

OVERVIEW OF THE HISTORY OF WOMEN AT SCRIPPS INSTITUTION OF OCEANOGRAPHY

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In 1963 UCSD Professor of Physics Maria Mayer became the first American woman to win a Nobel Prize in Physics. The *San Diego Evening Tribune* headline was "San Diego Mother Wins Nobel Physics Prize."¹ Maria Meyer's achievement and the mixed message of the headline combine to make UCSD a very interesting place to study the history of women in science. That history starts down the hill at the Scripps Institution of Oceanography.

The history of women in science at the Scripps Institution of Oceanography is consistent with the history of women in science in the United States described in the work of historian Margaret Rossiter², although there are also some interesting differences. Broadly speaking, Rossiter notes that women in the 1890's could get scientific training in the United States, especially in private east coast women's colleges, but suffered discrimination in employment. While women were entirely excluded from some fields, other disciplines were seen as particularly appropriate to women. Astronomy offered more opportunities for women than physics, for instance. Women scientists found their professional opportunities especially limited immediately following World War II. Beginning in the 1960's opportunities expanded for women in science, and policies that discriminated against women were eliminated at many American academic institutions.

Women played key roles in the founding of the Scripps Institution of Oceanography and women were accepted as graduate students at SIO from the date of its founding in 1903. I attribute this acceptance of women to the character of its Scripps' first director, William E. Ritter and his wife, physician Mary Bennett Ritter. The endowment that founded the Scripps Institution was provided by Ellen Browning Scripps, whose broad intellectual interests included biology, women's suffrage, women's education and journalism. It is significant that Scripps was founded in the progressive era by individuals who described themselves as progressive republicans. Let's take a moment to look closely at Mary Ritter.

The Ritters were California progressives who lived in Berkeley before their move to La Jolla in 1909. Dr. Mary Bennett Ritter shared an interest in women's education with University of California Regent and philanthropist Phoebe Hearst. In 1891, a group of women students at Berkeley approached Dr. Ritter to ask her to give them free medical examinations, a prerequisite set by the university for use by women of the gymnasium. Physicals were not required for the men who used the gymnasium. "I sometimes felt as if the masculine powers-that-be thought that women were made of glass," Ritter noted in her autobiography³. Ritter provided medical examinations gratis to women students for several years until Mrs. Hearst arranged for Dr. Ritter to be appointed the first regular medical examiner for women at the University of California. Hearst paid Ritter's salary to ensure that women students had the same access to care as the men.

¹*San Diego Evening Tribune*, Tuesday, November 5, 1963, page 1.

²Rossiter, Margaret W. *Women Scientists in America: Struggles and Strategies to 1940*. Baltimore : Johns Hopkins University Press, 1982; Rossiter, Margaret W. *Women Scientists in America: Before Affirmative Action, 1940-1972*. Baltimore : Johns Hopkins University Press, 1995.

³Ritter, Mary. *More than Gold in California*. Berkeley: Privately Printed, 1933, 202.

Hearst and Ritter were concerned about women students living in off campus boarding houses. It was at the Ritter residence in Berkeley in 1900 that a group of women students founded the Prytanean Society, an organization of women students in their junior and senior years established to create cooperative residences. The society named its first dormitory Mary Bennett Ritter Hall in her honor. The University of California acknowledged Dr. Ritter's work as unofficial first dean of women when it conferred an honorary doctorate upon her on May 18, 1935.

Mary Ritter was an advocate for women's education in La Jolla as she had been at Berkeley. Graduate students and visiting scientists at Scripps included Alice Robertson, later chair of the biology department at Wellesley College, and Edna Watson Bailey, later professor of education at Berkeley.⁴

Scripps conferred the first doctoral degree for oceanography given to an American woman to Easter Ellen Cupp in 1934. This was quite progressive for the times. By contrast, the University of Washington School of Oceanography accepted no women before 1940.

Dr. Cupp was born March 30, 1904. She received an A.B. degree from Whittier College in 1926, and her M.A. degree in zoology from the University of California, Berkeley in 1928. Cupp worked on plankton with SIO Professor W.E. Allen and remained at Scripps after completing her doctorate. Her book, *Marine Plankton Diatoms of the West Coast of North America* (UC Press, 1943) was a significant contribution to the field. She was consequently surprised when SIO Director Harald Sverdrup told her in 1939 that she should seek employment elsewhere. Sverdrup's reason was that the scientific program was moving away from traditional taxonomy and that SIO should not encourage postdocs to remain at the institution indefinitely. Cupp worked briefly for the navy and spent the remaining 24 years of her career teaching science at Woodrow Wilson Middle School in City Heights.

