some confidence in me when I got the opportunity to go to Radcliffe so that her brilliant son wouldn't be ashamed of his dumb sister. Opportunities come in various kinds of ways. And so it ended up my being, well, salary-wise of course my brother was always ahead of me because he was a man, but otherwise it's the case of the fairy tale about the tortoise and the hare: he got along real fast and conked out, and I trudged along and learned how to work and so on, and here I still am, and here you are interviewing me. He never had that kind of interview; of course he got into *Who's Who*, but no special articles on him. Just the obituary, you know, which doesn't count for much. Obituaries, you have to remember what's good about a person, and don't mention anything else. You can think of so many minuses and only a few plusses (which you write down). So I don't want to write obituaries. I wouldn't mind writing about people I really admire very much, and there's lots and lots of people like that, because most people are brighter than I am. Reason I am where I am is that I learned how to work, whereas my brother learned things so easily that he just hated writing anything—that was work. He preferred to keep on learning, whereas I can't remember anything so I have to write it down.

[But in the process you're making lots of important discoveries.]

Well, I'm finding a lot of nice things. No, but I think they're getting a bit away from that [memorizing] in the public schools now, but when I grew up [in] my school career, memory was the thing for getting grades. Of course as you get older and older you forget more and more things. I find myself doing some research and then I'm half way through it and I discover I've already done it a long time ago. That's annoying because I think of all the time I wasted. On the other hand, here's an independent check. Always look for the blessing in disguise when you do something wrong.

[So how did you become interested in astronomy?]

Well, I guess "fell into it" is about the word for it. When we were children we always sat in the backyard (this was Pennsylvania), to watch shooting stars in August, and they were fascinating and beautiful. So I took my first course in astronomy at Radcliffe when I was a sophomore, then I had to wait to my senior year to get the second course because they wouldn't give the course unless there were at least four students, and that was almost a fiasco course because in order to have the four students in my senior year we had to accept

a young lady who was a major in English and she said she wanted a second course in astronomy because she just loved the way Harlan Stetson read Alfred Norris poetry to the class. Well, then there were us two mathematicians. I was a senior and the other one was a junior, and [the] fourth essential person was a graduate student in Physics. So you can imagine the poor professor'd have a little problem in what to do with us. So first semester he turned us loose on the transit instrument, which was lots of fun. I think I got a B in the course because when I finished the assignment I used the transit instrument to see just how long it would take for the Pole Star to cross the transit wire—you know it doesn't move very fast. And so I learned a good bit about seeing instead: [it] took forever for that star to cross the transit wires but what was most amazing is it didn't move across these lines but it jumped back and forth — bad seeing, you see. Well, you know I was a dunce to do that, for the purpose of the experiment was you used only the stars near the equator that moved away fast and the times of crossing really meant something. If you made an error it was because your thumb was a little slow pushing the button, but, with the Pole Star, you'd hold it, let go when it moved and then got back on, that was real good fun. But I don't think my professor appreciated the educational value of that experiment. I think I got a lot more out of the Pole Star than I did out of what the thing was intended for. So you see, independence wasn't appreciated even then.

[It appears to be a main theme in your life—independence.]

That was what was nice [about] working with [Harlow] Shapley [at Harvard College Observatory]—he suggested a lot of projects but he didn't force them upon you unless it was a case of he needed something in a hurry, like a lecture or something was coming up. In general he thought up any project, he'd suggest it to you, but he'd suggest enough and you'd have enough ideas of your own, so it was up to you whether you followed the most recent suggestion or not. So I was effectively very, very independent, especially after I got my degree [Ph.D.]. But when I came to Yale, boy, that was a revelation. The director, he had very old-fashioned European ideas, which were prevalent all over everywhere in the years before that, but at Harvard the discrimination against women was salary-wise. That was literally all, except you know people like Cecilia Payne were horribly annoyed they couldn't be professors, but that didn't bother me. I wasn't planning to be a professor, and anyway the research was the fun. And when I came here to Yale, shortly after I came here, Mr. [Dirk] Brouwer came into my office and asked me to do something, and I basically told him I'd already done it, and I thought he'd be happy to know something was accomplished, and he traipsed out the door and said, "Such independence." Boy, you aren't supposed to be independent, whereas that's what the meaning of Ph.D. is, to be independent. And then I helped Miss [Ida] Barney finish her last catalogues and she asked me to write the introduction because she really—she wasn't like me—she really wanted to retire, but she did want to

