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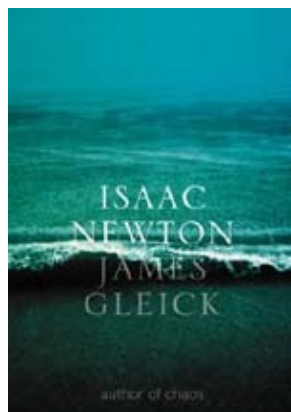
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November 2003

Reviews

'Isaac Newton'

reviewed by Frances Gibson



Isaac Newton

In this well-written book, James Gleick (author of *Chaos*) tackles the life and work of Isaac Newton. He focuses on the man and his life in the historical context of Britain in the 17th Century, and, although the book is not a light read, he explains Newton's science well without the use of any equations.

Newton was born in 1642 in the time of the civil war (King Charles was beheaded when Newton was six years old). His family were reasonably well-off farmers, although his illiterate father died before Newton was born. He seems to have had an unhappy childhood. His mother remarried and lived in her husband's house, leaving Isaac in the care of his grandmother at their family home. Notes scribbled in his school books imply that he was lonely and perhaps bullied at school.

Newton's achievements are incredible – binomial series, calculus, explanations of gravitation and light refraction and more. He believed that everything could be described mathematically and tried to do so. Hypotheses were not good enough – he wanted proof! And by proof, he meant a mathematical description of a phenomenon.

Newton was also a keen alchemist. The science of chemistry had not been invented but many alchemists experimented with melting, distilling and reacting substances. This alchemy often involved mercury (called

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"quicksilver") which was an exciting substance to alchemists. Sadly, mercury poisoning can cause damage to the nervous system, leading to trembling, sleeplessness and perhaps paranoid delusions. (This is where the phrase "mad as a hatter" comes from – hat-makers used to wipe the hats over with mercury to make them shiny.)

Before reading this book I had never considered a world without Newton's laws. There was no word for pressure, and no way to describe light or sound as waves (waves were only found in the sea in the vocabulary of the time!). It wasn't possible to describe how distance related to velocity or how velocity related to acceleration. We take these mental tools for granted, but it was Newton who explained these relationships.

This book doesn't require any prior knowledge of maths or physics and is a great read about a mysterious and influential man. Perhaps those who use Newton's equations will appreciate the magnitude of his work better than those who don't, but James Gleick's main achievement has been to provide a fascinating insight into the personal life, as well as the science, of the great mathematician and scientist.

Book details:

Isaac Newton

James Gleick

hardback – 288 pages (2003)

Fourth Estate

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About the reviewer

Frances Gibson is a PhD student at the University of Cambridge. She is researching the flow of water around coastlines, which is relevant for pollutant dispersal. Frances is an enthusiastic engineer/applied mathematician, with an active interest in science communication.



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