Cupp's colleagues, Eugene and Katherine LaFond, have suggested that Harald Sverdrup did not renew Cupp's contract because he had "a European attitude" toward women in science. They suggest that he thought that Scripps scientists, and oceanographers in general, would be perceived as more professional if they were uniformly male. Certainly, the reasons Sverdrup gave to Cupp do not ring true.⁵

While Cupp's experience suggests that the attitude toward women scientists at SIO changed between 1903 and 1936, anecdotal evidence is not sufficient by itself to prove this. We must look more deeply into the institutional records of Scripps to place the careers of women scientists in the context of their time. Let's examine an example of an institutional policy that discriminated against women to see if we can learn why such policies were made, how they were enforced, and how long they lasted.

Before World War II, Scripps was a small oceanographic field station with only a few vessels capable of only coastal expeditions. Before World War II women students and scientists went to sea on SIO vessels, usually just for day long cruises. Ships logs record who was on what cruise, but the only prerequisite to going on a cruise was a recent physical. During the war, SIO vessels were used for navy contract work and wartime security regulations severely limited access to these vessels. During the war, a number of clearances and forms had to be filed with the Navy in San Diego to go out even on a coastal cruise. Cruises had to have some military purpose in order to justify the expenditure of fuel. After the war, SIO acquired a large fleet of mostly retired naval vessels that could cruise the deep Pacific for months at a time, and each individual going to sea had to fill out forms of identity, indemnity and physical health.

⁴SIO Archives holds Mary Ritter's diaries dated 1919-1937, her correspondence with Phoebe Hearst is at Bancroft Library, University of California, Berkeley.

⁵Taxonomists continued to be employed at SIO. Sverdrup personally recruited Carl Hubbs, who described himself as a naturalist and ichthyologist, in 1944. Other doctoral students, such as Roger Revelle, Walter Munk and Richard Fleming were encouraged by Sverdrup to stay on at SIO after completing their degrees.

The low point for women at Scripps came in 1949 when SIO issued a policy on visitors on SIO vessels. Citing safety concerns, SIO Director Carl Eckart requested the superintendent of the fleet to make a new policy on women on SIO vessels. The new policy, drafted April 5, 1949, stated that women could not take passage on overnight cruises and had to have permission from a department head and appropriate security clearances to go on daytime cruises.⁶ This policy severely limited the opportunity of women to participate in oceanographic research.

The SIO 1949 policy on women on ships was a policy unique to Scripps, but consistent with the practice of other American oceanographic institutions. For instance, Dr. Mary Sears, the Woods Hole oceanographer, became editor of *Journal of Marine Research* in part because she was not allowed to go to sea on WHOI vessels. The 1949 policy on women on ships was not the only university policy that discriminated against women. Like other American universities, the University of California had a nepotism rule that prevented the employment of relatives in the same department. Rossiter has shown that nepotism rules had a devastating effect on the employment of women in science. It had an effect on women scientists at Scripps, too. Let me give you one example from Scripps in the 1940's.

Laura Clark Hubbs was born in 1893. She received a master's degree in mathematics from Stanford in 1916, and in 1918 she married Carl Leavitt Hubbs, a fellow student and ichthyologist. She assisted him throughout his very distinguished career, first at the University of Michigan as a "cataloger" paid \$900 per year and, after 1944, at the Scripps Institution of Oceanography where she was paid nothing. The University of California nepotism rules at the time forbade her employment.

Laura Hubbs worked beside her husband in the laboratory at Scripps 8-10 hours daily for thirty-five years. She cataloged her husband's scientific library, she assisted in collecting specimens in the field, she preserved and cataloged those specimens, she did all of the statistical analysis for his taxonomic work and compiled and plotted environmental data, she took field photographs, she kept his files, and she organized and soothed his graduate students. She was a coauthor of 16 of her husband's 787 scientific papers. It is clear that Laura Clark Hubbs had a career in science, and it is equally clear that her career was invisible.

The nepotism rule was applied at SIO, but it was not applied evenly. There was at least one woman at SIO, Katherine Gehring LaFond, who kept her marriage to a colleague secret in order to circumvent the nepotism rule. There were many other cases where a scientist was assisted in the laboratory by a female relative employed by UC. So why this inconsistency? I think the simple answer is that Scripps could get away with it. La Jolla was a small place far from university administrators in Berkeley and Los Angeles. Scripps had to be flexible in order to find and keep laboratory assistants. And finally Scripps was a village; everybody knew everybody. Many people knew about the LaFond's secret marriage and just didn't talk about it. It wasn't officially "known."

The "village" atmosphere at Scripps made it difficult to enforce some rules. It was one thing to enact a regulation excluding women from oceanographic cruises, but it was another thing to tell Carl Hubbs that his wife Laura was no longer welcome aboard ship. Carl Hubbs hastened to request an exception for Laura, and she did go on overnight cruises after 1949.⁷ Laura was not the only woman to go to sea after 1949, there were other exceptions. So even when blatantly discriminatory university regulations were enacted, they weren't entirely successful in excluding women from science at Scripps.