finish her last job. So she asked me to write the introduction, and put a big red X through the paragraph I had about double stars in the catalogue. Double stars are a bane to astrometry people: sometimes what you do for the proper motion is you take an old catalogue which you generally compile visually and compare with a modern photographic catalogue, and there are things called color indices, which you've heard about. What happens is a visual observer's eyes would be more sensitive to red stars, and the photographic plate the blue, so the visual observer, if there were two stars, double stars, would measure the red component. On the photographic [plate that] one would be very faint (all the red would be very faint on the blue-sensitive plates) and [so you would] measure the blue one and get a nice high proper motion which was equivalent to the separation of the two stars divided by the time interval between the two observations. Well, so I put down the problems of the double stars—she crossed that out—and she said, "Dr. [Frank] Schlesinger didn't put that in the catalogue so why should you?" Well, I thought, gee whiz, that's what you called progress. If your predecessor hasn't done it you don't do it either. So, it was pretty trying here, but here at Yale I was a woman and a woman does what she's told and these influences said, "don't do your own thinking, just follow what's been done before," and that makes me, coming from a free place like Harvard under Shapley, that was really trying. Of course now that I'm retired it's just as nice here as it was at Harvard under Shapley. I do what I please; of course, people ask me to do everything and I'm terribly overworked because I don't know how to say "no" to anybody, because what they ask me to, well you know, you're flattered to think you know something, and also some of the things are fascinating. And so you try to do everything everybody wants you to do, and you try to do all the things that you were planning to do in your retirement and sometimes it gets kind of tiring—you get very tired. Just when you're planning to do some more work you just can't hold your head up anymore.

[So you said you were a math student at Radcliffe?]

Well, you see with just two courses offered in astronomy throughout college you couldn't major in, concentrate in astronomy, with only two courses when it took eight [courses].

[So you still have free access to the Harvard plate collection?]

They let me use them. Well, it sounded very depressing a few weeks ago. Somebody called me up and said that the current director was planning to get rid of the plate collection because you know the Harvard-Smithsonian is within that, [and] the Smithsonian decided they'd like to have that building and to convert the plate stacks into their office buildings. Word got to me and several other places about that but evidently Martha Hazen has talked them out of it. But the director says, "hardly anyone uses these plates, might as well get rid of them." The most priceless collection in the whole world! Lots of observatories have collections for certain parts of the sky and some have pretty

good collections for the northern part of the sky, but this is the only institution that has full coverage from north pole to south pole. And then to say because very few people are using it it's useless. Yes, that's why I left Harvard, because [Donald] Menzel was throwing out the plates.

[Did you have any female role models or mentors at college?]

Not really, no. No, I wasn't going after people and precedence, I was just going after the subject matter. I was pretty much of a recluse as a child and most of my youth so the books and the science were the important things, more so than the people. And then as for astronomy, except what I got from my brother and my mother, I had no education in any kind of astronomy until I got into college formally, whereas when my niece's little boy was in kindergarten, he wrote me a letter he addressed to me as "Dear Aunt Dorrit" spelled ANT Dorrit (always think of that when you hear that "Hooked on Phonics" business), well, anyway he wrote me all about Jupiter that he had learned in kindergarten, so his kindergarten was as advanced as my second year in college. I like that. Some schools do and did for many many years ago [have astronomy] but I unfortunately wasn't in any such one; of course if I'd been where science was a specialty rather than languages and so on I would have done a whole lot better. Because I did all right in math and science and I did very poorly in everything else. I did all right, too, in fine arts courses. I thought many years ago that what I wanted to go into was fine arts, but what I found out as time went on, well, I wasn't quite as good in drawing as I should have been to go into that, even though I was better than most people, but I wasn't good and then just, going through the museums and everything you need to know more, you have to be a little more expert in history and religion than I was. I was brought up without any religion except my mother was very religious but we didn't go to church or anything, we just had the books. You make up your own mind about things but that isn't the way you learn enough to go on how Raphael and others portrayed things. Fine arts isn't just looking at the picture and seeing how good it is [but] knowing the story behind the picture. So anyway, I fell into the right place. When I got my first job at Harvard, that was, well that was really falling into the right place.

[So that was the big catalyst?]

Oh that was, that was it.

[How did you get that first job?]

Well, one of my classmates had gotten a job in the Radcliffe employment office and she of course knew all of the recent graduates who were looking for jobs, and when a job turned up at the Harvard Observatory she suggested I go try for it. This happened around Christmas-time, so during Christmas recess I went. I didn't get a job when I graduated; these were hard times, too. I was taking graduate courses, one in astronomy and three in math, and when she called me up and said there was this opening I went up and tried the job out during Christmas recess and got the appointment for as soon as exams would

be over. And so, before I really knew that I had clinched the job but while I was trying it out, I got a job offer from another college that paid a little more than twice as much as Harlow Shapley was paying us women, and I had no qualms about saying to them, "no thanks, I found a job I like." Now, since I came from a home where Papa was unemployed and the mother had sold her cottage in Pennsylvania in order to give her two children a college education, it's kind of a risky thing to do, to take the lowest paying job because you like it, but that was an opportunity and my mother had no objections to that at all because that's exactly the way she felt. The other job was just being a statistician for somebody, where this was discovering things.

