

STATUS

The Committee on the Status of Women in Astronomy - American Astronomical Society

JANUARY 1991

The Zonta Amelia Earhart Fellowship Awards

All of you who are female graduate students or who are advising female graduate students should be aware of the Zonta Amelia Earhart Fellowship Awards for graduate study in aerospace-related science and engineering. The awards are given by the Zonta International Foundation in honor of Amelia Earhart, who was a member of Zonta International from 1928 until her disappearance in 1937. Zonta International is a service organization of business and professional women with over 900 clubs in close to 50 countries.

The first Amelia Earhart award for \$500 was given in 1940. Awards are now \$6000 and are given to 40 students each year. Grants may be used at any institution offering fully accredited graduate courses and degrees in aerospace related science and engineering. Aerospace is fairly broadly interpreted, and past awardees have worked in many fields, including nuclear astrophysics, galactic structure, designing experimental techniques to study stars, solar-terrestrial relationships to understand weather patterns, and cosmochemistry. Each recipient receives a certificate, Zonta wings pin, and an Amelia Earhart Medal in addition to the money. These are usually presented at a Regional Zonta meeting. The \$6000 is given in two installments, and may be used for any expenses you need help with. There are no age limits, which makes this award one of the few fellowships available to older students returning to graduate study.

After the recent awards announced in May 1990, a total of 589 awards have been given to 367 different women from 44 different countries. Many awardees have received the award two or three times. Application materials are due by December 31 each year and the awards are announced on or before May 1. Application materials and information may be obtained from:

Zonta International Foundation
557 West Randolph Street
Chicago, IL 60606-2284 (312) 930-5848

Research-in-Progress Database on Women

Enclosed with this newsletter is a worksheet distributed by the National Council for Research on Women. This database has been developed by the Council in collaboration with Radcliffe's Schlesinger Library and the Research Libraries Group. It is the first national online database of research-in-progress about women.

The Council is asking both scholars and graduate students to fill out the database worksheets, which may be duplicated. If you have questions or need additional copies of the worksheet, please contact Debra Schultz at (212) 570-5004.

Women Astronomers at Yale Through 1968

by E. Dorrit Hoffleit

In a strictly men's university it is hardly surprising that women astronomers played no role until the last decade of the nineteenth century. At the women's colleges, on the other hand, young women were trained in astronomy often better than the undergraduate men at the more research oriented men's universities. Matthew Vassar opened his Female College in 1865 equipped with a 12-

inch refracting telescope, and hired Maria Mitchell, America's first woman astronomer, a lady from Nantucket Island initially trained by her father, then mostly self-educated. She proved to be an excellent and stimulating teacher. Several women followed in her footsteps and also became famous astronomers. Other women's colleges followed suit. But jobs for these well trained women were hard to find. Unless they obtained employment teaching in a women's college, other opportunities were seldom open to them.

MARGARETTA PALMER, Vassar 1887, became an assistant to H.A. Newton at Yale in 1889, and in 1892 was one of the first women in any field admitted to the graduate school, earning in 1894 the first Ph.D. in astronomy ever awarded to a woman. She was an expert in the computation of the orbits of comets. Her first publication, her thesis, was on the comet discovered by Maria Mitchell in 1847, the comet that capitulated Maria Mitchell to international fame. She then computed numerous other orbits. However, as was so typical of women's work in astronomy, she was assigned a highly routine but necessary task. Under the direction of W.L. Elkin, H.A. Newton's sister Miss J.S. Newton had in 1897 begun an index of all available sources on the precise positions of nearly 460,000 stars north of -23 degrees in the Bonner Durchmusterung and its southern supplement. This massive undertaking, a forerunner to the German *Geschichte des Fixsternhimmels*, was turned over to Miss Palmer under whom Miss Newton continued to collaborate. The Yale compilation was never published but for many years Miss Palmer provided (on request) other astronomers with the data they needed on any specified star.