⁶Records of Chester Nimitz Marine Facility, Accession 86-21, Box 5, folder "G-13." SIO Archives, UCSD.

⁷Memorandum, Hubbs to Eckart, 11 April 1949, Carl Leavitt Hubbs Papers, MC 5, Box 32, f "Scripps Institution of Oceanography, Ships, 1948-1970."

This is an instance when the Scripps experience seems to deviate from the big picture as presented by Rossiter. Scripps was so small and so far from the major academic centers, that it could not afford to eliminate women entirely from its workforce and it didn't have to. A lot of little exceptions were made to keep the laboratory going, and the employment of talented women scientific workers willing to work for minimal or no wage at all was one such exception. During periods of the greatest discrimination against women in science, women had careers in science at SIO. However, they did not have status, salary or recognition equal to male scientists. They did scientific work, but they were not seen as scientists. They went to sea, but they were not seen to be there. They worked on grants, but they weren't principal investigators. Women moved into protected niche jobs where they worked under male patronage. The positive result is that women worked as scientists at SIO during the most discriminatory decades. The negative result is that they were seen as "special" "other" even "second class." This "special" status worked against them after 1960 when equal access principles eliminated privilege.

So the situation at Scripps appears to be this. Between 1903 and 1936, there were women doctoral students and visiting scientists at Scripps. They were accepted on terms of near equality with the men. A few documents in the SIO Archives suggest that the generally benign attitude toward women scientists at Scripps during the early years changed during the war. Research by UCSD historian Naomi Oreskes suggests that the reasons for this change are quite complex.⁸ Military involvement in oceanography and wartime and cold war security procedures may have been a factor in this change. Even so, Oreskes found that one entire unit at Scripps, the Bathythermograph Unit, created at SIO just after the war was administered by a woman and employed only women.

This situation changed significantly beginning in the 1960's. In 1960, SIO became part of UCSD and consequently all SIO policies, regulations, and staff classifications were reviewed. I think it is significant that UCSD came into being in the decade of the 1960's, a decade that embraced change and favored feminism. In the early 1960's equal opportunity laws barred discrimination against women in the workplace. The positive result is that SIO policies like the one barring women from ships were discarded. Women were recruited into faculty positions at SIO beginning in 1972. The negative result is that some women previously protected in special niche jobs lost those jobs and some jobs once seen as women's work were no longer seen as such. Let's look at how this changed played out.

The first administrative expression of the equal status for women within UC came in job descriptions and classifications. Jobs previously posted as "Men Only" were posted as equal opportunity positions. Job descriptions for crewmen on SIO ships before 1960 specified men only. After 1960, these jobs were posted as equal opportunity positions, and women applied for and were employed as crew. So, the first women allowed on SIO research vessels in circumstances of equality with the men were crew, not scientists. Let me give you an example.

Louise Henry was born in 1930. She had a B.S. in business administration from Ohio State University and, after an early career in sales, became a very bored clerk in the Student Activities Department at the University of California, Irvine in 1965. There she saw an advertisement for a job as a sea-going technician and data encoder on the D/V GLOMAR CHALLENGER, a drilling ship operated by the Scripps Institution of Oceanography. She applied for and got the job and worked on SIO ships from 1968 until her death in 1989. She considered herself the first crew woman on a Scripps oceanographic vessel.

Before 1960, the success of women students at Scripps depended very much on the attitude of individual faculty advisors. Some faculty members accepted women students, others did not. Carl Hubbs' students included Anita B. Smith Hall, who was accepted for doctoral candidacy in 1945, Betty Kampa who received her

⁸ Oreskes, Naomi. "Military Patronage and Women's Work in Twentieth Century Oceanography." Submitted to Historical Studies in Physical Sciences, 1999. Publication forthcoming.

doctorate in 1950 and a postdoctoral student, Eugenie Clark. His circle also included his sister in law, ichthyologist Dr. Frances Clark. SIO geologist William Menard had three women students, Tanya Atwater, Marcia McNutt and Debbie Smith. Atwater applied for and was granted ship time in 1965, effectively overturning the old policy on women aboard oceanographic vessels. However, women graduate students reported problems getting equal access to ships at late as 1970.

Women scientists at SIO have been recruited as students, faculty, research staff, on terms of equality with men since the 1960's. SIO's incoming women students generally know little about women in oceanography, because little has been written on the subject. The careers and experiences of the women who were at the beach before them -- Alice Robertson in 1904, Easter Ellen Cupp in 1934, Laura Clark Hubbs in 1944, Tanya Atwater in 1965 -- are largely unknown to them. These are the students who may visit and depend upon the services of the Women's Center during their years at UCSD and SIO. I therefore welcome this opportunity to give a brief history of women scientists at SIO to you today.