[You thought an M.A. was the highest degree you were qualified for?]

I was never bright in math and science, I was a B student. I wasn't an A student, and for a Ph.D. I thought you really had to be an A student, and so anyway of course Dr. [Bart] Bok thought it was terrible that I didn't just say yes right away when Shapley asked me about that. The two of us were sitting there together, but I had to tell him that I didn't think I could do better because after all I immediately made up my mind, yes, that was great but they'd better know that I might flunk out, because after all a C in the graduate school is flunking out, and chances were pretty good that I'd get some C's. So anyway that was a great day—I'll never forget that day. I had finished my M.A. and then I got a ruptured appendix (fortunately after I finished the M.A.), and then I just went back evenings in the observatory and did what I pleased, the way I'm doing here now—daytimes now because we don't go out at night. In those days it was all right to go home at 2 a.m. by yourself and walk a mile and a half but nowadays you can't cross the street after dark. So anyway, I like meteors, and I had taken one course in meteors and then I decided that since I was working on light curves of variable stars why not light curves of shooting stars? So I wrote a paper and I put it up on Shapley's desk and he called me up into his office and he looked real glum and he says, "What's this?", because I was being paid to do variable star work, and I said, "Oh, that's what I came back evenings to do." Well, he took that and he sent it out to be refereed and it got some pretty good reports and that's the reason that he and Bok decided that I ought to go on, because after all, I'd proved what a Ph.D. stands for—independent work.

[Did that paper become your thesis?]

Oh no, he told me when I was ready for a thesis I could do it in anything I pleased. I was working on meteors and variable stars and absolute magnitudes from spectra, and I chose the spectra as part of the thesis.

[Did your thesis get published?]

In parts, not as a whole, but several sections of it, The first part of it was published a couple of years before I got my degree in the Harvard Tricentenary volume [co-authored with Peter M. Millman, published in Volume 105 of the *HCO Annals* as *Tercentenary Papers*], and others in, I think one got published in

the *Proceedings of the National Academy*, and *Philosophical Transactions*—the American Philosophical Proceedings.

[You've worked on every branch of astronomy?]

Oh, I've spread myself so thin that I can't go deep on anything. Well, you see, Shapley encouraged versatility and of course that was one of the big attractions of the job. That plate collection, boy, there's so much to be discovered still on those plates. Well, one example of the disaster—when they destroyed a third of the collection (that's what Menzel did)—is that shortly after I got here to Yale the very first quasars got discovered. Harlan Smith, who was a Harvard Ph.D. who was here then, and I went back to Harvard to raid the plate collection to find out whether quasars varied or not, and to think that two people who had defected from Harvard and were at the rival institution Yale go raid the Harvard plate collection which was absolutely devoid of people at the time, and were the first to discover a quasar that varied. We had a graduate student here who had been a student at Harvard, I guess he was a Harvard undergraduate; he told me years later that Menzel was planning to destroy more of the plate collection when this quasar came along and that deterred him from destroying more. Well, what some people don't realize is that the only thing that counts is their own interest.

[Tell me about your work at the Aberdeen Proving Ground.]

Well, there was a Major down in Aberdeen Proving Ground at the time who was a Harvard employee, graduated, Ph.D. from Cambridge University in England, and he kept calling me up to say that they needed somebody of my abilities down there and he finally talked me into it. I felt that being of German descent I had better do some war work. So anyway after I'd agreed to go down there then he informed me that I could not have a professional rating because I was a woman, that the colonel who was in charge of the ballistics laboratories would not approve of having a woman with a professional rating, but I'd get the same salary to begin with as the boys were getting. So the young man who just graduated from Harvard gets a P2 rating, which is the same salary as the SP8 subprofessional 8 that I was getting, and within six months he was eligible for promotion but I was already getting the highest salary for a SP rating—that, of course, was not revealed to me as I was coming down. But the war would be over and I wasn't going to stay there anyway, so what. This Harvard professor, he assured me that I'd be doing the same work as though I were a professional so it was just on the payroll and the things that wouldn't show up. But then, after I'd been there about a year, the inspector general of the Baltimore district (where Aberdeen is) discovered there was a woman Ph.D. with the subprofessional rating, and he came around on a day when the colonel was down at Washington instead of in Aberdeen, and he wanted to find out all about the story about why I was on a subprofessional [rating]. I told him, you know that, I was told that women couldn't have listings, the war'd be over anyway. Well, that happened to be flaunting civil service regulations,

so when the inspector general [came] he deprived me of my lunch that day because he came in at lunch time and he wanted me to write all this out for him before he'd have to leave by two o'clock.

