

When Organizational Histories, Anniversaries, and Women in STEM Intersect



CSHPM Notes

June 2023 (Vol. 55, No. 3)

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CSHPM Notes bring scholarly work on the history and philosophy of mathematics to the broader mathematics community. Authors are members of the Canadian Society for History and Philosophy of Mathematics (CSHPM). Comments and suggestions are welcome; they may be directed to either of the column's co-editors:

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In general, organizational and corporate histories are not well-regarded forms of historical writing. They are innately prone to pitfalls, since they are often commissioned by the organizations or corporations about whom they will be written, which can mean that the resulting studies are celebratory rather than critical and analytical. The sponsoring institution may choose an author who is not a professionally-trained historian or even look to an insider who may have knowledge not available to a scholar from outside the organization but who may also find themselves wrestling with bias.

Yet there are situations in which organizational histories can be useful to historians, where they provide an available and useful synopsis of how the organization or corporation changed over time. The writers of these histories may have utilized primary sources that are not accessible to the general public, and their bibliographic trails can provide jumping-off points for further scholarship. During the COVID-19 pandemic, as the 50th anniversary of the Association for Women in Mathematics (AWM) approached, I found myself in one of these situations. When I was invited to contribute to AWM's massive commemorative volume [6], I realized that I wanted to look at the society's history against the backdrop of other associations for women in science, technology, engineering, and medicine (STEM) [1]. It was not possible to travel around and look at physical archives, so I dug through websites, collected digitized primary sources when I could, and placed a few targeted Amazon orders. I finished the project thinking that it would be fantastic for a graduate student to do a larger version the "right" way, with actual legwork, but I also think I found evidence that sheds light on AWM's similarities to other major professional societies for women in STEM:

- Graduate Women in Science (GWIS, established in 1921);
- the Society of Woman Geographers (SWG, established in 1925);
- the Society of Women Engineers (SWE, established in 1950);
- Sociologists for Women in Society (SWS, established in 1971);
- the Association for Women in Science (AWIS, established in 1971);
- the Association for Women Geoscientists (AWG, established in 1977); and
- the Earth Science Women's Network (ESWN, established in 2002).

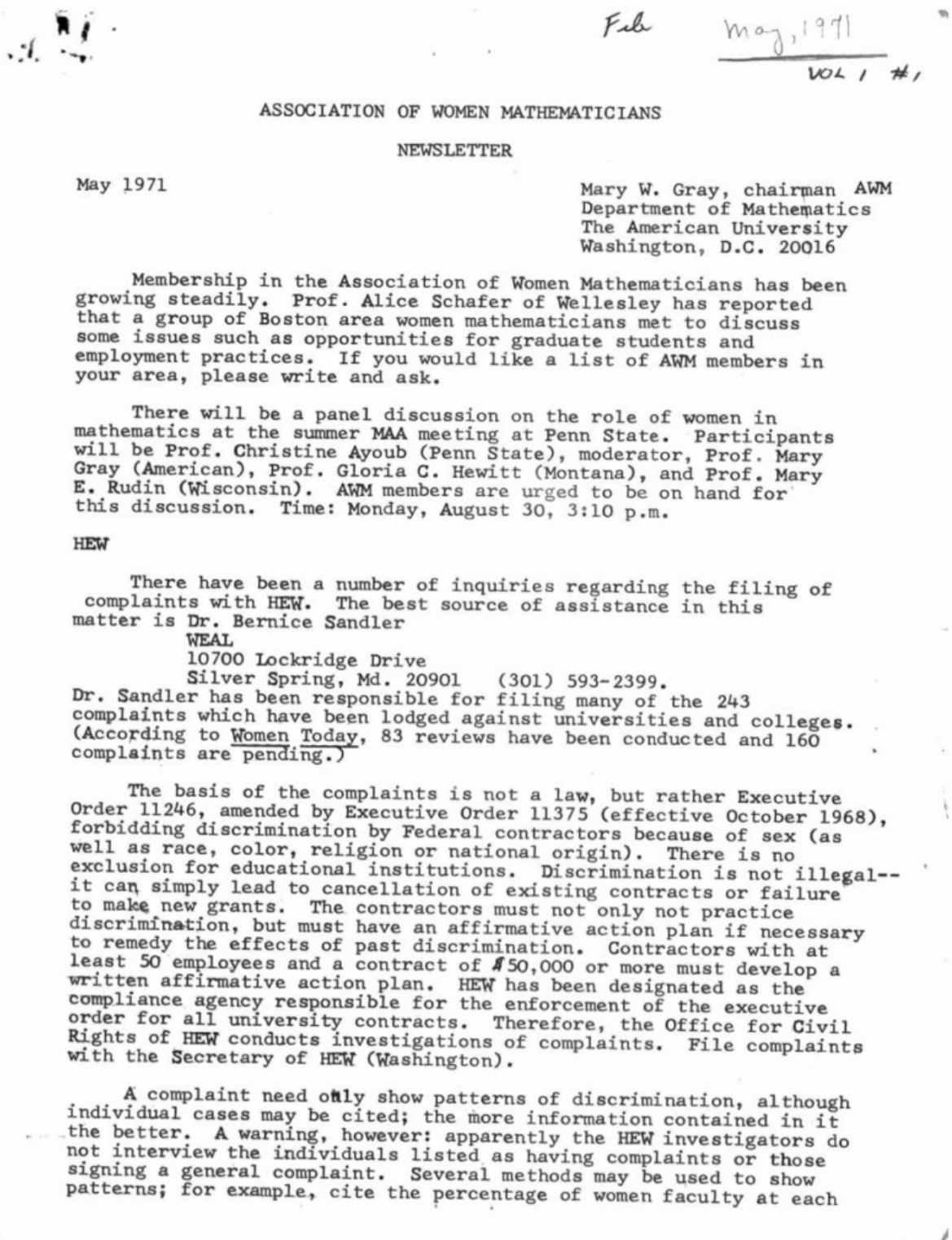
For instance, the need for camaraderie while navigating male spaces was a key motivation for each group's founders. Thus, Graduate Women in Science originated as a sorority house and honor society at Cornell University in 1921 before members shifted their focus to securing funding for graduate students [8; 11; 19, vol. 1, pp. 300–301]. In a retrospective, Margaret Mead noted that the Society of Woman Geographers came together because women were banned from New York City's Explorers Club, and she described how SWG continued to offer a good place for socializing with other professionals [10]. In the late 1960s, the women who would establish AWM met when they were comparing notes about discrimination and their lack of opportunities [7]. Even as late as 2002, the Earth Science Women's Network came about because women wanted to communicate with each other and build mentoring relationships [2].



