

**Searching for Scientific Womanpower:
Technocratic Feminism and the Politics of National Security, 1940-1980**

Laura Micheletti Puaca (The University of North Carolina Press, 2014), 278 pp., 7 illus., notes, bibl., index.

Reviewed by R. J. A., PhD

In this crisp, well-written history, Laura Micheletti Puaca coins the term “technocratic feminism” to describe the strategy that feminist activists have used since the early 1940s—and adapted over the years—to realize goals of greater female representation in technical and scientific higher education and employment. The author begins by recounting how the mobilization of men and the militarization of science during the Second World War created unprecedented opportunities for women to contribute to US national security. In June 1941, for example, President Roosevelt established the Office of Scientific Research and Development (OSRD). Vigorously funded, the OSRD had entered into more than 2,000 contracts with 465 institutions by the end of 1945. To meet the precipitous demand for manpower, the federal government, private industry, and academia had little choice but to recruit women.

Sensing the moment, reformers like industrial engineer Lillian Moller Gilbreth and Barnard College Dean Virginia Gildersleeve worked to expand education for women in science, engineering, and mathematics.^a Other colleges and universities modified their curricula to offer “women-only” classes in physics, chemistry, and mathematics. Though more women than ever before graduated with technical degrees, Puaca also chronicles the tentative nature of their advances. Often, both government and industry relegated female wartime graduates to positions as aides and assistants, allowing men to advance to ones of greater prestige and responsibility. And once male veterans returned and invoked their rights under the GI Bill, women found themselves demoted, displaced, and dismissed.

a. Gildersleeve, a Columbia Ph.D. in English, became dean of Barnard College in 1911. She quickly set about lobbying Columbia’s professional schools to open their programs to women. The business, medical, and law schools all capitulated by 1926; only the School of Engineering held out until December 1942.

In the second chapter, Puaca notes how the Soviet Union’s detonation of a nuclear device in August 1949 underscored the seemingly perpetual need for the United States to maintain scientific and technological supremacy. Several federal agencies arose and research and development budgets again increased, this time in response to the Red Scare. But while anticommunism as an activating principle spread, so too did suspicion of feminism, which questioned traditional gender roles. Thus, seasoned activists, male fellow travelers, and younger members of the National Society of Women Engineers (SWE, established May 1950) emphasized the importance of scientifically trained women for national security, a strategy that unified them in rhetoric and purpose. Still, the SWE did continue efforts to reshape public perceptions about female engineers, publishing *Women in Engineering* (1955), a widely disseminated report that included lists of women’s scholarships, accredited engineering curricula, prerequisites for engineering programs, and statistics on female engineers.

Puaca turns to scientific womanpower during the Sputnik era in the third chapter. The Soviet Union stunned the world on 4 October 1957 by being the first nation to launch a satellite into terrestrial orbit. A month later, the USSR repeated the feat with a dog wired for medical monitoring. Both achievements implied that a human or a nuclear device might be next, shattering American confidence. Contemporary statistics suggested a better use of female scientific talent in the Soviet Union, which graduated 13,000 women engineers annually.

Although the Sputnik scare and the concomitant growth of the military-industrial complex multiplied opportunities for American women in science during the 1960s, social expectations still impeded many careers. Despite their purported technical prowess, female Soviet scientists were denigrated in this country as manly, tough, and unattractive, traits that no American woman would

willingly emulate. Further, as Puaca astutely observes, the American housewife, comfortably ensconced amidst the trappings of middle-class existence, represented an ideal of cultural superiority.

Technocratic feminists again accommodated their approach to the times, advocating for government-sponsored maternity leave, nurseries, and tax deductions for working mothers, allowing women to satisfy professional and maternal imperatives. As well, Sigma Delta Epsilon, the graduate fraternity for women in science founded in 1921, reached out to high achieving secondary school students through science fairs and career days to encourage them to pursue science and engineering majors in college.

Publication of Betty Friedan's *The Feminine Mystique*, waning support for the Vietnam War, formation of the National Organization for Women, and the Civil Rights Act of 1964 (and its establishment of the Equal Opportunity Employment Commission) allowed technocratic feminists of the late 1960s and throughout the 1970s to detach themselves from the national security agenda and frame their cause in terms of equal rights for women. Nevertheless, these second-wave activists encountered some of the same political and bureaucratic intransigence as had their forebears. For instance, Estelle Ramey, endocrinologist, professor at Georgetown University School of Medicine, and president of the Association for Women in Science (established in 1971), publicly and privately debated Edgar Berman, Hubert Humphrey's former physician and political advisor, who maintained that women were unfit for political office due to monthly hormonal imbalances.

Puaca neatly ties the efforts of 1970s technocratic feminists to those of the 1940s by pointing out that the former again invoked arguments about wasted, irreplaceable resources when discussing the continued underrepresenten-

tation of women in science and engineering. (Perhaps not coincidentally, President Nixon had proposed creation of the Environmental Protection Agency in 1970.)

Puaca ably sketches the broad historical outlines of the decades in question, providing color with anecdotes from women scientists and engineers that readers will find variously touching, humorous, and distressing. The reader's appreciation of the study – from the man-made hardships that women scientists and engineers have faced to American existential anxiety during the Sputnik era – will be enhanced by familiarity with Betty Friedan's aforementioned *The Feminine Mystique* (1963), James M. Gavin's *War and Peace in the Space Age* (1946), Hanson Weightman Baldwin's *The Great Arms Race: A Comparison of U.S. And Soviet Power Today* (1958), and Martha Ackmann's *The Mercury 13: The Untold Story of Thirteen American Women and the Dream of Space Flight* (2003).

And at least two recent events beg a sequel to Puaca's history, a continuation to the present day. First, the National Science Foundation released a study in 2012 entitled, "Stemming the Tide: Why Women Leave Engineering." Some of the findings therein, based on a survey of over 5,500 women with engineering degrees, suggest that while advances have been made, many women engineers still feel alienated, unsupported, and subject to different standards and expectations from their male colleagues. Second, Letitia Long (BA, Electrical Engineering; MS, Mechanical Engineering) retired last year as director of the National Geospatial-Intelligence Agency, leaving Betty Sapp, director of the National Reconnaissance Organization, and US Army Colonel Nichoel Brooks, commander of the National Ground Intelligence Center, as the sole females heading two of the 17 Intelligence Community agencies. Despite being history, *Searching for Scientific Womanpower* could not be more timely and relevant.