So when the colonel came back the next day and heard about what happened he sent the chairman of the section that I was [in]—the department I was working in—a major, you know a major in the reserve, and you know what happens in the military: if your rank is less that somebody else's rank then you say "yes, sir, yes, sir" that's all you say. So anyway the colonel told the major to tell me that there was no room for professional women in the RL [research laboratories], that I'd have my choice: either I could transfer to the Pentagon, or he, the poor major, was to make sure that I did nothing but subprofessional work because if I didn't do anything but subprofessional [work] then it would be all right to keep me on subprofessional [rating]. So I told the poor quaking major that he (since the colonel wouldn't talk to me himself), he the major could go back and tell the colonel, "Thanks, I don't accept either alternative—that isn't what I came down here for." Poor quaking major! Well, somebody in the headquarters in the Proving Ground told me not to worry about this, that there was nothing the colonel could do about it. So a little bit later the section chief of the department I was working in, who was a captain in the Army, he was being transferred out as all good captains are, and the major comes to me and says, "There are only two people who are qualified to take over the section head: you're one and Dr. [Fritz] John is the other, but since the colonel will not allow a woman to be a section head, will you work under Dr. John?" "Major," I said, "Since you put it that way, I guess."

[Were you trying to give the Major a hard time?]

I was not going to be pushed around! And so anyway he then fixed things up nicely, that I was to be taken out of that section and I had twenty girls working under me, mostly blacks, and I could pick any four of them that I wanted and I'd be an independent section. You know, not a section head, just an independent section. Well, other departments found me useful and would shoo all their stuff in to me to reduce their observations for them and all that sort of thing, which was fun, but I got kind of tired of having somebody from another department come over and ask me to do something and we had to go through three channels — from the other department through the major down to me, back through the major and back there. So one day, when I was kind of fed up with this thing, well, we always had weekly meetings with the staff people, and the major had a bulletin board which said directives received, computations started, computations so far complete, and so on, and finally finished. Then he comes around and asks me what I'd been doing the past week and I said, "Well, these records, photographic records received, measurements complete." He said, "Look at that production board—where does all that fit in?" "Well," I said, "It doesn't, but I thought that you, since you're my superior, you'd want to know what I'd been doing." Well, that wasn't satisfactory, so after the next

load of film that I reduced I stayed late because I noticed that the head of the other department that was shooing this to me was staying late. I showed Dr. [Thomas] Johnson what I had done, and he was very affable and gracious and he smiled and so on, and I saw favorable reactions, which I wasn't used to. I said, "Dr. Johnson, couldn't I work straight for you instead of going through all these back and forth channels?" He looked real pleased and says, "Well, I'll ask the colonel." And the colonel said, "I don't know why you shouldn't have her." So he transferred [me].

Well, then the senior staff had a meeting one day and the boys who were at it told me in great glee what was happening there because I wasn't there of course. And what happened was that a problem came up, something that needs to be done, and somebody said I was a good person to do this and so the colonel turns to the major and says, "Well, you ask her to do it," and [the major] says, "She isn't working for me anymore."

"What, where is she?" "She's working for Dr. Johnson." "Why is she working for Dr. Johnson?" "I suppose because she likes him."

Anyway, Dr. Johnson was highly respected; he was a Yale Ph.D. in Physics, a cosmic ray man, and very brilliant, but always gracious about taking care of people working under him so that they'd do the best work for him. Since Dr. Johnson and the colonel were good friends, why, that put me in a better light and to end this long, long story about all my tales of woe, I won a war against my ancestors in Germany and against the colonel who behaved more like a Prussian general than an American. And after the war was over all these priceless men were all going back to colleges so the colonel stops me where everyone could see how gracious he was to me to tell me if I'd stay at Aberdeen after the war, I'd have any ranking I pleased. So for anybody who was passing by to hear I said, "Thanks very much, that wouldn't be very fair to the men."