Some members of the Society of Woman Geographers in June 1932. [History of the Society of Woman Geographers.](#)

The new organizations then engaged in a second common characteristic, collective action. For example, in 1971 AWM encouraged members to raise complaints about unequal treatment in their departments, while the Association for Women in Science went so far as to sue the National Institutes of Health to force it to commit to appointing more women to grant-review committees [4; 12]. In 1972 the Society of Women Engineers joined the Federation of Organizations of Professional Women to discuss employment equity; leaders also decided to support the Equal Rights Amendment, although backlash from some members led the Society to draw back from issuing public statements and to concentrate their efforts for the rest of the 1970s and 1980s on conducting surveys that gathered valuable data about the status of women in engineering professions [17].

Third, leaders and members intentionally set out to create professional organizations that would be afforded recognition and legitimacy by existing scientific societies. In addition to graduate training, historians of science and technology typically identify three markers of professionalization: establishing an academic association, generating publications, and holding conferences. Indeed, these societies generally undertook steps toward official incorporation, such as writing a constitution and by-laws, fairly quickly, although completing the bureaucratic processes may have stretched over several years. Conferences and publications usually came together more rapidly. Largely through the efforts of Mary Gray, AWM sent out advertisements in February 1971 and had a printed newsletter up and running in May [13]. The Society of Women Engineers also began a newsletter in its first year [21]. Sociologists for Women in Society needed twelve months to start their newsletter; by 16 years of existence they had established a formal academic journal, 1987's *Gender & Society* [16; 18].



ASSOCIATION OF WOMEN MATHEMATICIANS

NEWSLETTER

May 1971

Mary W. Gray, chairman AWM
 Department of Mathematics
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 Washington, D.C. 20016

Membership in the Association of Women Mathematicians has been growing steadily. Prof. Alice Schafer of Wellesley has reported that a group of Boston area women mathematicians met to discuss some issues such as opportunities for graduate students and employment practices. If you would like a list of AWM members in your area, please write and ask.

There will be a panel discussion on the role of women in mathematics at the summer MAA meeting at Penn State. Participants will be Prof. Christine Ayoub (Penn State), moderator, Prof. Mary Gray (American), Prof. Gloria C. Hewitt (Montana), and Prof. Mary E. Rudin (Wisconsin). AWM members are urged to be on hand for this discussion. Time: Monday, August 30, 3:10 p.m.

