

MENTORED BY STARS

A life in science
thanks to
the Maria Mitchell Association

Frances Ruley Karttunen



MARIA MITCHELL OBSERVATORY
Hundredth Anniversary
1908-2008



First mentor to us all.
Maria Mitchell (1818-1889)
with her sisters

Maria Mitchell

Astronomer

First librarian at the Nantucket Atheneum

Her own Nantucket observatory on the Coffin School grounds

Published observations of the variable star Algol

Long association with Harvard College Observatory

Professor of Astronomy at Vassar College

Mentored students

Employed as a “computer” for the *American Nautical Almanac*

Active in professional organizations

World traveler

Awarded a gold medal by the King of Denmark

Elected to the American Academy of Arts and Sciences

Remained unmarried

Devoted aunt to many children

Active in astronomy nearly to the end of her life

Lived to the age of 70



MY THREE MARIA MITCHELL ASSOCIATION MENTORS
A HALF CENTURY AGO:

Margaret Harwood

Eileen McGrath

Dorrit Hoffleit

EACH ONE OF THEM A STAR IN HER OWN RIGHT.



Margaret Harwood (1885-1979)

A. B. Radcliffe College 1907, M. A. University of California 1916
Director of the Maria Mitchell Observatory 1916-1957



Eileen McGrath, b. 1923

A.B. Radcliffe College 1945, Sc.M. Brown University 1963

Assistant Librarian, Maria Mitchell Library 1952-1959

Director, Maria Mitchell Natural Science Department 1966-1983



Dorrit Hoffleit (1907-2007)

A.B. Radcliffe 1928, M. A. Radcliffe 1932, Ph.D. Radcliffe 1938
Director of the Maria Mitchell Observatory 1957-1978

Fifty Years Ago at the Maria Mitchell Observatory

- ❖ People gathered to watch Sputnik pass overhead.
- ❖ Margaret Harwood had retired.
- ❖ Dorrit Hoffleit had taken up the directorship of the observatory.
- ❖ Eileen McGrath gave constellation talks on observatory open nights.
- ❖ In June the AAVSO held its first meeting on Nantucket since 1926.
- ❖ I was launched on the path to a life in science.



Frances Ruley with U. S. Navy Lieutenant Richard Rodin and his telescope at a Nantucket High School assembly

Margaret Harwood

Radcliffe woman

Astronomer

Director of MMO

Studied variable stars

Long association with Harvard College Observatory

Taught at MIT during World War II

Mentored students

Active in professional organizations

World traveler

Awarded a Graduate Chapter Medal by Radcliffe College

Remained unmarried

Devoted aunt to many children

Remained active in astronomy nearly to the end of her life

Lived to the age of 93

Dorrit Hoffleit

Radcliffe woman

Astronomer

Director of MMO

Studied variable stars

Long association with Harvard College Observatory

Plotted missile trajectories during World War II

Mentored students

Maria Mitchell Association Women in Science Award

1997

Active in professional organizations

World traveler

Remained unmarried

Devoted aunt to many children

Remained active in astronomy to the end of her life

Lived to the age of 100

Margaret Harwood

Red Cross home service worker 1918-1922
Trustee of the Nantucket Cottage Hospital 1925-1927
President of the Coffin School Association 1935-1937
Member of the Nantucket School Committee 1936-1940
Helped Boy Scouts earn merit badges in astronomy
Taught adult education courses in celestial navigation

Dorrit Hoffleit

Assumed the work of male astronomers who went to work for the government
during World War II
Developed an MMO research program for undergraduate women from
mainland colleges
Wrote biographical papers about women astronomers
Wrote an autobiography titled *Misfortunes as Blessings in Disguise*

Like Maria Mitchell before them,
both Margaret Harwood and Dorrit Hoffleit

- ❖ Remained unmarried
- ❖ Devoted prodigious amounts of time to painstaking measurement in the service of science
- ❖ Received less remuneration for their work than their male colleagues
- ❖ Mentored younger women striving against the odds for careers in astronomy

Eileen McGrath

Radcliffe woman

Biologist

Career teacher at the Lincoln School, Providence, RI

Assistant librarian at the Maria Mitchell Library

Director of Natural Science Department of the MMA

Gave constellation talks to visitors to MMO

Mentored students

Maria Mitchell Association Women in Science Award 1997

Active in professional organizations

World traveler

Remained unmarried

Devoted aunt to many children

Upon retirement returned home to work at the Nantucket

Atheneum

Despite temperamental differences,
Margaret, Eileen, and Dorrit
all shared in directing me,
a Nantucket High School girl,
toward a career in science.

