Glimpses of Acharya P C Ray's Work in Chemical Sciences*

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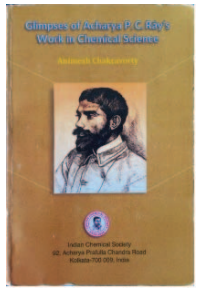

Glimpses of Acharya P C Ray's Work in Chemical Sciences
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Sooner or later, we all become history. But seldom do we create history. Acharya Prafulla Chandra Rây (1861–1944) did so in the case of teaching and research of modern chemistry in India. A multidimensional talent, he founded the Indian Chemical Society. As an entrepreneur, he set up the Bengal Chemical and Pharmaceutical Works, the first big chemical industry in India. As a historian, he wrote the History of Hindu Chemistry, and as a philanthropist, he gave away his all. In the centenary year of his birth a postage stamp was brought out in his honor. His 150th birth centenary coincided with the International Year of Chemistry – 2011. The same year, the Royal Society of Chemistry, London established an International Chemical Landmark Plaque on Rây in Presidency College, Kolkata, where he started his career.

Prafulla Chandra received the Doctor of Science degree from the University of Edinburgh in 1887 and later spent 27 years packed with activities in Presidency College, Calcutta. In 1916 he moved to become the first Chair Professor of Chemistry in College of Science, Calcutta University at the invitation of the legendary Vice-Chancellor Ashutosh Mookherjee, who later appointed C. V. Raman as the first Chair Professor of Physics.

The author of this book Animesh Chakravorty is a former student of the University College of Science. He has been writing on the life and work of Rây for some years [1, 2], and has now consolidated and augmented the material in the form of the present book. As the name suggests, the book primarily focuses on Rây's original research contributions to chemical science.

The book has 16 chapters with an index. The state of chemistry when Rây was working in Edinburgh and his doctoral research on double sulfates are examined in Chapters 2 and 3. The serendipitous discovery of mercurous nitrite opened up the-then little known field of inorganic nitrites. This engaged Rây and his

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students for many years (Chapters 6–9). Notable discoveries by Rây included pure mercuric nitrite and its complexes such as those with alkaloids, molecular ammonium nitrite in vapour form and families of aminium nitrites. The other important area of his research concerned the sparsely known and difficult field of sulfur ligation, especially thioether sulfur (Chapters 10–14). Notable discoveries pertain to ligation of trivalent gold and iridium, tricoordination of mercury, mixed-valence species and more. With few physical methods then available, the path of discovery and characterisation was strewn with pitfalls. Though primarily an inorganic chemist, Rây had a latent interest in organic synthesis. Towards the end of his career, this got expressed in his work on the use of certain inorganic reagents in the synthesis of thioketones and fluoro-organics (Chapter 15). Armed with prevalent new ideas such as isoelectric isosterism, Rây revisited double salts on the question of isomorphism (Chapter 16). His works were regularly appreciated by European chemists, and Nature magazine highlighted his research frequently.

What is unique about the present book is that the well-illustrated but brief chapters are written in an easy to read but critical style, examining the status of each work on the anvil of current knowledge. Each chapter is well referenced and begins with a quotation bearing its theme. There are other illuminating quotes from various sources in the text. It is very important for the millennials to know how the Acharya started modern chemical research in India, with nothing in his hand, except single mindedness and a lifelong commitment. In this context, I recommend this book to them all.

Suggested Reading

[1] A Chakravorty, *Resonance*, Vol.6, 3, 2001.

[2] A Chakravorty, *Indian J. History Sci.*, Vol.49, 361, 2014.

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