HEW

There have been a number of inquiries regarding the filing of complaints with HEW. The best source of assistance in this matter is Dr. Bernice Sandler

WEAL

10700 Lockridge Drive

Silver Spring, Md. 20901 (301) 593-2399.

Dr. Sandler has been responsible for filing many of the 243 complaints which have been lodged against universities and colleges. (According to Women Today, 83 reviews have been conducted and 160 complaints are pending.)

The basis of the complaints is not a law, but rather Executive Order 11246, amended by Executive Order 11375 (effective October 1968), forbidding discrimination by Federal contractors because of sex (as well as race, color, religion or national origin). There is no exclusion for educational institutions. Discrimination is not illegal-- it can simply lead to cancellation of existing contracts or failure to make new grants. The contractors must not only not practice discrimination, but must have an affirmative action plan if necessary to remedy the effects of past discrimination. Contractors with at least 50 employees and a contract of \$50,000 or more must develop a written affirmative action plan. HEW has been designated as the compliance agency responsible for the enforcement of the executive order for all university contracts. Therefore, the Office for Civil Rights of HEW conducts investigations of complaints. File complaints with the Secretary of HEW (Washington).

A complaint need only show patterns of discrimination, although individual cases may be cited; the more information contained in it the better. A warning, however: apparently the HEW investigators do not interview the individuals listed as having complaints or those signing a general complaint. Several methods may be used to show patterns; for example, cite the percentage of women faculty at each

The first page of the first issue of the AWM Newsletter. Note the emphasis on activism against employment discrimination. [AWM Newsletter Archive](#).

Similarly, most professional organizations for women in STEM began holding formal conferences nearly immediately. An especially interesting story about this marker of professionalism comes from the Society of Women Engineers. During a conference at Drexel University in 1949, the leaders of

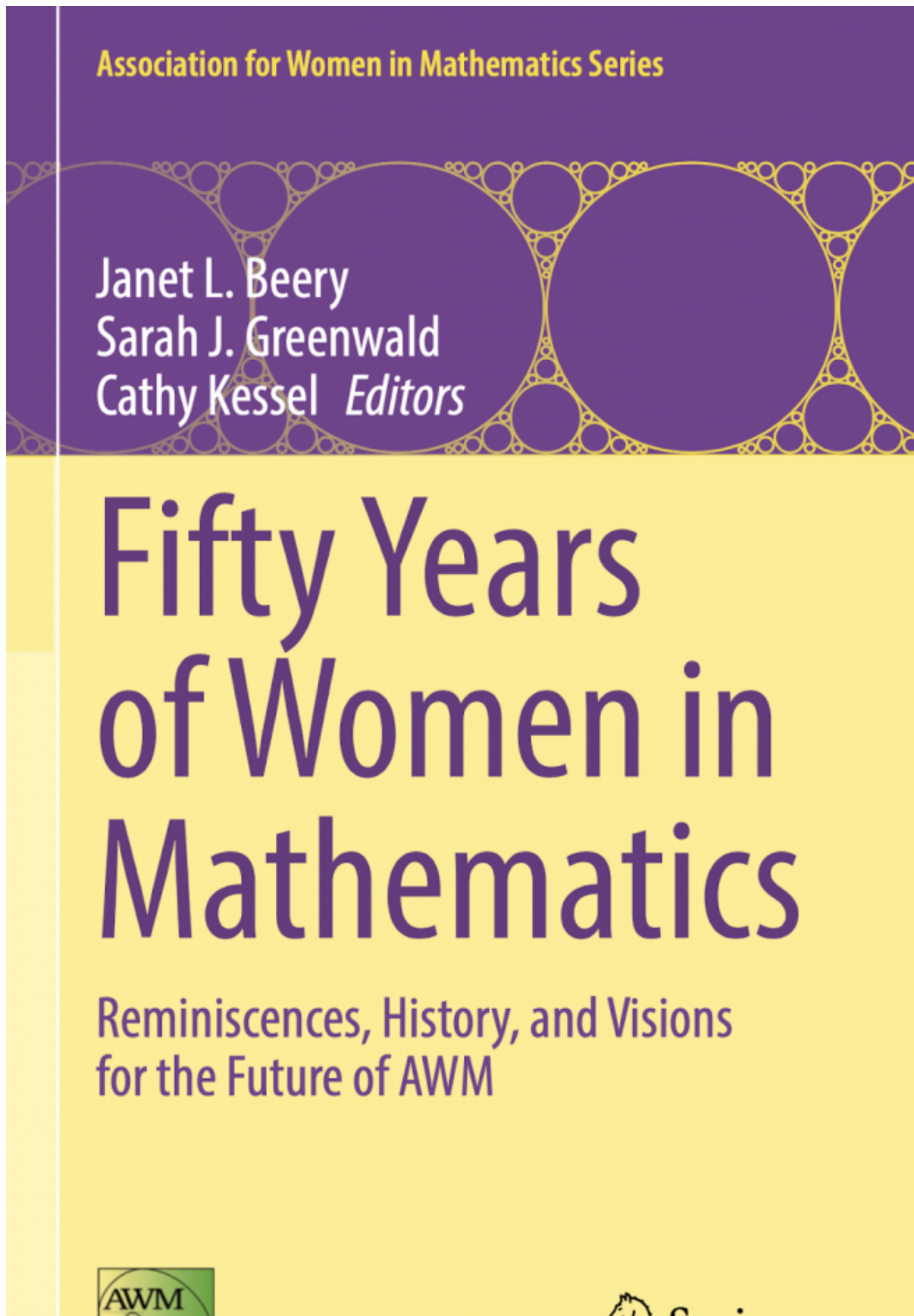
several small groups of undergraduate and graduate women engineering students agreed to combine their efforts into what would become SWE. The next year, about 50 women formally established SWE during a two-day camp for engineers at Cooper Union that they completely organized themselves—not only did they conduct all of the business, they also took care of all of the logistics, even cooking and serving the meals. For their first official annual meeting in 1951, they outsourced the more mundane tasks [17].



