

REVIEW

Women of Science: Righting the Record; edited by G. KASS-SIMON and PATRICIA FARNES. P. 398. Bloomington and Indianapolis, 1990 (Indiana University Press, \$39.95).—In setting out to “right the record,” this collection of essays took on an enormous task—to illuminate the roles of women in science unsung in their times. The fact that in most of the ten chapters there are familiar names, often Nobel Prize winners, or associates of the male winners, bespeaks a small and positive change in recognition of women scientists. The current acceptance of (1) women in science, and (2) individual and collective (Women’s Studies Departments) scholarship on women is due at least in part to scholarly publications, such as this one, that document the specific intellectual contributions of women and pointedly identify the lack of past acknowledgement. New names emerge with each such compendium, and as has been the case with preceding volumes of similar genre (for example, Rossiter, M. *Women Scientists in America, Struggles and Strategies to 1940*. John Hopkins University Press, Baltimore, 1982), this volume will no doubt spawn further investigations and publications that unearth and legitimize the scientific prowess and contributions of females.

Each of ten female essayists, a scientist in her own right, gives a personal historical perspective of the intellectual advances in her discipline, or sector thereof, concentrating on the accomplishments of women. Patricia Mack in “Straying from their Orbits” discusses four famous women in the Harvard astronomy department who, under Edward Charles Pickering, Director 1877–1919, collected and published vast amounts of data. An interesting aspect of this over twenty years endeavor is that a woman, widow and assistant to amateur astronomer, Henry Draper, but unnamed in this account, provided the financial backing for the projects. It is titillating to speculate whether the financial backing from a female source might have influenced the hiring of women.

For the most part the authors document the burial of the real contributions of women “because they were women.” Often married, or related, to professional men pursuing similar if not identical activities, the women archaeologists, geologists, engineers, physicists, biologists, chemists, astronomers, mathematicians, crystallographers, and medical scientists covered in this volume were considered, and probably by themselves as well, as helpmeets, not partners or equals. For example, Martha Moore Trescott in “Women in the Intellectual Development of Engineering: a Study in Persistence and Systems Thought” discusses Julia Hall, who worked with her brother, Charles M. Hall. Ms. Hall appears in this account to have been fully involved in the invention of the electrolytical production of aluminum. Further, it was her testimony that established the date of the invention, securing the patent for her retiring but much more renowned brother. He became a wealthy ALCOA stockholder while her essential contributions were not even acknowledged during his acceptance of the Perkin Medal of the American Chemical Society in 1911

nor by subsequent Charles Hall biographers, even though most of the experimental data, and the correspondence leading to his patent, were in her hand.

Pat Farnes in "Women in Medical Science" paints Florence Nightingale, pioneer for nursing careers for all women, as a more intellectual broad-based health-care professional whose contributions included statistical analysis of the health problems of populations. We might ask whether her lifelong efforts in the nineteenth century are considered as instrumental to the founding of the present-day field of epidemiology. A more recent example of the checkered careers of women in medicine is afforded by Florence Sabin, the first woman elected to the National Academy of Sciences. Cited for her outstanding scientific research, she devoted her retirement years to social and public health concerns by working for the passage of legislation on infectious disease, milk, and sewage control in Colorado (1947). Other not-so-well-known females mentioned are Cicely Williams who described kwashiorkor and Ruth Darrow who predicted that a fetal antigen, the Rh factor, would be the cause of some stillbirths.

Names familiar perhaps only to the women who graduated from Mt. Holyoke College are part of the presentation "Women in Chemistry" by Jane A. Miller. Professor Emma Perry Carr and her female associates inspired many an undergraduate. Another female institution (Hunter) graduate, Gertrude Elion, endured the most heartrending rebuffs until she finally found a job with Burroughs Wellcome where she produced 6-mercapto-purine, still the drug of choice for chemotherapy of children with acute leukemia.

The examples above are but a small selection of the women mentioned in this volume. A name index at the rear is 5¼ pages of double columns, single spaced type, and each author comments that she has merely scratched the surface! Every reader of the volume can probably think of even more names, even though it is clear to me, from my own researches attempting to identify female contributions, that the sex of an author is not obvious when initials only were (are) used in citations, first names may be misleading (for example, Lynn, Shirley), and perhaps—the most important caveat—many scientists, both men and women, will remain unsung because their works were never published or were published in limited circulation journals.

Most of the disciplines discussed have ancient lineages and in fact European roots that offer the opportunity for much more research and documentation with a feminist viewpoint. The authors have clearly had to compromise in choosing what to include and especially in attempting to document the anastomosed new branches of many sciences that mark the United States in the early part of this century. In light of such a vast literature and history, the resultant viewpoints and coverage must be idiosyncratic, but the scope and the choice of authors has insured that new perspectives and persona are presented.

Few women owned a commended stature in their fields of endeavor, especially in the United States, before the mid 1960's. Rewards, but for the exceptional very few, were usually not forthcoming. Mostly the women who "succeeded" in the past were necessary to the laboratory effort as technicians, and even though they may have far exceeded the average technicians in competency they were never given appropriate pay, advancement, or leadership opportunities. Recent "success stories" seem to come to those women whose male mentors disregarded gender when their outstanding research and papers, number and quality, could no longer be ignored in the forward motion of the field. In reading "Women in Science: Righting the Record" one can only bemoan the numbers of women who turned away at the early stages of their careers, to find other avenues for their talents instead of continuing as productive scientists.

Serious scientific scholarship by men in the United States is documented from Thomas Jefferson onward. Women of his time who had more than a casual interest in botany or other intellectual pursuits were acceptable, but it was not until the insistence in the late 19th century by Mary Lyon and others that women were able to partake of advanced education. The 20th century may be characterized as the time when the confines of household and family responsibilities began to relax and women were supported in their eagerness to exercise the same prerogatives as males. Since 1966 the political and sociological climate has allowed individuals to express the discrimination they feel. With willing and supportive confidants and allies, and in some cases legal protection, several disciplines of U.S. science have seen a dramatic increase in the numbers of women.

It remains to be seen whether the current economic downturn (world-wide) will impact disproportionately on the recent influx of women to normally male fields and research areas, especially in certain specialties of the medical profession and in engineering, and geology. In making future assessments the sheer numbers of equally educated females, whose upward mobility should not confine them to second place in any intellectual pursuit including science, should mean that there will be an increased number of women as Heads of Departments, as research group leaders, as editors of prestigious journals, elected to the National Academy of Sciences, et cetera, the expressions of equal stature for equal intellectual acumen. Is it possible that "righting the record" is an exercise, a period piece documenting a past era? Or will we be confronted with the old adage: those who are not conversant or have not read and learned the lessons presented in the essays we review here (both the scientific establishment, and the scientifically oriented women)—will they be doomed to repeat their learning? Time will tell.

H. C. W. SKINNER