

Chandrima Shaha

A Lifelong Journey of Scientific Inquiry



Rajinder Singh, Suprakash C. Roy

Foreword by C.N.R. Rao, FRS

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Chandrima Shaha

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Preface

A significant portion of existing literature on the history of science in India primarily focuses on renowned scientists like J.C. Bose, C.V. Raman, M.N. Saha, S.N. Bose, Homi J. Bhabha, and P.C. Ray. Over the past decade, we (Rajinder Singh and Suprakash C. Roy) have authored biographies of some relatively lesser-known physicists, which includes D.M. Bose, S.K. Mitra, B.B. Ray, S.C. Sirkar, K. Banerjee, N.R. Sen, S.R. Khastgir, Snehamoy Datta and S.D. Chatterjee. Following this model, one of us (RS) wrote the following books on some Punjabi scientists: *Bal Mokand Anand: His Life and Science Across the Partition of India* (The Physics Association, Department of Physics, Panjab University Chandigarh and Chandigarh Vigyan Parishad, Chandigarh 2023); and *O.P. Vig – His Life and Science* (Panjab University Chandigarh, 2024).

As far as women scientists and their biographies are concerned, we wrote “*A Jewel Unearthed: Bibha Chowdhuri - The Story of an Indian Woman Scientist*”, Shaker Publisher, Aachen, Germany in 2018. After the publication of the book, the international scientific community named a Star after Bibha’s name and the Government of India established a Physics Chair to honour her. An expanded version of the book was published by the Tata Institute of Fundamental Research. An expanded German version was published under the title “*Bibha Chowdhuri, eine indische Hochenergiephysikerin als "Star" am Himmel*”, Shaker Publisher, Düren 2020.

Our next book was on the life and science of Purnima Sinha, the first woman to obtain a PhD from the Department of Physics, University of Calcutta. It was published under the title “*Clay, Craft, Music and Science: Purnima Sinha's Life*”, Shaker Publisher, Düren 2020.

One of us (RS) wrote the biography of Suman Beri, the first woman professor at the Panjab University Chandigarh, Physics Department, *Suman Beri – Higgs Boson, Top Quark and Single Top Quark: The Story of a Punjabi Woman Scientist* (Shaker Publisher, Dueren 2022).

In continuation of our project focusing on prominent Indian women scientists, we decided to write the biography of Prof. Chandrima Shaha, the first woman President of the Indian National Science Academy (INSA), Delhi.

Crafting a biography of such individuals comes with some inherent risks, especially when their colleagues and relatives are actively involved. Their personal insights often surpass those of the author(s), whose assessments are primarily based on a limited pool of available documents. The current book portraying the biography of Prof. Chandrima Shaha falls in the same category.

We will greatly value feedback from discerning readers as it will significantly contribute to enhancing the quality of the second edition of the book.

Remarks

1. Every publisher or journal adheres to a specific style for 'Notes and References'. Drawing on our over two decades of experience in writing books and articles on the history of science, we have developed our distinct style, which may differ from the preferences of others.

2. In the 'Notes and References' section, the dates provided for literature (websites/books/articles) do not reflect the years of publication. Rather, they indicate the dates when the information was accessed or retrieved from the internet.

3. Biologists and Organic Chemists often use Latin terminology when discussing plants and insects. However, this language can be challenging for general readers, especially since Latin is no longer commonly taught at universities. To improve accessibility, we have tried to minimize the use of Latin terms as much as possible.

Acknowledgments

Thanks are due to Prof. Chandrima Shaha for her prompt response in sending photographs, figures, and information about her life,

presented in this book. She also read and improved the chapters on her scientific work. Without her feedback, this book would not have been possible in its present form.

Our heartfelt thanks are extended to all those who submitted ‘write-ups’, which have been edited to some extent by us.

One of the authors (SCR) thanks Chandrima Shaha for giving a patient hearing whenever he contacted her for any clarifications. SCR also thanks his wife Sujata for the discussions and suggestions to improve upon the manuscript, in addition to providing moral support all through.

Additionally, one of us (Rajinder Singh) expresses gratitude to his wife, Birgit Krah, and children, Amer Simone and Hira Michael, for their unwavering moral support. Special thanks are extended to Prof. Michael Komorek of the Research Group – Physics Education and Public Understanding of Science at the Physics Institute, University of Oldenburg, Germany, for providing research facilities. Thanks are due to his colleagues Dr. Falk Riess, Dr. Kai Bliemer, Dr. Christiane Richter, and Jonas Tischer for moral support.

