

# Biographical Encyclopedia of Astronomers

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Bouvard, Alexis

Born Contamines, (Haute-Savoie), France, 27 June 1767

Died Paris, France, 7 June 1843

Alexis Bouvard was a French astronomer who first suggested that perturbations to Uranus' motion might be caused by an unseen planet. Bouvard was a penniless rural youth who, in 1785, made his way to Paris where he took mathematics lessons to be able to make a living as a calculator. He attended free courses at the Collège de France. His passion for astronomy was ignited by visits to the Paris Observatory, where he was soon admitted as a student-astronomer in 1793. Within two years, he was promoted to astronomer.

Bouvard met Pierre de Laplace in 1794 just as the *Mécanique céleste* was being composed. Laplace gave him the task of doing the detailed calculations for the work. With Laplace as his patron, Bouvard gained a position at the Bureau des longitudes in 1794. He spent the rest of his career there, providing tables for *Connaissance des temps* and the *Annuaire* of the bureau. At the observatory, he was an indefatigable observer, discovering comets C/1797 P1, C/1798 X1, C/1801 N1 (discovered a night earlier by Jean Pons), and C/1805 U1. When comet 2P/1818 W1 appeared, he calculated an orbit for the observatory and realized it was the same as that for the comet of 1805, later to be called comet 2P/Encke. During this period, he also worked on lunar theory, which earned him a prize from the Institut de France in 1800.

In 1808, Bouvard published his *Tables astronomiques*, which provided tables for the orbits of Jupiter and Saturn. When revising the work (for publication in 1821), Bouvard wanted to include tables for Uranus. Even though he had a few predisccovery sightings, mostly thanks to the work of Pierre le Monnier, Bouvard could not fit an orbit using Laplace's methods, so he based his tables on post-discovery positions. Within a few years, it was clear that Bouvard's tables were not predicting accurate locations. He believed that there must be a perturbing body. He asked his nephew, Eugène Bouvard, then a student astronomer at the Paris Observatory, to follow up on this idea, but the latter resigned in 1842 and Bouvard himself was dead the next year. It was, however, the mismatch of Bouvard's predictions and actual observations of Uranus that led John Adams and Urbain Le Verrier to predict the position of Neptune in 1846.

Bouvard was elected to the Académie des sciences in 1803, and the Royal Society of London named him a fellow in 1826.

*Richard A. Jarrell*

## Selected Reference

Alexander, A. F. O'D. (1970). "Bouvard, Alexis." In *Dictionary of Scientific Biography*, edited by Charles Coulston Gillespie. Vol. 2, pp. 359-360. New York: Charles Scribner's Sons.