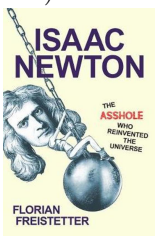
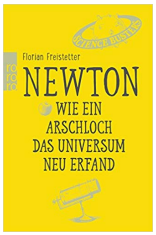
Isaac Newton. The asshole who reinvented the universe, Prometheus Books, 2018 (224 p.) by *Florian Freistetter* (original in German, Carl Hanser Verlag, 2017)







Florian Freistetter

Freistetter is an astronomer who is now a blogger and science writer. The title he chose for this book is certainly a catchy one, but after all, he is not depictiong Newton as a really brutal monster. The cover design of the book is clearly a reference to the Wrecking Ball clip of Miley Cyrus but the message behind it, if there is one, is not completely clear to me. He does reflect on what these disputes would mean and whether they would have happened if Newton had lived in our time of scientific research.

Newton did not have a happy childhood and being a genius at school, he had a heightened sense of isolation. Even today a genius scientist is often captured as a nerdy loner, but most research today is the result of research teams which requires intense collaboration. Newton was certainly a workaholic who found his pleasure in solving problems, but he was very reluctant in publishing or sharing it. It might be because he could not stand any criticism. He was interested in anything that helped him to understand the world: from astrology to alchemy to optics, physics, history and theology. Mathematics was almost just like a tool he developed to support his other research. In our modern world, Newton's unconventional way of thinking might be appreciated, but since today we are sponsored by the taxpayers, it requires to communicate our results to a general public. For example the dispute between Newton and Flamsteed, the Astronomer Royal was about data that Flamsteed had collected over many years and that he wanted to publish in a magnum opus. However Newton wanted to have these data to check his theory in a second edition of his *Principia*. Freistetter reports extensively on this quarrel and its importance for the determination of the longitude, a major nautical problem. He also draws a parallel to data that were collected during the Rosetta mission of ESA, and whose publication was retarded to give precedence to its own scientists.

When Newton constructed his revolutionary telescope with mirrors, he presented it to the Royal Society and only after being pressured he provided the necessary information to publish it but insisted on anonymity like he had done before with some mathematical results. He considered it as a tool he made for personal interest. However when he submitted a paper on light and colour, Robert Hooke claimed to have an earlier theory to explain the phenomena that Newton described. This made him a lifelong enemy of Newton. Newton also disagreed with Huygens when he criticized some of Newton's result. These experiences may explain why Newton was very restrictive in publishing his results on whatever subject. Here Freistetter explains today's peer reviewing process to publish a paper and why criticism of your peers is so important. Even Einstein when he got a bad referee report answered that he had submitted to paper for publication, and not to be submitted for refereeing. He submitted the paper to another journal, but nevertheless he took the referee's critique into account.

Next Freistetter described Nowton's marvelous work on gravity, the first step towards a theory of everything. Not a flash of insight because he saw an apple falling, but as a result of careful observation and seeing connections. This again resulted in a fierce discussion with Hooke concerning the trajectory of a falling ball. Hooke was right here. Newton's explanation for the trajectory of Halley's comet lead again to a dispute with Flamsteed. Newton's theory was backed up with his mathematics that he had kept for himself and that were difficult for his peers to understand.

Freistetter also devotes a chapter on Newton's search for the philosopher's stone and his biblical studies. But since this was even more delicate to publish, correspondence was using some alchemy coded language. It is some mystery whether Newton has thought he had solved the problem or just had a depression, since suddenly his work on the topic stopped. Nowadays science seems to be the new religion or at least independent from traditional religion.

The last chapter is of course about the row with Leibnitz about who was first to invented calculus. Here the fight was mainly started by third persons, but of course eventually the main antagonists got involved too. Newton was first to develop his theory, but Leibnitz was first to publish. The latter would be the criterion used today.

Adhemar Bultheel