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## **Women and Science in India- a Reader. Edited by Neelam Kumar**

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### **REVIEW**

When imagining 'a scientist' many people think of a 'mad' man with curly hair, surrounded by bubbling test tubes, wearing a white laboratory coat. This image is seldom replaced by the likes of Marie Curie. But to name or think of an Indian woman scientist would be difficult even for most of science graduates. Breaking the jinx of the stereotypical image of an 'Indian woman', and to visualize her as a scientist is still a cherished idea. This, of course, is an issue which is informed by the patriarchal mindset of a society, but science with its 'universality, objectivity and rationality' has also perpetuated an idea of being a 'masculine' discipline. The book under review, edited by Neelam Kumar, challenges these notions.

One of the feminist paradoxes - one that challenges many of its optimistic histories - is how patriarchy remains persistent over time. In this context Kumar seeks to show women in 19<sup>th</sup> and 20<sup>th</sup> century India as historical protagonists through their involvement and active participation in science and scientific research. Kumar, along with other contributors, argues that 'gender profoundly influences scientific activity and the professional lives of women' (p.xxiv). There exists a gender gap in institutions of science in India, which has deepened even after independence. This book questions that 'why, despite the existence of legal and constitutional equalities, women are still subject to discrimination in science' (p.ix). The book also demonstrates that



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female agency has its limits in this area. One might have presumed that those limits were religious and political, but the essays here show how a 'patriarchal equilibrium' shuts women out of economic and professional life as well.

The subject of this volume is very broad, and largely the papers selected are related to medicine and engineering, but it would be a Herculean task to cover all aspects of science in one volume. The range of contributors in this book is impressive, involving a wide variety of scholars working in different disciplines such as sociology, anthropology, economics and the editor herself being trained as a psychologist. In the support of their argument contributors draw on various sources ranging from official records and reports to autobiographical narratives and interviews.

The book begins with a well-formatted editorial essay in which Kumar underlines the need to recognize the gender dimensions of science in an Indian context. Kumar outlines how women in India have been marginalized, excluded or even barred entry to many science institutions in the 19th century, and how issues such as neo-liberal policies of globalization, privatization of research, reduced Government aid and the increased cost of education in the 20th century gave another fillip in this exclusion. In order to bring out linkages between pre- and post-independent India, Kumar selects both new and previously published papers to show the continuum between these two periods.

The book is divided into two broad sections. The first section, constituting four articles, investigates the status of women in science during the colonial period. The first three essays address the issue of gender, medical education and its politics in colonial context.

Geraldine Forbes' article, *No 'Science' for Lady Doctors*, explicitly addresses the correlation and identification of 'science' with masculinity. Analyzing 'the prerequisites for admittance, curriculum, opportunities for post-graduate training and the medical practices of the lady doctors'(p.21), Forbes emphasizes how the identification of science with masculinity and western culture played a key role in the neglect of both women's education and medical facilities for women'. Similarly, using official documents and papers related to Zenana mission<sup>1</sup>, Antoinette Burton shows how these women had to struggle against the missionary enterprise, along with deep-rooted patriarchy within society, to become a 'Lady doctor for India'. Whilst Burton's essay examines these dynamics in the light of the London School of Medicine for Women, Maneesha Lal does this in relation to the Countess of Dufferin Fund<sup>2</sup>. In her essay Lal focuses on the economic limitations and cultural constraints of the Dufferin Fund, while analyzing the motives, attitudes and ideas in the foundation of the fund as an entry point for women into the medical profession. Lal does not provide any data on expenses and expenditure made by Dufferin Fund and her study is Bengal centric. It is not clear from any of these three essays how many women from India actually

entered in the medical profession, or how Indian women more generally reacted to this development. It would have given more nuanced picture if these authors had explored some unofficial sources as well. Abha Sur's chapter, which is based on autobiographical narratives and extensive interviews, is an unusual and fascinating paper. Weaving the lives of Anna Mani, Ashima Chatterjee and Lalitha Chandrashekhar, all three working as scientists at C.V Raman's laboratory at Bangalore, Sur tries to show the impact of culture, society, family and political movements on their lives as scientists. She discusses at length how these scientists suffered from discrimination from Noble Laureate Physicist Raman. He blatantly denied admission to these women in his Laboratory on the ground that they were women. Sur contends that 'their histories embody a quagmire of contradictions- of privilege and penalty, of exaltation and damnation and of power and subservience' (p.xxii).

The second section of this book shifts from the historical episteme and deals with the contemporary sociological experiences of Indian women studying science, medicine and engineering.