With the perfection of dry-plate celestial photography by the early 1880s other observatories, particularly Harvard under the direction of Professor E.C. Pickering, obtained hundreds of plates showing vast numbers of faint stars. Thus the need arose for assistants to examine the plates, measure the positions and magnitudes of the stars, search for variable stars, study stellar spectra, etc. Especially at Harvard College Observatory this opened the door to many aspiring young women astronomers. There, from 1880 to 1900 no less than 26 women were employed to aid in computations and plate measurements. In this interval Yale had employed only the Misses Palmer and Newton. Photography was not yet an important asset to Yale astronomy. Indeed it did not play an important role (except in meteor photography) until Frank Schlesinger became the director in 1920. Then Schlesinger valued the services of women, not for fundamental original research, but for carrying out meticulously accurate measurements and computations according to his own precepts. IDA BARNEY (Yale Ph.D. in mathematics, 1911) and LOUISE JENKINS exactly fulfilled Schlesinger's preconceptions of what women in astronomy should do, beliefs in complete agreement with those of Pickering. The famous work of Annie J. Cannon at Harvard was after all largely routine, as was Miss Barney's determination of the proper motions of about 150,000 stars. All this work required complete understanding of what was involved in their assignments: knowledge, ability, intelligence, and especially innovations; at best they made minor improvements based on practical (not theoretical) experience.

In 1924 Schlesinger, with the assistance of Margarett Palmer and Alice Pond had compiled the first General Catalogue of Stellar Parallaxes. Miss Jenkins collaborated in his second edition in 1935, and was the sole author of the third edition in 1952 and a Supplement in 1963. Until a new parallax catalogue by W. van Altena comes out in about 1991, Jenkins is still the one most often consulted. She also measured the parallaxes of many stars, again according to Schlesinger's precepts; was co-author of Schlesinger's second edition of the Catalogue of Bright Stars; and acted as both the observatory librarian and executive secretary to the department.

In 1956 I became successor to Miss Barney to take charge of the zone catalogue work for the determination of the proper motions of southern stars; but I also inherited the up-dating of the Catalogue of Bright Stars; and for a time had charge of the departmental library when it was moved from the old observatory on Canner Street to its new location at 135 Prospect Street; and I shared in some of the teaching.

Dr. Brouwer, who was chairman of the search committee for a new Director of the Nantucket Maria Mitchell Observatory, found that the small observatory had funding sufficient for only a half-yearly appointment. Hence he hired me for the months November through April at Yale, while Nantucket employed me May through October to specialize on variable stars. At Yale I was expected to do the standard woman-astronomer routine jobs while at Nantucket I enjoyed freedom of choice. There I inaugurated a summer research participation-training program on variable stars for women students, mainly undergraduates. Later this program was made co-educational when vital government grants would be in jeopardy if we discriminated against men, and we were finally provided with more than one dormitory room for the students.

Sharing joint appointments between the Yale and the Maria Mitchell Observatories paid dividends for both institutions. During my tenure at Nantucket (1957-78) three Yale students participated in the program: Jocelyn Gill (1957), Susan Hess (1966), and Harriet Dinerstein (1973). Four Maria Mitchell participants found temporary employment at the Yale Department of Astronomy: Nancy Gregg (Y 1968, N 1969), Barbara Hatfield (Y 1971, N 1972), Wendy Whiting (N 1978, Y 1980-1981), and especially Katherine Wood Paranya (N 1966, Y 1968-1970), an expert computer programmer and co-author of my research on common proper motion stars.

Schlesinger enjoyed cooperation with the astronomy department at Columbia University for his work on the Yale Zone Catalogues. There Sarah J. Hill, Columbia Ph.D., assisted Jan Schildt in the determination of magnitudes for the stars in some of the Yale zones. Later, Brouwer and Wallace Eckert at IBM collaborated extensively on numerous projects. Eckert designed and built a semi-automatic plate measuring machine for measuring the coordinates of stars in the Yale zones. This machine was first used by Rebecca B. Jones (former assistant at Lick and Harvard) for measuring the plates for Miss Barney's final catalogues. Then Mrs. Dorothy Eckert assisted by Mrs. Meredith B. Weddle, (Maria Mitchell Observatory participant 1960) measured the plates for the southern zone -40 to -50 degrees.