- ❖ I was set to work for Eileen at the library.
- ❖ I learned the northern hemisphere constellations from Eileen.
- ❖ I was a volunteer on observatory open nights.

Margaret sent me to Radcliffe College for an interview while I was still in my junior year at NHS.



During my freshman year at Radcliffe,
I took an astronomy course with William Liller
and participated in a freshman seminar
directed by Donald Menzel.



After my freshman year at Radcliffe,
Dorrit had me put on the program
of the 1961 meeting of the American Astronomical Society.

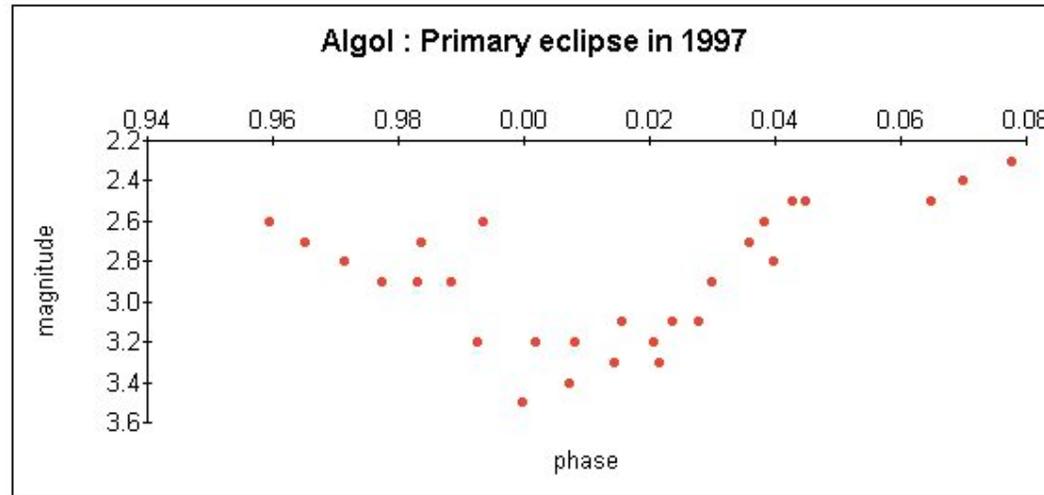


The AAS met at Nantucket's Sea Cliff Inn June 18-21, 1961.

Dorrit Hoffleit organized the local program.

Margaret Harwood, as Director Emerita of the MMO,
was a featured speaker.

I was nineteen years old when I gave my first public presentation at a professional meeting. The topic was my photo-electric observations of Algol.



Obstacles I had to overcome to get to that moment:

- ❖ From age 12 to 18 I had been caregiver, with little assistance, for my mother, who was disabled from multiple sclerosis--a situation similar to Maria Mitchell's during the period 1855-1861 when she cared for her ailing mother Lydia Coleman Mitchell.
- ❖ During our junior and senior years at NHS, my class had endured abysmal math instruction.
- ❖ The only funds available to pay for college were my savings from work and scholarships I managed to earn.
- ❖ I was worried about the sacrifices that women made in order to have a life in science.

Nonetheless, yet more mentors had worked on my behalf.

In 1958 John Ruiz, an amateur astronomer adept at photoelectric photometry of variable stars, had come to Nantucket with equipment for me to carry out an exercise in observations of Algol.



My NHS physics teacher, Robert Sziklas, worked with me to keep the finicky equipment operational.

On the same 1958 visit John Ruiz made a gift to the MMO of a six-inch reflecting telescope that he and his late wife had built.

Edward Hillis, a high school student from New Jersey and volunteer at MMO open nights, used the Ruiz reflector for sunspot observations and demonstrations

He also served as Eileen McGrath's assistant, preparing slides for her presentations.

Throughout two straight years after the Ruiz gift, viewing weather was unusually poor, but we all did the best we could.

Despite these many advantages, I was struggling with astronomy and on the verge of disappointing my mentors.

An event at the 1961 AAS meeting set me on a new and more successful course.

