

LILAVATI'S DAUGHTERS

The Women Scientists of India

अये बाले लीलावति मतिमति ब्रूहि सहितान्
द्विपञ्चद्वात्रिंशत् त्रिनवति शताष्टादश दश ।
शतोपेतानेतानयुतवियुतांश्यापि वद मे
यदि व्यक्ते युक्तिं व्यवकलनमार्गेऽसि कुशला ॥

Preface

Oh Lilavati, intelligent girl, if you understand addition and subtraction, tell me the sum of the amounts...

This collection of essays, which has been two years in the making, is one of the initiatives of the **Women in Science (WiS) panel of the Indian Academy of Sciences**. While discussing the issue of the under-representation of women in the sciences in India, we thought that it might be both interesting and inspirational for young children to learn more about Indian women scientists.

The first idea was to put together a collection of biographical sketches of influential Indian women scientists of earlier generations, to underline the fact that it is possible to find role models within the country; one does not have to look only towards the Curies, the Franklins and the Hodgkins (impressive scientists though they all are) to find women scientists of substance. We felt that it was important, especially for young girls with research ambitions, to know of women who functioned and achieved their goals in the Indian social and academic environment.

But how relevant is this in today's context? Especially when India – and the world – has changed so much in the recent decades. Inspired by *One Hundred Reasons to be a Scientist*, a volume of essays put together by K R Sreenivasan, Director of the International Center for Theoretical Physics, Trieste, in which about a hundred highly reputed scientists from all over the world talk of

what attracted them to science as youngsters and kept their interest alive, this collection of biographical sketches evolved to include autobiographical sketches from women who are doing science *now*, at different levels and with different degrees of success.

And so *Lilavati's Daughters: The women scientists of India* came to be. Lilavati was the daughter of the twelfth century mathematician Bhaskaracharya, for whom he wrote the eponymous treatise (from which the fragment of verse quoted above is taken). Although legend has it that she was never married, as the first woman student of mathematics in India, she has innumerable descendants ... the Indian women of science.

We wanted this collection of essays to mirror our cultural diversity, and to cover a range of disciplines so that any woman student could gain from the insights and experiences of other women to whom they can relate at many levels. What passions drive those who do science, what tribulations did they go through, what helps ... and what hinders, along this journey on the path of science?

During the course of putting together this volume and interacting with the various contributors, we realised how true many of the normal adages about women professionals are. Most of Lilavati's daughters are from middle class families where education is given a high premium. Many also talk of how they were given opportunities equal to their brothers. A large number of the contributors to this volume have had other women achievers (although not necessarily in science) in their families: Iravati Karve and her two grand-daughters, Priyadarshini Karve and Chitra Nimbkar, as well as Purnima Sinha, her daughter Supurna and niece Sudeshna all figure in this book, for instance. In fact, in the former case, both Priyadarshini and Chitra happen to be the grand daughters of the doyen of women's emancipation in Maharashtra, Maharshi Dhondo Keshav Karve.

Our aim of being truly representative may not have been as successful as we had hoped. The somewhat skewed regional and social bias within the Indian scientific community as a whole is one of the many reasons for this. Many shining examples are

conspicuous by their absence. Some were not in sympathy with this effort, feeling that such exercises do more harm than good. Some have not been able to make the time, in spite of wanting to write. And we may simply have missed some. We hope to make up for these omissions in part, by having a separate website for Lilavati's Daughters on the Women in Science homepage where these and other essays will be separately available to read. Your observations on the names we might have missed may be made by going to the WiS webpage: <http://www.ias.ac.in/womeninscience/>

In the end, we hope that this set of nearly one hundred essays gives some flavour of what it takes to be a woman scientist in India today. Negotiating through the diversity of cultures, regional distinctions, languages and traditions in order to pursue a career in science has its complexities. And its rewards.

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