During Schlesinger's directorship no Ph.D. in astronomy was awarded a woman. The first after 1894 was earned by Sandra Schwartz in 1956 for a thesis in astrophysics written under the guidance of Rupert Wildt. Jocelyn R. Gill in 1959 received her degree for work in celestial mechanics under the direction of Dirk Brouwer, and Carol A. Williams in 1967, also in celestial mechanics, initially under Brouwer's and finally, after Brouwer's death in 1963, under Gerald Clemence's direction.

In all generations professional women have complained about discrimination, both in rank and in salary relative to the men of similar ability and education. During the Great Depression (1929) such discrimination actually proved a blessing in disguise in some quarters. For example, Harlow Shapley at Harvard College Observatory could hire two women for the price of one man. We women therefore kept our beloved jobs while few men could be afforded.

Letters to the Editor

Dear Dr. Eastwood:

I would like to call the attention of your readers to a job opening as Director of the Maria Mitchell Observatory on the island of Nantucket, Massachusetts. After 11 years of dedicated service, the current Director, Emilia Belserene, is planning to retire, if possible as early as fall of 1991. Under her leadership the Observatory has developed new directions in variable star research, including active participation in observations with remote Automated Photoelectric Telescopes in Arizona and California; at home in Nantucket she presided over the construction of a new wing of the Observatory to house data reduction facilities, including computers with links to larger mainland facilities. And the photographic plate collection continues to grow, aided by undergraduate students who come to Nantucket during the summer months to learn about astronomy by making and

analyzing variable star observations. As a result of Dr. Belserene's efforts, there are real opportunities for a new Director to build on the foundations developed by her and by her predecessor, Dr. Dorrit Hoffleit.

The Maria Mitchell Observatory is a modest establishment, as research observatories go, but its goals give it an importance transcending that suggested simply by the aperture of its instruments. Namely, in addition to carrying on significant research in its own right, the Observatory seeks to stimulate interest and career growth in astronomy through hands-on research by young women and men using its telescopes. This goal derives from the astronomer Maria Mitchell's strong commitment to education and the advancement of women in science. Research activities center around a summer program in which about six undergraduate students come to Nantucket to work with the Director (traditionally in the area of variable star research). However, the annual research program is expected to be lengthier, and in fact can extend nearly year-round depending on the circumstances of the appointment worked out with the Director. It is an increasingly poorly-kept secret that Nantucket is a delightful place year-round, and not just in the summer.

Some of your readers may wish to know more about Nantucket. The town itself is located on Nantucket Island about 30 miles off the coast of Cape Cod, which in turn is about 75 miles from Boston. Nantucket was a major whaling port in the 18th century (and has successfully retained the flavor of that era), and now is a lively year-round community of some 7000 inhabitants, with a much larger summer population attracted by the beaches and rolling moors (a large fraction of the island is conservation land). The community has modern schools, a hospital, and a level of cultural activities and other amenities unusual for a small town. Boston and other mainland communities are easily accessible by air or ferry. The main facilities of the Observatory are located in the town of Nantucket itself. Adjacent to the Observatory is a Director's Residence, which is provided as part of the position.

Because of the Maria Mitchell Observatory's longstanding interest in providing opportunities for young women in astronomy (although young men also play an active role in the program today), it seemed appropriate to mention this opportunity in the STATUS Newsletter. Some additional information is provided in a posting in the current AAS Job Register. However, I hope that if any of your readers wish to explore this opportunity further, they will contact me for further information. Applications (including names of at least three references and a statement of personal goals for the position) should be received at my office by February 15, 1991.

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Cambridge MA 02138

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