RS is also appreciative of the efforts of the staff at the Greek restaurant *Santorini*, including Mayer Yalak, Serhat Oba, Serkan Oba, Nienke Bloy, Selda Topsakal, Boyram Bircan, Mahmoud Kassem, and Lezgin Alaca, for fostering an inspiring atmosphere.

Finally, we thank Shaker Publisher Dueren, Germany for publishing this book.

Foreword

Although the movement for women's education was initiated about a century ago in India, it was only at the beginning of the 21st century that the movement gathered momentum towards achieving a gender-neutral, equitable appreciation of their talent in society. But getting recognition and awards have never been easy for women as evidenced by the fact that the number of female fellows in the three science academies of India, for example, is very skewed. In 2020, the total percentage of women fellows in the Indian Academy of Science, Bangalore and Indian National Science Academy (INSA) were 8.40 and 9.02 percent respectively. Out of about 600 Bhatnagar (highest science honour in India, recently discontinued) awardees, only about 20 are female awardees. From this perspective becoming the first woman President of INSA, after its establishment in 1935, was a great feat.

Is Chandrima Shaha an outstanding scientist or known for this achievement only? The answer to this question will be found in this book. Chandrima Shaha is indeed an exceptionally talented biologist. However, she has several other feathers on her cap too that very few people are aware of. She was a good cricketer, represented Bengal in the National Women's Cricket Championship, and was the Vice-Captain of the Bengal Women's Cricket team. She was the first woman cricket commentator (in Bengali) of the All India Radio (AIR). She was the only woman radio commentator in India to have covered a first-class cricket match in the mid-70s. Chandrima is an avid photographer. Her skill and meticulous way of capturing scenes earned her the 'Best Woman Photographer in India' award in 1975 and was cited as the only woman photographer among the top 10.

Chandrima Shaha's scientific works, from the time she was a research scholar at the Indian Institute of Chemical Biology (IICB) in Kolkata till her retirement as Director of the National Institute of Immunology at Delhi, have been comprehensively presented in this

book, with all references, so that interested readers can carry out further studies in those areas.

The book has been penned by two known historians of science: Dr. Rajinder Singh and Professor Suprakash Chandra Roy. Rajinder Singh is a reputed historian of science from Oldenburg University, Germany, who has a special aptitude for chronicling biographies of Indian scientists who are lesser known in the outside world and has published about 40 books. Professor Suprakash Chandra Roy is a physicist by profession and is now a member of the National Commission of History of Science (INSA). He was the Editor-in-Chief of one of the venerable journals 'Science and Culture' for about two decades, writes articles in newspapers, magazines, and journals and has 8 books to his credit on biographies of Indian scientists, with Rajinder.

The authors have left no stone unturned to portray Chandrima Shaha as a complete human being. How her curiosity to understand the transformation of a caterpillar into a butterfly first observed in a garden at a very young age motivated her to study zoology and then to pursue research to understand cell biology on the science of life and death, her struggles and challenges to reach the pinnacle of success, her commitment to present science at a popular level, her continuous fight to eradicate male chauvinism in the scientific world, and her humane side as seen by her colleagues, students and teachers, have been well portrayed in the book.

It is my pleasure to write the 'Foreword' of this book. I hope the book will inspire all students and researchers to emulate her as a role model.



C.N.R. RAO

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Dr. Rajinder Singh has written more than 140 articles and the following books:

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- 2) Nobel Laureate C.V. Raman's Science, Philosophy and Religion, Dharmaram Publications, Bangalore 2005.
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Suprakash C. Roy

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been published in many journals and periodicals including reputed English dailies. He had been the Editor-in-Chief of the journal *Science and Culture* till quite recently. He has edited a book titled '*Emerging Science and Culture: Connecting People*' published by the Indian Science News Association and co-authored the following books with Rajinder Singh: 1. '*DM Bose—A Scientist Incognito*' published by Bose Institute, Kolkata. 2. '*A Jewel Unearthed: Bibha Chowdhuri*' published by Shaker Verlag Aachen. 3. '*D.M. Bose - His Life, Science and Connection with Global Elites*', Shaker Publisher Dueren, Germany. 4. '*Clay, Craft, Music and Science: Purnima Sinha's Life*', Shaker Publisher, Düren 2020. 5. '*Bibha Chowdhuri, eine indische Hochenergiephysikerin als „Star“ am Himmel*', Shaker Verlag, Düren 2020. 6. '*N.R. Sen—His life and Science*', Shaker Publisher, Düren 2021. 7. '*S.D. Chatterjee - A Scientist's Journey from Tradition to Modernity*', Shaker Publisher, Düren 2022.