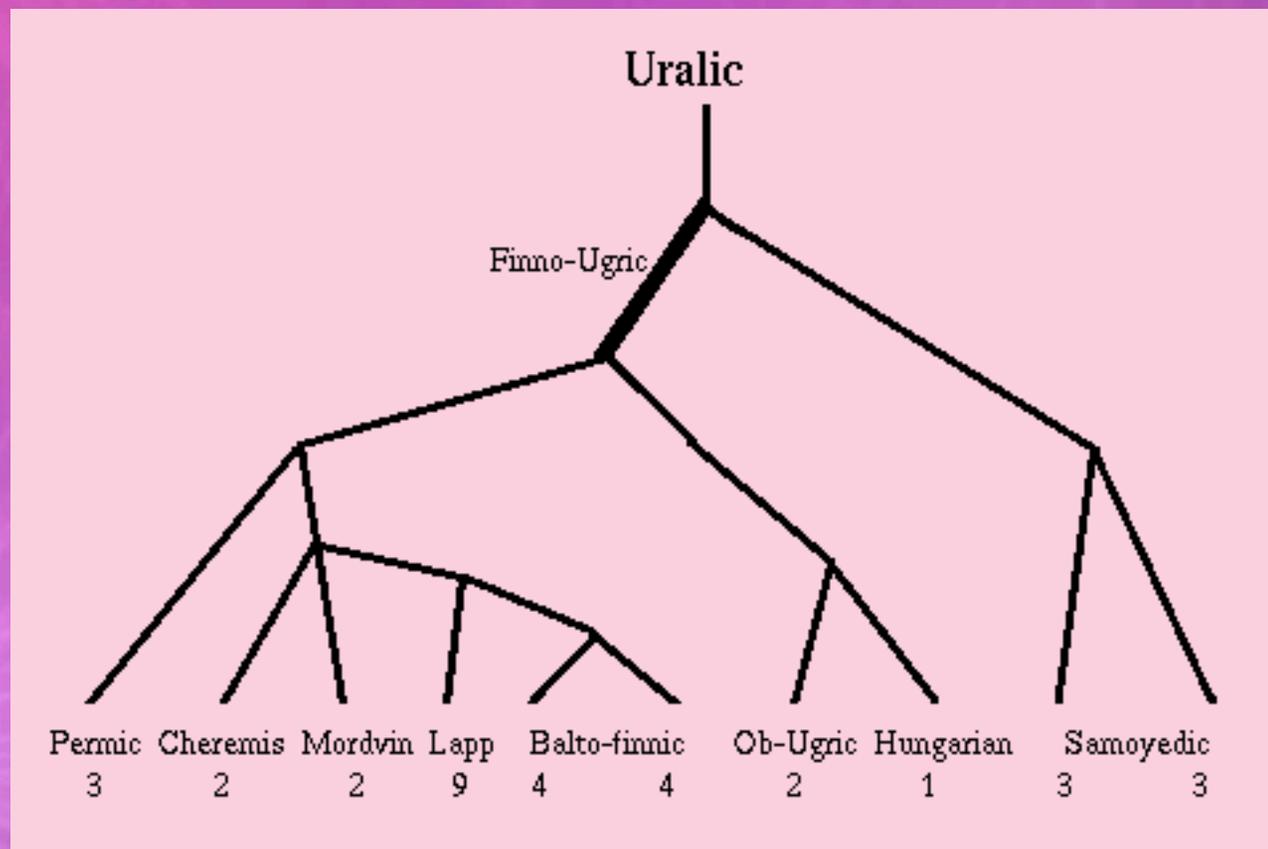
At the meeting, Professor Liller showed slides from the trip to Samarkand that had been arranged for astronomers after the 1958 International Astronomical Union meeting in Moscow.



His photos of the tiled mosques of Uzbekistan inspired in me an ambition to forge a career for myself that would take me to Central Asia. I aspired to someday visit Samarkand and Ulan Bator.

It was clear that my talent was not for astronomy, but for languages.

Moreover, my passion was not for foreign-language literature, but for the underlying formal structure and the inter-relatedness of languages.



In the summer of 1965 I served an apprenticeship in linguistic fieldwork with Professor Pertti Virtaranta of the University of Helsinki.