Then a security officer stopped me one day, and he says, "If you're going back to that place, that Harvard, to work under THAT person," (he meant Shapley), "you would be considered a security risk and you wouldn't be allowed back on the Proving Ground." So when the colonel suggested that I apply for a consultantship after I had left, well I didn't want that. But here Shapley's name was at stake. I wouldn't be allowed back if I worked under Shapley, which I was going back to do, so I filled out the applications for consultantships. I waited a long time—I though, gosh, maybe they're right—but after about two months the appointment came through and I marched myself back for my first tour of duty down there. And the colonel tells me he had a long list of people he'd recommended for consultantships, but my appointment came through first. So three cheers, Shapley exonerated! And after that he got transferred out—of course military people never stay forever. But I got Christmas cards from him until a few years before his death. So that was really winning a war. That story about my Ph.D. and about winning the war with the colonel are the two best things in my life. But anyway winning the war with the colonel was really good.

[You were on a split contract, Maria Mitchell Observatory for six months/ six months at Yale? And you were with the Maria Mitchell Observatory for twenty-two years?]

Yes, the reason that was half-time was financial conditions down there.

[You've said that you had over one hundred girls in the Maria Mitchell program over the years, that over twenty-five have since gotten Ph.D.s. Are there a few you are most proud of?]

Well, I'm proud of a good many of them. You may or may not know some of these names. Janet Mattei you'd know, of course. She's really a prize person, she's one of mine. Oh, as a matter of fact it was Nantucket fog that got her her job at the AAVSO. I'll tell you that story. The year that she was one of my girls down on the island I had to go to an astrometric conference in Virginia at the beginning of the week, whereas I'd invited the AAVSO to come down at the end of the week. AAVSO starts [its annual meeting on] Friday evening with a lecture and goes through Saturday and Sunday morning. So anyway, I went to my Virginia meetings and I got back to Boston on Thursday—plenty of time to get back to the island. But the plane, the Boston-Nantucket, got delayed, and got delayed some more, and got delayed some more, and finally it got cancelled and I had to stay at a hotel overnight. And the next morning it got delayed and it got delayed and it got delayed and the storm got worse and worse (you know, downpour as well as fog). And so I called up Janet on the island and told her to take charge of the meeting until such time as I get there. Well, I finally arrive by a boat that was going across the channel like this [up and down hand motion], and I arrived on the island just as the sky was clearing at the last moment and got to the banquet site just as the banquet was breaking up, and these astronomers all wanted to go to the observatory to use the telescope. Well, my girl Janet had done such a marvelous thing running the meeting for me that, when Margaret Mayall was looking for an assistant at a time when Janet was looking for a job, I got the two of them together again and Margaret of course grabbed Janet because she had been so good at running the AAVSO meeting. And then when Margaret was ready to retire there were a half a dozen people who wanted her job, and [Janet] was unanimously elected to the job all because of the Nantucket fog. If it hadn't been for the fog, she couldn't have made such a marvelous impression. I think that's a great success story.

Well, other girls—I can't name them all—but you probably know Andrea Dupree. She was one of the earliest girls I had there. She was only sixteen when I had her, and she was a charming little girl at that time. She asked me one day, did I think she would be—she was a sophomore at the time—she asked me if I through she'd become good graduate school material. By a foregone conclusion—she was so bright. Then, do you know Nancy Houk, who's reclassifying the *Henry Draper Catalogue*—she was one of my girls. And then there's Nancy Evans in Toronto, who's on the faculty there, who's doing a good

job, and Marcia Riecke in Tucson, who's doing extremely good modern work in infrared astronomy. And Karen Meech is in Hawaii, a comet expert. That's a really good name to remember, because after all Maria [Mitchell] became famous because of a comet, and now Karen is a comet expert. She's writing marvelous things on comet theory and so on. There's a sampling. You know when you get old it's so marvelous to see these young people that you've known before they really were astronomers when they were still undergraduates and then see how well [they've turned out]. They've done things that I wouldn't ever be capable of doing—such theoretical, difficult theoretical work and so on. And Janet's administrative abilities are just fantastic. So you know it makes your old age real nice to look around and see what's happened to some of these girls.

[When did you officially retire from Yale?]

Well, I reached the retirement age in 1975, but since I got a joint NSF grant with Bill Van Altena (since I was retirement age I couldn't apply for any NSF funds on my own—that's contrary to university rules), so anyway Bill Van Altena was going to compile a catalogue of trigonometric parallaxes and I was going to get on a new catalogue of the *Bright Star Catalogue*, a new edition, so we wrote a joint proposal on that. And so for the next few years, I was officially employed half-time. As a retired person I couldn't be employed more than half-time. That doesn't mean I worked that few hours, but that I was half-time pay for a few years after that. 1975 is the official retirement date, because after that you're sort of a part-time employee. That lasted I guess three years—the grant was for three years.

