Reference

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Johann Gabriel Doppelmayr (1677–1750), by Hans Gaab. (Leipzig, AVA Akademische Verlagsanstalt, 2023 Acta Historia Astronomiae, Volume 70, Two Volumes). Pp. 1186. ISBN 978–3–944913–62–9 (softcover), 148 mm × 210 mm. EUR 49.

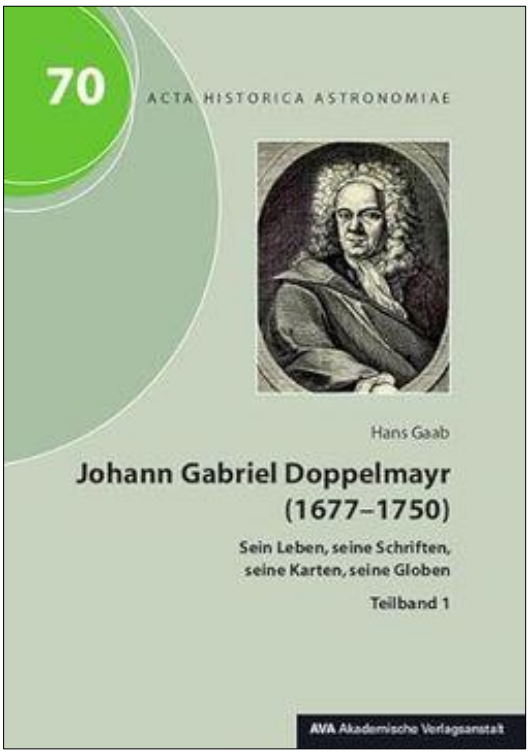
Hans Gaab, born in 1956, was a teacher of mathematics and physics in Nuremberg until his retirement. He has been interested in the local history of astronomy for many years and has published numerous books on the subject, some of which have appeared in the *Acta Historia Astronomiae*.

His latest work presents Johann Gabriel Doppelmayr, who is best known for the Atlas Coelestis from 1742, which summarizes the astronomical knowledge of the time. The unfortunately little-known German scientist also made terrestrial and celestial globes; he was the leading Nuremberg globe-maker of the eighteenth century.

The author reports in detail about Doppelmayr's life and work. Due to the large size of the presentation, the Akademische Verlagsanstalt in Leipzig has divided it into two parts with consecutive page numbering. The impressive publication is subtitled *Sein Leben, seine Schriften, seine Karten, seine Globen* (*His Life, his Writings, his Maps, his Globes*). Both volumes contain numerous illustrations, mostly in black and white, as well as many tables and footnotes.

The first part deals exclusively with Doppelmayr's biography in more than 500 pages. Johann Gabriel Doppelmayr was born in Nuremberg in 1677 as the son of a merchant. After briefly studying law in Altdorf, he moved to the University of Halle. His focus was now on mathematics and physics. After graduating, Doppelmayr traveled to Holland and England for two years. In 1704 he received a position as Professor of Mathematics at the Nuremberg Egidiengymnasium. In 1710 he also became Director of the Eimmart Observatory on the Vestnertorbastei. Doppelmayr was a member of several scientific societies, notably the Leopoldina (1715), the Prussian Academy of Sciences (1715), the Royal Society in London (1733) and the Russian Academy of Sciences in Saint Petersburg (1740). Gaab also introduces important scientists who were in contact with the German colleague. Among them were Christian Goldbach, Joseph-Nicolas Delisle and Anders Celsius.

In 1716, Doppelmayr married Susanna Maria Kellner, who was 20 years his junior. They had four children, one of whom (Johann Sigmund) survived. Johann Gabriel Doppelmayer died in 1750, the age of 73—not as a result of a violent electric shock from



a battery of Leiden bottles, as is often claimed, but according to the author's research as the result of a stroke.

The second part of the book consists of three main chapters. The first presents Doppelmayr's printed works, which mainly deal with geographical and mathematical topics. His publication of 1730, titled *Historische Nachricht von den Nürnbergischen Mathematicis und Künstlern* (*Historic Note about the Nuremberg Mathematicians and Artists*), is still an important source for historical research today. Other books cover instrumentation, surveying, and the emerging theory of electricity. A small section describes Doppelmayr's books on sundials.

