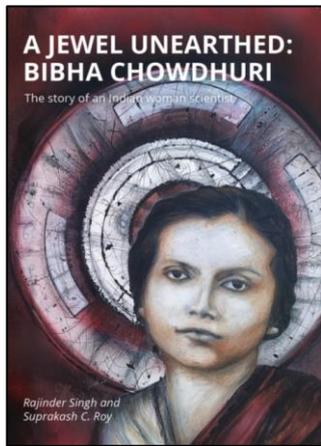


A Jewel Unearthed: Bibha Chowdhuri
The story of an Indian woman scientist



I came to know about Bibha Chowdhuri in 2016, when I heard a talk from Prof. Sreerup Raychaudhuri on “Early Days of Particle Physics” in our departmental colloquium. The one thing that struck me immediately on hearing about Bibha Chowdhuri (BC) was that “a woman in India in the 1930s did such pioneering work in particle physics, and I never heard about her!” Few months later, I was invited to

join the gender in physics, working group of the Indian Physics Association (IPA). Out of interest and for collecting information, I started reading reports on the status of women in science and thus came across the acclaimed collection of essays, “Lilavati’s Daughters: The Women Scientists of India”. To my surprise, I found that this book, too, gives a miss on BC. I could not find her name or any mention of her work in documents, reports and memoirs that I came across while serving the gender panel of the IPA. It is at this juncture of both ‘science’ and ‘history’, that the important work of Rajinder Singh and S.C. Roy, “A Jewel Unearthed: Bibha Chowdhuri” stands as an exceptional piece. Rajinder Singh, is a noted science historian at the University of Oldenburg and S.C. Roy is a former professor of Physics at the Bose Institute in Calcutta, where Bibha Chowdhuri did her early work on cosmic ray physics.

It is a sheer coincidence that the ‘talk’ and the ‘essays’, that I mentioned above are referred in the book and the authors tell us a story of a strong willed and committed woman in British Bengal in her pursuit of science. The book has five chapters. The first chapter discusses about BC’s early life in a progressive Bramho family, where all her siblings were highly educated. The authors in the spirit of true historians assess the influence of the Bramho Samaj on women’s education in Bengal and how it might have influenced BC to take a career in science. The rest of the chapters are dedicated to the scientific contributions of BC in Kolkata with D.M. Bose, her doctoral work with P.M.S. Blackett in Manchester, and then her science career back in India.

The authors take a very neutral and scholarly approach in illustrating the scientific contributions of BC spanning four decades. The amount of research and detailing in their book followed by the extensive discussions on the merit of BC’s scientific work make the book a very interesting read for physicists as well as historians. The greatest strength of the book is its thorough research and documentation on Bibha Chowdhuri’s work, which stay largely unknown to the

Indian community. The authors do not engage in discussing “myths” or any “hyperbole” and make an honest and transparent attempt to pay their tribute to this unsung hero of Indian science. The “gender” aspect of BC’s career comes into close discussions, but never overrides her identity as a scientist. We read a story of determination and strength and going against all odds, accompanied by details of early research in cosmic ray physics in colonial as well as post-colonial India. The authors indeed make a brilliant blend of the scientific and historical importance of BC’s work on cosmic rays and provide a comprehensive record of the research done in this field.

To a very few people in Kolkata, who knew some aspects of BC’s early work with D.M. Bose, it stayed as a ‘myth’ that BC was probably another character in colonial India, who was very close to winning a Nobel prize in Physics. The authors stayed non-judgmental about this narrative, but provided hard evidence of the critical analysis of BC’s work from the international community. Along with D.M. Bose, BC reported the existence of the ‘mesotron’ (proposed by Yukawa) by studying high-altitude cosmic ray showers using the technique of photographic emulsion plates. In a series of papers in ‘Nature’ in the early 1940s they reported the mass of the particle to be 186 times the mass of the electron. Later in 1947, C.F. Powell discovered the existence of the Pi meson and estimated its mass to be 273 times of that of the electron. In his Nobel winning work, Powell acknowledged the fact that he used the same technique as was adopted by Chowdhuri and Bose. From the scientific analyses and the peer evaluation of BC’s work that the authors present in the book, it becomes evident to the reader that the “myth” of missing the Nobel prize is indeed a historical fact. The other two names in the league of ‘Nobel miss’ are that of ‘Meghnad Saha’ and ‘Satyen Bose’. Thus, the tragedy of these missing recognitions becomes even more heart-rending when we compare the legendary status of Saha and Bose with that of Bibha Chowdhuri. It is noteworthy that only after the publication of the book, the ministry of woman and child development has proposed eleven chairs after the names of famous women scientists and the physics chair has been named after Bibha Chowdhuri.

The one aspect of BC’s work that we learn from this book is that, the quality of her research as a scientist in TIFR or PRL did not match with the stature of the work that she did as a young student with D. M. Bose in the 1930s. Although, some speculations are tempting, the authors largely refrained themselves from posing any conjecture in this aspect. Prof. Arnab Rai Choudhuri, in his review of the book published in Science and Culture, reminds the readers about the stark differences between the work environments of Bibha Chowdhuri in Kolkata during the 1930s and later as a professional researcher in the 50s and 60s in western India.

Her best contributions came when she was working in a very friendly and supportive atmosphere surrounded by her loved ones. This observation of Prof. Rai Choudhuri might lead to a curious case in history and sociology of science and eventually to the adversities that women in Physics frequently face even in today's world. Future studies of her life might give us an untold story of under-appreciating a brilliant mind. The authors make a distinct note of BC's contribution as a woman pioneering in experimental physics, a trend that is not so popular even in the 21st century. The Indian edition of the book has been released on the international women's day on March 8th 2021 with the initiatives of TIFR and the TIFR alumni association (TAA). BC's journey as the first woman scientist at TIFR along with

the collection of documents of her Bhabha, taken from the TIFR archives, make the book even more exciting to an enthusiastic reader in history of science.

Bibha Chowdhuri is an icon of inspiration, not only to women aspiring in science, but to anyone in this world, who chooses to fight against the odds in societies and aspires to walk a different path. It is our greatest privilege that Prof. Rajinder Singh and Prof. S.C. Roy, through their outstanding work, brought back this marvelous talent and inspirational character to the younger generations.

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Group photo of the International Conference on Elementary Particles held in Mumbai between 14–24 December 1950, taken at OYC (BC is at the leftmost amongst the members sitting on the chair) (Photo Credit: TIFR Archives).