[What's your official position now?]

Senior Research Astronomer, Retired, since it's only the professors who get the title Emeritus. The rest of us are just plain retired. I'm Emeritus from Nantucket. Well you see on Nantucket I had tenure, but at Yale, starting out as a research associate; associates depend on outside funding and so you don't get tenure, and I claim that it's much more prestigious to have stuck it out for thirty years on government grants than on tenure.

[You've always been a research astronomer, but you were a lecturer at Wellesley for one year]

For one year, yes, and I did some part-time teaching here, too. Of course, having the half-time appointment here which ran from October through April, to the first of May, I was not here when courses started and I wasn't here when courses finished. But we used to have beginning graduate student general courses in astronomy, sampling of research in the various fields. So I took part in those for quite a number of years, but the course was then in charge of somebody who was a professor and I was second fiddle. But that was o.k. First few years I did that I liked that because I could teach them all about things I learned at Harvard—spectra and meteors and variable stars. Things are different here now than they were in Brouwer's day. Under Brouwer celestial

mechanics was THE thing, and astrometry was next highest [in] importance. But other fields were pretty much neglected. [Rupert] Wildt was here, and he was employed primarily to build up astrophysics, but he had the reputation of finding that his students weren't good enough for his valuable time. So when Brouwer died, then Mr. Wildt was complaining that Brouwer did not build up astrophysics, whereas that was what he was supposed to do. But anyway, things here at Yale now are very much the way there were under Shapley at Harvard, whereas right now at Harvard, it's just the Smithsonian is so big that students are better off here than they are Harvard now. Because here you've got almost a one-to-one ratio of the number of graduate students and the number of faculty so that students can take up almost any branch of astronomy that interests them, whereas under Brouwer that was not so easy. Wildt did have graduate students in astrophysics but a relatively small number compared with celestial mechanics.

[How long have you been involved with the AAVSO?]

Oh, well the AAVSO was a significant part of Harvard. It was founded by [Edward C.] Pickering and the person who was called the Recorder—Mr. [Leon] Campbell was a Harvard employee—because all of these observations by amateurs were funneled unto Harvard at the time. *[Ed. note: It was amateur astronomer William Tyler Olcott who founded the AAVSO. The operations of Harvard and the AAVSO were intertwined for so long that Pickering/Campbell-as-founders became a widespread misconception during Dorrit's time there.]* And so anyway since the AAVSO headquarters were at Harvard Observatory, I naturally got involved. The second paper which I was involved in publishing was—I'd been working on variable stars in Centaurus, and Mr. Campbell had lots of observations, visual observations, of a bright long period variable [RV Cen] that had a larger color index than any other star that was known at the time, something like four-magnitude color index. And so when he found out that I was working on plates of the same region we got together and I measured up all the plates for the photographic light curve, and he compiled the visual light curve and we got a good color curve for that star. My first paper was on variable stars in my region of Centaurus, my second was as co-author with Campbell on the AAVSO paper [both papers were published in 1930].

[You were president of the AAVSO for one year?]

Two years. Well, the bylaws say one can be president for only two consecutive terms. Occasionally somebody will then become president a second time some years later. And I don't want to become president now, because after all when you get into my years you'd better not be responsible for too many things that involve lots of people.

[Well, you're very much involved with the AAVSO anyway, so you don't need a title.]

Oh yes, I get them to work for me and they get me to work for them. That's my favorite organization. I think it's the friendliest organization that I'm aware

of, at least in astronomy.

[How would you like to be most remembered?]

Well, I think that I'll be mostly forgotten, that's natural, but I hope they'll still be using *The History of Astronomy at Yale*.

[You're very proud of that.]

Well, I like that, but everything else I've done—with research everything else is just a stepping stone for the future generation. Either things die out or they improve so much that, well, the *Bright Star Catalogue* is a good illustration. Schlesinger got out the first one, first two editions with help, and I got out the third and fourth editions, but when the third edition came out I was sole author for it. It was catalogued down in the university under Schlesinger. So maybe the fifth one, if it ever comes out, may still be listed in my name, but after that (if any) they'll be some other names and so on. Nowadays when people talk about the *Bright Star Catalogue* they no longer think of Schlesinger, they think of me. Well, I'm gonna die too just the same way he did. But the history of the institution, I don't think anybody's gonna rewrite that very soon. They should, however, bring it up to date, and a long time ago my friend Bill Van Altena said that he thinks he'll write the sequel—some day. Now he'd got quite a few years before he retires—that's what I tell everybody, that writing the history of your institution is a very enjoyable thing to do for your retirement project. Because I didn't have time to do it before I was retired and, also, most of the time before I was retired I had to do what I was told. I must say though that when Pierre Demarque first came here he heard that I was hoping to do that as a retirement project. He said, "Why don't you do it now?" Well, I had to finish these government grants first. So even though he was agreeable to my doing what I pleased you have responsibilities when you have a grant.

