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The Science Glass Ceiling: Academic Women Scientists and the Struggle to Succeed.

Sue V. Rosser, Routledge, 2004, pp 165, pbk 15.99 U.K Pounds

Reviewed by: G. Asha¹

This book is a collection of Sue Rosser's work with women scientists and engineers done over a period of six years from 1997 to 2002. It was initially intended to be published as a series of articles but then was turned into a book at the suggestion of her editors. She sent email questionnaires to about 450 select women scientists and engineers in the U.S and out of these respondents selected a smaller group of about 50 for further in depth telephone interviews. The aim of the study was to discover what issues affected the progress in their careers.

Over the past two decades several studies and conferences have tried to address the issue of women scientists and engineers. The earlier studies looked at how to get more women into the professions. But over the years as numbers at the lower levels have risen, the issues that are now being addressed deal more with problems endemic within the system which seem to be serving as stumbling blocks. Once again there are two ways of looking at this. One is the "woman as deficient" model where she is unable to keep up to the various demands of a very competitive profession. The other approach which is slowly being favored looks at problems inherent in the institutions that do science as well as the structure of the profession itself. Thus the solutions suggested are to transform the institutions rather than the individuals. Rosser's philosophy and work belongs to this second category.

Data from reliable sources show that women received 74% of BA degrees in psychology but only 19% in engineering. In computer sciences the numbers dropped from 37% in 1984 to 20% in 1998. For MS degrees they earned 72% in psychology but only 17% in engineering. For PhDs they earned 67% in psychology while only 12% in engineering. From NSF (2000) data it can be seen that only 20% of science and engineering faculty at four year colleges and universities are women; 10% of the full professors, 22% of the associate professors and 33% of the assistant professors in science and engineering at these institutions are women. 71% of men and 47% of women had tenure while at universities 75% of men and 47% of women faculty had tenure.

The above figures are illustrative of many of the problems that the book tries to address. These are the combined results of male-centered approaches in labs, practices and cultures. There are gender differences in the amount of time taken to achieve tenure, publication, productivity and receipt of prestigious awards.

Rosser selected 450 women scientists and engineers who had either received a NSF Professional Opportunities in Research and Education Award (POWRE) or a Clare Luce Booth Professorship Award. Thus to begin with these were a group of high achievers. Her survey yielded both qualitative and quantitative results all of which are recorded in great detail in the book either in tables or as quotes from individual researchers. More than 70% see balancing work and family to be their greatest hurdle. In cases where there are dual career families, the 'two-body' problem arises. This is especially true for women physicists who tend mostly to marry other physicists, very

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often in their own fields. Time management, isolation, lack of camaraderie, gaining credibility and lack of mentoring are some of the other issues cited. Some differences are seen across disciplines and years. There are also certain differences in the responses of the two groups – the POWRE awardees and the CLB Professors. Thus Rosser concludes that the problem is not individual but institutional and goes to suggest a series of institutional reforms.

We are provided a brief history of the National Science Foundation (NSF) and its attempts to address the “woman question”. In 1980, the Science and Technology Equal Opportunities Act in the U.S mandated that NSF collect and analyze data and report to Congress on a biennial basis the status of women and minorities in science and engineering. The first of these reports was published in 1982. Thus various programs to change this situation were initiated. The NSF Visiting Professorships was one of these. So were the POWRE awards. But now with a growing realization for institutional reform, NSF has put forth grants to institutions called ADVANCE grants which aim at transforming the institution to make it more open and receptive to women. This was due to “increasing recognition that the lack of women’s full participation at the senior level of academe is often a systemic consequence of academic culture.” (p. 137) Eight institutions received the first round of ADVANCE grants in 2001. These are Georgia Institute of Technology, New Mexico State University, The University of Washington, The University of Puerto Rico, Hamaca, The University of Colorado- Boulder, The University of Michigan, The University of Wisconsin- Madison and The University of California – Irvine. In 2005 about 19 institutions have already received these grants. Additionally ADVANCE chairs are to be awarded to tenured faculty in the sciences with strong academic credentials and commitment to gender equality.

While a study conducted with 450 very talented and motivated women has its value, I found it problematic to extrapolate from the conclusions derived here to the entire population of women in science and engineering. By her own admission, Rosser has not looked at other characteristics of these women e.g. race, national origin and so on. “I neither had access to nor requested information regarding race/ ethnicity, nationality, age, rank, marital or parental status although sometimes the respondent revealed these in the e-mail response or interview.” (p 2) I found this highly problematic. I did not hear of any of the women stressing the role racial harassment, xenophobia, or immigration issues played in their lives in the labs or at meetings. My own work with highly talented South Asian women in the U.S has shown that a very large number have faced harassment of various kinds. They also often get overlooked in favor of less qualified Caucasian women when it comes to receiving awards, credit for work or leading a project. The same could be said of the “two –body “problem where more often than not the assumptions are very heterosexist. I was indeed very curious as to how many non Caucasian women or non – heterosexual women received the POWRE or Clare Luce Booth awards and if the number is low, why Rosser did not speculate on it. Thus despite the value of the many conclusions derived from this study, I would propose to state that these are not exhaustive and that a more rigorous and thorough study of the entire population reflecting its diversity needs to be conducted before the NSF can bring about institutional transformations which would be effective for all women and not just a few privileged women.