

Berichte aus der Medizin

**Rajinder Singh**

**Upendranath Brahmachari -  
A Pioneer of Tropical Diseases**

A Summary of his Discoveries and Scientific Work

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**DEDICATED**

TO

My mentors

Prof. Dr. Michael Komorek & Prof. Dr. Falk Riess  
Research Group – Physics Didactic and History of  
Science, University of Oldenburg, Germany

AND

My children (Simone, Michael) & wife (Birgit)



## Foreword

This book is dedicated to an outstanding though undeservedly almost forgotten scientist from India, Upendranath Brahmachari (1873-1946). His fields of study and research were chemistry, biochemistry, and medicine. His main medical achievements lay in the analysis and treatment of kala-azar, a disastrous tropical disease which caused millions of infected and dead persons; even today about 60,000 persons die from that disease per year. You have to imagine that at the time of Brahmachari's research on kala-azar during the 1920s the pharmaceutical market in colonial India was completely unregulated; foreign manufacturers dumped inferior quality medicines and adulterated drugs and the markets were full of all sorts of useless and deleterious drugs which were sold by unqualified men (History of Pharmacy in India, <http://4my1313.blogspot.de/>). Only in 1931, the first formal pharmaceutical education was established at the university level (standardized by the Pharmacy Bill in 1945), and the first bill concerning the quality and control of drugs was passed in 1940 (Drugs Act). Under these circumstances the work of Upendranath Brahmachari on the causes and the spread of the "black fever" cannot be overestimated, especially when you take in consideration his effort and success in respect to the invention, development, and testing of a respective medicament and the instrument to apply it. In the light of these facts the nominations for the Nobel price for medicine seem more than justified. Consequentially, Brahmachari was given numerous awards, medals, and honourable positions during his lifetime.

The book contains an appraisal of the scientific life and work of Upendranath Brahmachari. But the information given is not mere biographical: It is a case study from the history of science in a country

under colonial rule, the restrictions which were caused by the predominance of the British scientists and their scientific associations, and the slow development to an independent and autonomous scientific culture in India. Furthermore the author gives a wealth of hints and proposals for the next research steps which are needed to complete the image of a multidisciplinary scientist who saved millions of lives by his scientific activities.

Dr. Falk Riess

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## Preface

I came to Germany in the mid-1980s. In the Physics Department at the University of Oldenburg, my first research work was on the “Application of two simple correction methods for the behaviour of cup anemometers in turbulent wind fields.” Following this, I wrote my Diploma-thesis on “Measurement and characterization of photovoltaic solar radiation sensors.” It contains a thorough investigation of characteristics of photovoltaic (LI-COR 200SZ and Matrix 1G) and thermal (CM11 Kipp and Zonen) pyranometers. Along with the history of the radiation measuring instruments, the thesis was published under the title “Characteristics of solar radiation photovoltaic pyranometers Licor 200SZ and Matrix 1G”, Shaker Publisher Aachen. After finishing my thesis in 1994, I went on paternity leave. During this period, my attention was drawn to the field of history of science and technology. In 1997, I started writing about Indian scientists, in particular, the Indian Noble Laureate C.V. Raman. At the University of Hamburg I submitted a Ph.D. thesis “Nobel Laureate C.V. Raman’s work on light scattering – Historical contributions to a scientific biography.” In 2004, it was then published by the Logos Publisher Berlin.

In the past I have written more than 80 articles in national and international journals. Until recently, most of my work was on Indian physicists, chemists, and their interaction with the scientific community within India and also abroad. In this context, one of the topics I initiated was the Indian men of science and letters and the Nobel Prizes. In various publications, the Indian Nobel Prize nominators and nominees in the first half of the twentieth century have been dealt with by my co-author and mentor, Prof. Falk Riess, and me. It was, in fact, my interest in Nobel Prizes that turned my research work toward the field of medicine. To my

surprise, it was the Indian medical scientists, not the physicists and chemists, who were first to be nominated for the coveted Nobel Prize, in 1907. The first Indian physicists C.V. Raman and M.N. Saha were proposed in the end of 1920s. Here the term “Indian” nominators and nominees is applied in the sense of the documents of the Nobel archive records. The majority of the “Indian” candidates appearing in the medicine list are of British origin. The only “real Indian” in the list is Upendranath Brahmachari (also written as Upendra Nath Brahmachari).

After writing a short article for *Science and Culture* on “Nobel Prize for Medicine and nominators and nominees from India in the first half of the twentieth century”, I was curious to know more about the man who was nominated for the Nobel Prize and the Fellowship of the Royal Society of London. I began collecting information. I found four books, and a number of articles, written by him. Not being from the field of medicine, I found it often difficult to understand Brahmachari’s medical work. As a result, I consulted several dictionaries. As the present book is meant for general readers, the meaning of many medical terms are given in square brackets. Apart from that, the text in square brackets is added to complete information regarding names etc.

*Confusion about names:* According to my experience, Bengali scientists were very “liberal” in changing their names. For instance, M.N. Saha, in his early publications, used the name Meghnad Saha. Later he started writing as mentioned before. So far as Brahmachari is concerned, it is no less confusing. In different publications, his name appears either “Upendranath” Brahmachari or “Upendra Nath” Brahmachari. In the present work, I decided on Upendranath Brahmachari. As a consequence of this difference with Brahmachari’s name, citations in the list of publications may differ from the original version. Regarding place names:

today, the cities Dacca and Calcutta are written as “Dhaka” and “Kolkata”. In this work, I will revert back to the original spellings.

I shall be grateful for criticism and comments from the readers. After all, feedback and criticism are the best sources of knowledge an author can receive.

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