

Johann Franz Encke | Encyclopedia.com

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(*b.* Hamburg, Germany, 23 September 1791; *d.* Spandau [near Berlin], Germany, 28 August 1865)

astronomy.

The eighth child of a Lutheran preacher, J. Michael Encke, and his wife, M. Elisabeth Misler, Encke displayed an early interest in mathematics but did not enter the University of Göttingen until the autumn of 1811. During his years of study, which were twice interrupted by his military service in the Wars of Liberation, he was greatly impressed and guided by Gauss, who reciprocated his esteem and in May 1816 procured a post for him at the small Seeberg observatory, near Gotha. After serving as assistant, Encke qualified as professor at and director of this observatory through his theoretical work, of which the computation of the orbit of a comet discovered by Pons is the most essential. This comet was later called Encke's comet. Encke demonstrated that this comet had a period of scarcely four years and that it had been observed repeatedly. Prior to this only a few comets with elliptical orbits and much longer periods had been known. In 1825 Encke—already famous—was offered a professorship at the Academy of Sciences in Berlin and the directorship of the Berlin observatory.

As member of the Academy Encke directed his attention to creating new star charts. This work, only partly based on new observations, was done by many observatories. Those parts finished by the middle of the 1840's led to the discovery of several minor planets and of Neptune in 1846. In 1859 the task was completed, but the charts were soon excelled by those of Argelander.

Encke continued his theoretical work on comets in Berlin, and his investigations into special perturbations are worth attention even today. As a disciple of Gauss, he had already computed the perturbations of the four oldest planetoids, using Gauss's method, which he subsequently improved considerably. As academician Encke was entitled to lecture without passing the *Habilitation* or receiving a doctorate. Upon request by the ministry he lectured until 1862, but without much pleasure.

Encke's lectures were nevertheless influential, since a whole generation of astronomers, including Galle, F. F. E. Brünnow, B. A. Gould, K. N. A. Kruseger, W. J. Förster, Friedrich Tietjen, and K. C. Bruhns were among his disciples. His lectures covered all areas of astrometry and included practical training in the use of measuring instruments, in determining orbits, and in computing perturbations, as well as in fields now considered part of applied mathematics. Encke also lectured on the history of astronomy. He became ordinary professor at the University of Berlin in 1844.

In 1825 the Berlin observatory was obsolete. With the strong support of [Alexander von Humboldt](#), Encke soon succeeded in obtaining funds for a better and more suitably located structure, which began operation in 1835. Besides a meridian circle and a large Fraunhofer refractor, it was equipped with several special-purpose instruments, such as a heliometer. Particular attention was given to observing the positions of stars, particularly of movable stars. Physical observations of planets were of minor interest to Encke. An eager observer himself, he guided his assistants in observing without interfering too much with their work.

After his appointment at Berlin, Encke undertook the editing of the *Berliner astronomisches Jahrbuch*. With the support of his assistants, especially J. P. Wolfers and Bremiker, he issued the yearbooks for 1830–1866. For coverage of minor planets, which was requiring more and more space in the books, several of Encke's disciples were engaged. Apart from 1844–1851, when the yearbook appeared together with the nautical ephemerides as an official publication, its issuance was a private matter, supported by the state but not without economic risk. The opportunity to publish made possible the appearance of Encke's treatises in the yearbooks, dealing particularly with orbit determinations and perturbation computations.

Encke published several of his papers in *Astronomische Nachrichten*; they referred almost exclusively to bodies of our [solar system](#) and only to a small extent to fixed stars. In 1823 he married Amalie Becker, who bore him three sons and two daughters. He died peacefully in 1865, after suffering three strokes, and was buried in Berlin.

BIBLIOGRAPHY

Many of Encke's writings were brought together as *Astronomische Abhandlungen*, 3 vols. (Berlin, 1868). Among his papers are "Polhöhe der neuen Berliner Sternwarte," in *Abhandlungen der Preussischen Akademie der Wissenschaften* (1845); "Entwicklung der allgemeinen Störungen der Flora durch Jupiter und Saturn," in *Berichte der Preussischen Akademie der Wissenschaften* (1853); "Berechnung der Pallas-Störungen," *ibid* (1855); "Telegraphische Bestimmung der Längenunterschiedes BrüsselBerlin," in *Abhandlungen der Preussischen Akademie der Wissenschaften* (1858); and "Der

Comet von Pons," *ibid* (1859), composed of eight papers. *Vorlesungen über Geschichte der Astronomie im Altertum* was edited by K. C. Bruhns and published after Encke's death (Altona, 1869). Many notices appeared in *Astronomische Nachrichten*.

A biography is K. C. Bruhns, [Johann Franz Encke](#) (Leipzig, 1869).

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