[So what do you do outside of astronomy?]

Eat and sleep. Well, there are so many aspects—you just drew up all the things I'm interested in. Well, every one of them is a hobby from the other.

[You already said you weren't very good at drawing or needlework.]

Well I like all of those things, but I'm no good at them and these other things [in astronomy] I think some of them I can do better than other people or at least other people wouldn't do them. No, I'm a moron. It's true I own some versatility in my own field, but I know next to nothing about any other field.

[It doesn't mean you're a moron.]

It does if you don't try to go after those other things.

[Do you consider yourself to be a feminist?]

Not really. I do all this looking up things about women. I enjoy doing that, and of course I started the program in Nantucket for women astronomers for several reasons. One reason, practical reason, was that I was offered an attic room with four beds in it and I wasn't going to make that co-educational. And the other thing was it was obvious that women had more difficulty getting jobs

than men did and so between those two factors it was natural to set up the program primarily for girls. The reason that it finally became co-educational was because we depended very highly on the government or other outside support and the rules became more firm that one couldn't discriminate against anybody, and I had a high reputation for discriminating against men down there. Well, just before women got admitted to just about everything at Yale, one of the Dean's departments sent out a circular letter to faculty to ask what they were doing for the furtherance of women, so I sent them a small brochure that I had made out which I sent to all the girls' colleges about summer openings on Nantucket, and I sent that in as a reply to what anybody at Yale was doing for women. And I got a telephone call from the secretary of the person who had sent this out and said, "We can't post that circular that you sent us because that's discriminating against men." And I said, "that's all right by me—that isn't what I sent [it] to you for." The most fortunate thing about my life is that I've got a sense of humor, otherwise I'd be dead. Well, when you get old enough you know that no matter how bad a struggle you're going through, you're gonna laugh at it eventually. Because the harder your life has been, the funnier it is when you talk about it. I'm somewhat concerned about these extremely bright youngsters who get A+ in everything and are well-to-do so they don't have to do anything for their living. I just wonder what's going to happen with them when they do run into a problem because in their formative years they aren't learning how to cope with anything, simply because they're too bright.

[Can I ask you to talk about Miss Maury?]

Oh yes, Miss [Antonia] Maury. You said you were writing her up too. I knew Miss [Annie] Cannon and Miss Maury, and Miss [Henrietta] Leavitt was gone already. She was one that I would have loved to know.

[It seems as though you were more impressed with Miss Maury than Miss Cannon.]

She was more of an intellectual than [Cannon]. Miss Cannon was so extremely successful because what she did required a great deal of knowledge but she wasn't original the way Miss Maury was. She did what Pickering expected of women; she did exactly what she was told and she did it very, very well, better than anybody else. Whereas Miss Maury discovered that there were things in the spectra that Pickering was evidently unaware of and unwilling to admit. Well, I think in the Harvard Observatory history [by Jones and Boyd], they definitely state there that Pickering had said, I've always quoted too, that when Hertzsprung wrote to point out how important this c-characteristic in the spectra was, Pickering wrote back and said that the spectrograms that Miss Maury was using where not of good enough quality to show what she had [claimed]. But Hertzsprung proved this was important and yet Pickering said, in other words, it wasn't that he couldn't see them, [it was] that he was miffed that she was the one that discovered something. And it's rather sad

too, because all the other women that worked under Pickering—from what I heard from Miss Maury and also from Miss [Margaret] Harwood—practically all adored Pickering, but they all obeyed his orders. They didn't do their own thinking. And as Schlesinger said, and Pickering agreed, that the advantage of women was that a man would easily tire of something that required repetitive thinking, like getting out the *Henry Draper Catalogue*. Pickering set up the original system but to get ten volumes out, he couldn't have done it. I guess he wouldn't have been capable of sticking with it. Whereas he was capable of holding the stick over the others to do it. Well, all the women who worked under Pickering did what he wanted them to do; Miss Maury was supposed to do exactly what Miss Cannon was doing—just adopt his system and apply it, whereas she sat down and thought it out on her own, and came up with something. Well, her system was far more clumsy [and] has all those Roman numerals, going up to twenty-two of them or something like that. When the MK system was started, they adopted the same clumsy Roman numerals for the sequence. On the other hand, they don't go up to two digits. And it's far easier to remember the difference between an A and B than between II and III.