In her chapter Carol Mukhopadhyay questions the relevance of Western theory of gendered science in an Indian setting. Rejecting the value of American cultural models of gender, schooling and career choices to the Indian setting, she emphasizes that it is important to notice Indian writings and voices in order to understand the scientific gender gap. Lalita Subrahmanyam uses ethnographic data to deal with an important and often difficult question- whether Indian women scientists are feminist in their approach to their lives and careers. She explores the problems women academic scientists face due to gender bias in India. She emphatically suggests that Indian women scientists should get organized in order to address their problems collectively instead of keeping themselves in isolation and away from feminist activities and movements. Veena Poonacha discusses the inherent gender biases existing in the institutions of science which act as barriers for women scientists to pursue or excel in their scientific career. She argues that the increasing privatization and liberalization of education in India, reduced government aid and rising cost has resulted in overall decline in women's enrolment in science.

Namrata Gupta and A.K. Sharma together discuss the concept of 'triple burden'. Along with dual burden of family and work, women scientists also face an additional burden due to existing gender prejudices in institutions of science. Based on an analysis of a combination of questionnaires, schedules and case studies they argue that women academic scientists bear a triple burden that leads to physical, mental and emotional exhaustion. Referring to the concept of glass ceiling in her essay, Alpana Sagar shows how women have been entrapped in scientific institutions: 'Glass ceilings are the artificial barriers that deny women and minorities all over the world the opportunity to advance within their careers, and they are one manifestation of the perpetual struggle faced by women for equal access and equal opportunity' (p.258).

Gender along with other structures of inequality like caste, class and ideology are some forms of the barriers that not only deny equal opportunity but also trapped women in the process of denial. For example women of one class, caste, race or religion accept the exploitation of women of another caste, class, race etc. Using data from the Delhi Medical Association to strengthen her point, she emphasizes the necessity to dismantle all sorts of discrimination which entraps women.

The penultimate essay authored jointly by Malathy and P. Duraisamy discusses the issue that women's employment rate has not shown a corresponding increase in women's enrolment in the field of science and technology. It also addresses how those women who are employed within science have to suffer occupational segregation and wage discrimination of various types due to gender biases existing at scientific institutions.

The final contribution by Kumar argues that '...unlike other countries, women and men scientists in India do not differ significantly in terms of publication of books and articles and papers presented at conferences', (p.xxiv), and therefore 'scientific productivity' is not at all the reason for low percentage of women in the institutions of science. She further puts that 'the low representation of women in science, particularly at higher ranks, is more about socio-cultural system than about women's ability per se' (p.323). Last, but not least, the exhaustive bibliography at the end of the book makes this volume more substantial.

Reprinting five articles published earlier in various international journals not accessible to Indian scholars, and particularly those who are interested or working on social history of medicine, indeed makes this volume invaluable. It needs to be commended for exposing the inner dynamics of gender discrimination in science institutions. Rich and insightful in their approaches, essays in this book have nevertheless posed the issue of gender discrimination in somewhat binary terms i.e., male versus female. The women discussed and analysed in these essays are elite, urban and from an educated class. This reduces the multiplicity and the complexity of gender discrimination. This book raises further questions such as: do women constitute a homogenous category? Were women competing with men only? Were there any openings for Schedule Caste (SC) and Schedule Tribe (ST)<sup>3</sup> women in these institutions of science? What kind of challenges did SC/ST/Minorities/Marginalized/Rural/Poor women have to face in order to compete with upper caste/ elite/mainstream/urban/ rich women? It would have provided a more nuanced picture if contributors had tried to tease out inner tensions going on between women categories vis-à-vis their struggle with male counterparts.

This is a stimulating volume for scholars, teachers and students doing sciences/ social sciences, and for everyone who yearns to know about women's status, role and contribution to science in an Indian context.

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## ENDNOTES

<sup>1</sup> Zenana mission: Zenana means sex-segregated space and their mission in the context of this chapter was to provide female doctors for the women of India during nineteenth century (p.21). The Zenana missions are missions by women missionaries to Indian women in their own homes, with the aim of converting them to Christianity. The Baptist Missionary Society inaugurated Zenana missions to India in the early 19th century. The concept was later taken up by other churches and extended to other countries. By the 1880s, the "Zenana missions" became dedicated to providing Indian women with medical help in their own homes. This involved recruiting female doctors, both by persuading female doctors in Europe to come to India and by encouraging Indian women to study medicine. As a result, the Zenana missions helped break down the male bias against colonial medicine in India.

<sup>2</sup> The Countess of Dufferin's fund or the Dufferin fund was the national association for supplying female medical aid to the women of India. It was the first systematic attempt to extend western medicine to Indian women. This was established in 1885 by Lady Dufferin, wife of the new viceroy of India (p.56)

<sup>3</sup> Scheduled Castes ("SC"s) and Scheduled Tribes ("ST"s) are Indian population groupings that are explicitly recognized by the Constitution of India, previously called the "depressed classes" by the British. SCs/STs together comprise over 24% of India's population, with SC at over 16% and ST over 8% as per the 2001 Census. The proportion of Scheduled Castes and Scheduled Tribes in the population of India has steadily risen since independence in 1947. Some Scheduled Castes in India are also known as Dalits. Some Scheduled Tribe people are also referred to as Adivasis. Post Independence Scheduled Castes are benefited by reservation policy.