

Scientists and human beings

Suresh I.S. Rattan

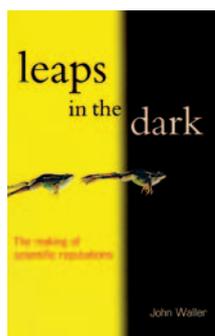
Leaps in the Dark: The Making of Scientific Reputations

by John Waller

Oxford University Press, New York, NY, USA

292 pages, \$25/£19

ISBN 0192804847



Human beings admire, blame, criticize, degrade, envy, exaggerate, falsify, grumble and so on, all the way to being zealots. Scientists also do all of the above. Therefore, scientists are human beings! If, like me, you

impatiently want to discover the take-home message from a book, then the above conclusion is the one derived repeatedly from John Waller's recent book *Leaps in the Dark*.

Science, scientific research and scientists are often depicted as value-neutral and objective, as well as being free from manipulation and any social and economic constraints. Most of us ignorantly hold these beliefs about science and scientists without bothering to read and learn about the history of any specific area of research. John Waller has attempted to shake our beliefs and get rid of our naivety about these matters by confronting us with the history and work of ten remarkable scientists from 1636 to 1973.

Leaps in the Dark is a collection of historical accounts and analyses of a variety of personalities and their scientific contributions, and brings forth hidden or

unrecognized factors behind their successes or failures. The book is arranged in four sections comprising ten chapters that each cover the life story of one scientist. In the first section, entitled 'Falling from Grace', the ideas and works of Joseph Glanvill (1636–1680), Lazzaro Spallanzani (1729–1799) and Max von Pettenkofer (1818–1901) are presented as examples of scientists who were largely mistaken or totally wrong. But that conclusion can only be reached retrospectively. At the time they were working and presenting their ideas, they were not making any obvious blunders. At that point in the history of science, these intelligent and highly respected scientists were drawing the most logical conclusions based on the state of knowledge at that time. For example, Glanvill believed in the existence of witches, and Spallanzani had absolute faith in the preformation of the embryo from the egg without any role of the sperm. In rejecting Robert Koch's discovery of cholera-causing microorganisms, Pettenkofer dared to commit the almost suicidal act of ingesting cholera germs. In each case, these talented scientists were on totally the wrong track.

Part two, 'Eureka! Revisited', is a historical analysis of the much acclaimed moments of enlightenment from Isaac Newton (1642–1727) for his discovery of gravity and the composition of light, James Lind (1716–1794) for his discovery of the role of vitamin C in the prevention and treatment of scurvy and Ignaz Semmelweis (1818–1865) on his realization of the necessity of cleanliness in the prevention of death in new mothers. Although the discoveries and achievements of these scientists were truly remarkable and have stood the test of time, Waller's analysis shows that their acceptance was a result of a long process of struggle, frustration and personal sacrifice—even to the point of insanity, as

in the case of Semmelweis. During their lifetimes, these scientists often had to face the opposition, anger and disbelief of their colleagues and peers.

The next two sections, 'Heroes Made to Measure' and 'Do-it-Yourself Heroes', present informative backgrounds about the successes, failures or self-promotion of Johann Weyer (1515–1588), Philippe Pinel (1745–1826), Robert Watson-Watt (1892–1973) and Selman Waksman (1888–1973). In the final chapter, the author recapitulates his reasons for analysing the life histories of these scientists and stresses the point that the history of science and scientists is as much constructed, distorted, underestimated or glorified as is the history of any other human activity or person.

Leaps in the Dark is full of facts, ideas, emotions and social scenarios. But it is not an easy or entertaining book to read. Prologues to each part of the book and each chapter give away the main point of controversy even before the story is told. This deprives the reader of the pleasure of reliving history and discovering for himself what the stories are all about. Furthermore, after becoming familiar with the style and tone of the author in the first few chapters, the rest of the book becomes rather tedious and dull to read. Maybe one should not try to read more than one chapter at a time, and should come back to the book after taking time to recover from the monotony. John Waller's *Leaps in the Dark* leaves its readers feeling dark and depressed, which is an unfortunate result considering how inspiring and enlightening the life stories of these scientists really are.

Suresh I.S. Rattan is at the Danish Centre for Molecular Gerontology, Department of Molecular Biology, University of Aarhus, Denmark.

E-mail: rattan@imsb.au.dk

doi:10.1038/sj.embor.7400368