[Many textbooks give Cannon credit but don't mention Maury or Williamina Fleming.]

No, Mrs. Fleming was, well, they originally called the system the Pickering-Fleming system and then dropped the Fleming. I think Mrs. Fleming probably was more influential in setting up the system than Miss Cannon would have been. Miss Cannon did improve the system here and there, improving it in detail but not finding new characteristics.

[Should the textbooks mention all three because they all made contributions?]

I don't object to having the textbooks simply mention Miss Cannon and nowadays of course you should stress the MK system, but you should mention that Miss Maury was a very significant forerunner of that classification system and that Morgan himself agrees completely, because he certainly respected her to no end. He dedicated at least one maybe more papers to her, because he was really, really impressed with her work and he didn't understand why she wasn't more successful at Harvard. So when I wrote the article about Miss Maury for the Radcliffe Biographical books I sent him a copy of that paper and he wrote a very touching letter back to me saying—really emotional about it—that he had always wondered why she didn't get full credit and so on at Harvard because she pointed the way for his better work.

[You've mentioned elsewhere that part of the reason why Maury wasn't given more credit was because her aunt, Mrs. Draper, wasn't too fond of her.]

Miss Maury was—well, Mrs. Draper, from one of these pictures, you can see was a very elegantly dressed lady, whereas Miss Maury [was not]. You read some of the things about that. Well, I don't know whether you've heard

this story or not, possibly you have, because I wrote a note, unpublished, about a Christmas party at the Shapley's. The Shapley's always had parties for the staff as they kept us all happy. Miss Maury came to this party (this was about the first or second year I was there), and she had on a dark green velvet dress. The velvet had little rosebuds, not embroidered in but woven into this dress. Absolutely gorgeous. That was an heirloom dress. Well, Miss Maury was evidently short on wardrobes, and so from that day on—everybody complimented her on the dress—so she wore it to the office, day in and day out. And I was sitting in the room where people came in to get their mail and I wasn't facing the [door] but you know you see things out of the corner of your eye. It seemed as though something was flashing, and I looked around to see what it was. It was Miss Maury and her green velvet dress. It split, for there around the back, [the] whole seat split, so what I'd seen was this flash of white slip where the dress [split]. She was completely oblivious, and of course I was very [much] younger then and she was quite old so I wouldn't dare say anything. In those days some people still wore those old fashioned worsted stockings, you know, the heavy stockings. Well, generally her heels were always showing through. Then some youngster that lived in the Hastings [on Hudson] talked about her, how she was so badly dressed, grease on her dress or something like that, completely oblivious. They thought she was awful, but then when you started talking with her—and this happens to everybody—you start talking with Miss Maury and you forgot about how she looked or anything. She could talk about every subject imaginable. Unlike me, she was not a moron—she could talk on everything.

When I was in the hospital one time (she didn't know I was in the hospital but she knew I was out sick), she and another member of the staff came to see me, and my mother was then there at the time. My mother lived in California at the time but she had come back East because I was sick. And these two ladies, one of whom was a chatterbox with hardly any brains and Miss Maury, who was very thoughtful in her talking, well, my mother had just been back from Italy and she had a Piranesi etching she'd left on top of the piano [that] she was going to take back to California eventually. Miss Maury comes in, perfect stranger to my mother, she looks at that and gives Mother a complete half-hour lecture on Piranesi.

[Was your mother impressed?]

Extremely—that's how I know about it. And that's the way [Maury] was with almost any subject matter that came up. It didn't have to be astronomy, she was just a cultured lady in everything except personal appearance. Yes, I'm very fond of her. You know you wouldn't jest about her or laugh about it if you didn't love her.

[In the introduction Pickering wrote to Maury's catalogue, it seems he wanted to distance himself from her work, compared to Cannon. It was obvious who his favorites were.]

But you know, Miss Maury, it was 1948, was given the Annie J. Cannon award. I thought that was sad, because here was her arch-rival. She wouldn't have looked upon [Cannon] as a rival, but that's exactly what she was. Here an extremely original brilliant person being honored by her chief rival who had achieved fame only by doing the same thing over and over and over again. Of course we all loved Miss Cannon. You couldn't help that—she was a charming person, so gracious and always interested in people. But such a contrast.

[How true is the story about how Mrs. Fleming got hired?]

I got the story largely through, orally through Margaret Harwood, so it makes a good story, and I think it's true enough. It may have been embellished somewhat, because I think Margaret had a tendency to accentuate matters.

[KL note: That's exactly how it ended—we were running against time constraints and I just got in as many last minute queries about HCO gossip as I could.]

NOTES