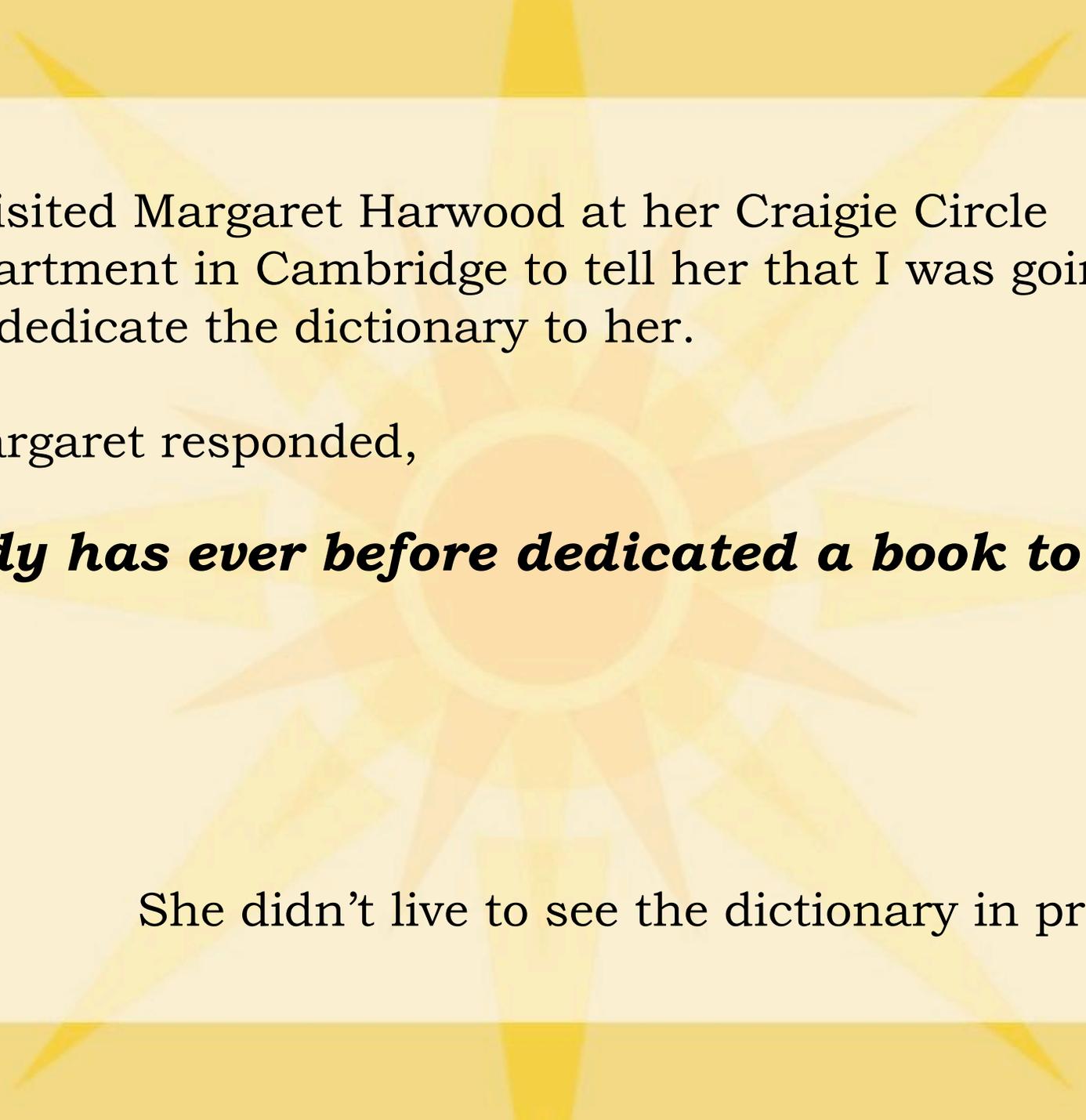
I earned graduate degrees in linguistics, concentrating in Uralic and Altaic languages.



Then I expanded my research to Mexican Indian languages.

In 1978 I received a grant from the NSF to compile a modern dictionary of the language spoken by the Aztecs and their living descendants.





I visited Margaret Harwood at her Craigie Circle apartment in Cambridge to tell her that I was going to dedicate the dictionary to her.

Margaret responded,

“Nobody has ever before dedicated a book to me.”

She didn't live to see the dictionary in print.

TO MARGARET HARWOOD

1885-1979

Radcliffe '07

Frances Ruley Karttunen

Radcliffe woman

Linguist

Carried out observations of the variable star Algol

Short association with Harvard College Observatory

Research Scientist at the University of Texas at Austin

Bicentennial Fulbright Professor at the University of Helsinki

Program Director for Linguistics at NSF

Mentored students

Active in professional organizations

World traveler

Married to environmental historian Alfred W. Crosby

One daughter with M.D. and Ph.D. in molecular biology

One daughter a software engineer and community activist

Aim to write more books and dedicate them to more people



So today,
before this audience,
in this centennial year of the Maria Mitchell Observatory

A HEARTFELT THANKS TO YOU ALL

MARIA MITCHELL

MARGARET HARWOOD

EILEEN MCGRATH

DORRIT HOFFLEIT



AD ASTRA

Photos courtesy of
the Nantucket Historical Association
the Radcliffe Archives
the Lincoln School
Bill Haddon