Underrepresentations

Sage: A Scholarly Journal on Black Women. Vol. 6, no. 2 (fall 1989), Science and Technology. Sage Women's Educational Press/SAGE, P.O. Box 42741, Atlanta, GA 30311–0741, 1990. 88 pp., illus. Paper, $8.

There are currently a number of very fine books and articles on the history of women in science in the United States. One major failure of these works is the lack of attention to the experiences of African-American, Hispanic, and Asian-American women scientists. In some cases the names of outstanding minority women scientists are mentioned, but rarely are their careers examined in any detail. One of the few documents available that has given attention to the experiences of African-American women scientists is the report of a 1975 conference convened under the auspices of the AAAS entitled *The Double Bind: The Price of Being a Minority Woman in Science*. I can remember carrying a dog-eared copy of this booklet around with me when I was a graduate student in physics at M.I.T. in the late '70s. Given the existing void, the publication of a special issue on science and technology by *Sage: A Scholarly Journal on Black Women* is welcome.

The guest editor, Clark Atlanta University physicist Ronald Mickens, has collected 11 articles including profiles of black women scientists and overviews of the participation of black women in mathematics, the biological sciences, and engineering and technology. The biographical profiles cover several generations of black women in a range of scientific disciplines. Roger Arliner Young, the first black woman to earn a Ph.D. in zoology (University of Pennsylvania, 1940), began her scientific work in the 1920s as a student of E. E. Just and conducted research at the Marine Biological Laboratory at Woods Hole. Evelyn Boyd Granville was one of the first black female mathematicians (Yale, 1949), and two of her students also went on to become mathematicians. The first black woman to earn a Ph.D. in chemical engineering, Jenny Patrick (M.I.T., 1979), is currently an executive in a leading chemical engineering firm. Mickens refers to these women as "achievers against the odds," and they are indeed that. Most of the women profiled are "firsts," either the first black women to obtain the doctorate in their fields or the first to hold research and teaching positions in their institutions. For these women there were many joys and conflicts associated with being the "first" black women in their fields. All displayed a strong commitment to science and were grateful for the opportunities that were opened to them, yet many experienced great stress and isolation due to racism and sexism. Jewel Plummer Cobb, biologist and president emeritus of California State University at Fullerton, recalls that during her undergraduate days at the University of Michigan in the 1940s, black students were not allowed to live in the dormitories. As a result of such practices she completed her undergraduate work at a small black college in Alabama. Though institutional practices have changed, black women studying for advanced degrees in science still often find themselves isolated socially and professionally. A recent graduate student at a large engineering school commenting on the debilitating effects of this isolation suggested, "Send students to graduate school in three's; then you will get graduates." The profiles illuminate as well the critical role that mentors played in many of these women's careers.

The issue contains a wealth of data and little-known information about the participation of black women in the sciences. As Shirley Malcom, head of the Directorate for Education and Human Resources at the AAAS, notes, "Black women received a smaller proportion of their science degrees in the fields of engineering, mathematics and physical sciences than women of any other racial/ethnic group." She suggests that, given that within the black population women receive the overwhelming majority of high school diplomas and bachelor's degrees, these young women must be reached in order to increase the total number of black scientists. This volume is also notable because the recommendations on how to recruit and retain more black women in the sciences come from black women educators and scientists, such as mathematicians Sylvia Bozeman and Etta Falconer, themselves involved in such projects at Spelman College. Historically, Spelman has been one of the major producers of black women scientists and physicians in the United States. In 1991, fully 37 percent of the female students at Spelman are majoring in the sciences.

This issue of *SAGE*, though not comprehensive, will be of significant value for scientists and educators directly involved in developing programs to increase the participation of black females in science. For historians of women in science, the biographies and data presented in it should fuel further historical work, including comparative studies of white and black women scientists. Ultimately the result should be more complete analysis of the factors that have hindered and supported the production of women scientists in the United States.

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Some Other Books of Interest

Major Evolutionary Radiations. P. D. TAYLOR and G. P. LARWOOD, Eds. Published for the Systematics Association by Clarendon (Oxford University Press), New York, 1990. xii, 437 pp., illus. $145. Systematics Association Special Volume no. 42. From a symposium, Durham, U.K., Sept. 1989.

Following the 1986 symposium on the theme "extinction and survival in the fossil record," the Systematics Association, in recognition that evolutionary radiations are "the reverse side of the coin," organized a further symposium on that subject, which has given rise to the present collection of 18 papers. The volume opens with two papers addressing broad issues—S. M. Stanley on adaptive radiations and microevolution and David Jablonski and David J. Bottjer on environmental patterns and macroevolutionary lags in the origin and diversification of major groups—and closes with another, M. J. Benton on the causes of the diversification of life. In between are considerations of evolutionary radiation in a number of taxa, beginning with planktonic Foraminiferida (Hart) and including Mollusca (Morris), post-Paleozoic bivalves (Skelton *et al.*, cephalopods (Engeser), Trilobita (Fortey and Owens), late Paleozoic malacostracan crustaceans (Briggs and Clarkson), insects (Wootton), Bryozoa (Taylor and Larwood), diplograptacean graptolites (Mitchell), and echinoderms (Smith; Simms). There are also two papers on vertebrates—placoderm fishes (Gardiner) and temnospondyl amphibians (Milner)—and two on plants, one dealing with the diversification of early land plants (Edwards and Davies) and the other with angiosperms and palynological diversity (Crane and Lidgard). The editors note that papers on mammals, the Cambrian "explosion," corals, and gastropods that were presented at the symposium have been omitted from the book. Observing that the diversity of approaches taken and conclusions reached by the contributors makes a concise summary impossible, the editors do state two general conclusions: that " 'major radiations' appear to have played a role of disproportionate importance (relative to their duration) in the evolution of many biological groups" and that "short-lived, highly 'creative' evolutionary phases of rapid diversity increase and morphological divergence characterize the evolutionary histories of many groups." They also note that "few contributors were willing to implicate changes in the physical environment . . . as causal factors for major radiations."—**K.L.**