A photo and program from SWE's do-it-yourself conference in 1950. [SWE Stories, Tales from the Founders' Families.](#)

A final shared attribute, attention to the choice of prepositions, was especially important for the three professional societies formed in 1971. From its beginning, Sociologists **for** Women in Society intentionally chose the word “for” to welcome men as well as women. “In Society” was also significant phrasing, as the group's organizational aims addressed both the profession of sociology (“Sociologists for Women”) and wider society (“Women in Society”) [16; 18]. (See also [5] for a scholarly analysis of the choice of “in” during this time period.) AWM started out as “Association of Women in Mathematics”, but male allies provided essential encouragement and public endorsement of the society's goals even before AWM was officially formed. By September 1971, the organization had changed its name from “Association **of** Women” to “Association **for** Women,” again to signal that men were welcome to join the endeavor of promoting women in mathematics [7]. The Association **for** Women **in** Science appears not to have done much navel-gazing over its name, but the development of the Association of Women Geoscientists from a local group in the San Francisco area in 1977 to a national organization in 1981 again involved a name change from the preliminary “Association **of** Women Geoscientists” to the final “Association **for** Women Geoscientists” [3; 4; 20]. Perhaps too much can be made of a name, but it is striking that none of these societies wanted to be women-only. Rather, they associated institutional and professional strength with partnership and collaboration.

As I mentioned above, my paper was published in a doorstop of a book that itself can be seen as an example of an organizational history [6]. Its 1146 pages contain 94 chapters organized into 17 parts. The vast majority of the chapters are reminiscences by AWM members; these personal accounts not only provide information about their authors' lives, careers, and roles in AWM, but also, when read as a whole, construct an overlapping narrative of AWM's five decades and highlight other themes that appear in histories of women in STEM, such as two-body problems, employment discrimination, and the formation of intellectual communities. Chapters that may be of particular interest to Canadian mathematicians include an account of the founding of AWM from the point of view of the New Left Mathematicians Action Group, which is one of the final publications of Chandler Davis, who was a member of both CMS and CSHPM [9]. Other memoirs come from Maria M. Klawe—who earned a PhD in mathematics at the University of Alberta and a PhD in computer science at the University of Toronto, then became known for recruiting women to the institutions she served—and Barbara Lee Keyfitz—who was mentored at the University of Toronto by Davis and others, and who was simultaneously selected as director of the Fields Institute and the 17th president of AWM [14; 15]. Although various constraints on the project, including the pandemic, precluded the deep archival dive that I think my own topic deserves, I was still able to use a historian's skills to draw conclusions from the available evidence and to identify significant common factors in the development of these societies. The volume as a whole will be valuable reading for anyone interested in the history of North American women in mathematics for decades to come.





The AWM's 50th-anniversary volume. [Springer](#).

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Amy Ackerberg-Hastings finally got around to joining AWM shortly after publishing the chapter discussed in this column. She co-edits "CSHPM Notes" with Hardy Grant, co-edits MAA Convergence with Janet Heine Barnett, and researches the histories of mathematics education, mathematical instruments, and women in science and mathematics.

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Keywords: women in mathematics; history of mathematics in Canada; history of mathematics in the United States

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