The next chapter presents the famous *Atlas Coelestis*, published in Nuremberg in 1742. The atlas documents the astronomical and cosmographic knowledge of the early 18th century on 30 double-sided, artistically illustrated color plates (format 530 mm × 630 mm). They cover the solar and planetary system according to Tycho and Copernicus, planets and their orbits, transits, surfaces, moons and phases. The maps show the celestial hemispheres with comet orbits and star catalogs, the Moon and the geography of the Earth. A high-quality facsimile edition of the *Atlas Coelestis* was published in 2014 by the Albireo Verlag, Cologne.

The last chapter deals with the Doppelmayr globes. The first were made in 1728: a pair of celestial and terrestrial globes, now on display at the Bibliothèque Nationale de France (Paris). 102 terrestrial and 101 celestial globes with a diameter of 10 cm to 32 cm have been preserved. Unfortunately, Doppelmayr was unable to produce larger globes. The three chapters are followed by an appendix entitled “Die Globen der Andreae” (“The Globes of Andreae”). It’s about the curious story of Doppelmayr’s competitor in Nuremberg, which ended in a legal dispute in 1733/1734.

The second volume closes with Doppelmayr’s bibliography (30 pages), archive materials (20 pages), literature (53 pages) and a list of people (33 pages). There is no subject Index.

Hans Gaab’s latest publication is a treasure trove of scientific history that leaves nothing to be desired. It will undoubtedly become the standard work on Johann Gabriel Doppelmayr—unfortunately in German. The author shows what is possible with an exceptional combination of expertise and accuracy. The clearly written text offers insight into an important period in the development of astronomical methods, maps, globes and instruments. The extensive work is recommended to anyone interested in the history of science. It is also likely to be an inspiration for scientists working in this field.

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Splinters of Infinity: Cosmic Rays and the Clash of Two Nobel Prize-Winning Scientists Over the Secrets of Creation, by Mark Wolverton. (Cambridge, MIT Press, 2024). Pp. viii + 271. ISBN 978-0-262-048828 (hardback), 155 × 230 mm, US$29.95.

As one might expect from a seasoned science journalist, this is a well-written expose on a highly technical subject: in this case, cosmic rays. While historians of science would certainly like to see more raw meat (technical diagrams, equations and extensive quotations of academic papers), this is a first-rate introduction to a subject that touches equally on physics and astronomy. The human dimension to the early study of cosmic rays, which would normally be given nothing more than a supporting cast role in an academic book, is here elevated to a clash between two superstars: Robert Millikan and Arthur Compton.

Mark Wolverton, who has previously written books on Oppenheimer, the Pioneer planetary spacecraft, and the science of Superman, here turns his journalistic eye to a long-running drama that largely played itself out in his own chosen field: journalism. He is thus ideally placed to explore and put in context the long-running interaction these two Nobel Prize-winning physicists had with the news media in the 1930s.

It took 20 years from the time cosmic rays were discovered “… until it was conclusively determined that … [they were] coming from outer space.” (page 10). It was Robert Millikan (Nobel Prize in Physics, 1923) who proved they were not coming from Earth’s atmosphere or the ground, and he was the scientist who dubbed them cosmic rays. And yet his view of what cosmic rays are—nothing less than the ‘birth cry’ of the Universe, which aligned with his religious beliefs—was at such variance with reality that this great pillar of his career toppled. One might profitably read an elegy to an ancient ruined temple in tandem with this book.

There is a prescient photograph in the book, taken at the 1931 Rome conference. On the left is Millikan, who is engaged in conversation with Marie Curie (Nobel Prize in Physics, 1903, and in Chemistry, 1911). Between them, Arthur Compton (Nobel Prize in Physics, 1927) listens intently. Curie told the conference she and her colleague W. Bothe had created an artificial cosmic ray in the laboratory, and that she agreed they came from deep space. Millikan hoped that Curie’s statement at the conference was going to end the cosmic ray battles as to their origin. But