Biographical Encyclopedia of Astronomers

Delambre, Jean-Baptiste-Joseph

Born Amiens, (Somme), France, 19 September 1749

Died Paris, France, 19 August 1822

Jean Delambre made fundamental contributions to celestial mechanics and geodesy, authored a leading textbook on mathematical astronomy, and published a six-volume history of astronomy from ancient times to the 18th century. He was one of many young men who owed their careers in astronomy to Joseph de Lalande. After his early studies with Jacques Delille, Delambre went to Paris to study classical languages until he was hired as the tutor of a young man in Compiègne, north of Paris. Returning to the capital city as a private instructor, he attended Lalande's classes at the Collège de France and began working with Lalande, whose influence steered Delambre's career toward astronomy.

In 1790, Delambre won a competition sponsored by the Académie royale des sciences for calculating the orbit of the

newly discovered planet Uranus. Delambre took into account the perturbations exerted by Jupiter and Saturn, which established his reputation as a skillful calculator of astronomical tables and a resourceful innovator of methods in celestial mechanics. In 1792, he received a second prize, which opened the academy's doors to him, just as another opportunity presented itself

In preparation for their country's adoption of the new metric system (approved the previous year), Jean Cassini, Adrien Legendre, and Pierre Méchain were assigned to measure an arc of the meridian through Paris between Dunkirk, France, and Barcelona, Spain. Cassini refused the offer in 1792 for political reasons, and Legendre declined because he preferred theoretical work. Delambre, as a new member of the Académie, joined the project and, together with Michel Lefrançois, nephew of his advisor, was assigned the easiest yet longest part: to remeasure the arc between Dunkirk and Rodez, in central France, which had already been measured and calculated. The other, shorter part was left to the more experienced Méchain, who would measure the remainder of the arc in France and the unmeasured part in Spain, to which he immediately headed

During the most dramatic period of the French Revolution, as a member of the Academy and under suspicion of loyalty to the old regime, Delambre traveled the French mountains and roads. Over three years (1793–1796), and even with long interruptions, he completed the geodetic measurements and developed new theoretical tools for reducing his observations. The result was his important work, *Analytical Processes for Determining an Arc of Meridian* (1798), and numerous publications and tables in *Connaissance de temps.* Once finished with the assignment, Delambre measured the geodetic base of Melun and also, due to Méchain's delays, was given charge of measuring the base of Perpignan

Delambre was named to the Bureau des longitudes and the Institut National after their establishment in 1795. He gradually assumed more important institutional roles. Delambre was a prominent member of the commission that defined the length of the meter and was responsible for the custody of all accumulated materials. Shortly afterward, through the Bureau des longitudes, he was appointed to direct the Paris Observatory, but was then succeeded by Méchain. After the latter's death in 1804, Delambre was placed in charge of publishing all of

the astronomical and geodetic measurements conducted to determine the meter. These appeared in a monumental work, *The Base of the Metric System* (1806–1810), along with Delambre's important autobiographical notes

After completing these tasks, Delambre was awarded successively higher posts in French science and administration. In 1803, he was elected the first permanent secretary of mathematical sciences at the Institut National, the organization that replaced the Académie des sciences. Finally, in 1807, Delambre succeeded Lalande as professor of astronomy at the Collège de France. In 1814, after the fall of Napoleon, he was elected to membership in the Royal Council of Public Education.

As part of his work as secretary of the Institut National, Delambre published in 1810 his *Historic Report on the Progress of Mathematical Sciences* since 1789, in which he reviewed the progress in astronomy achieved during this period. Collecting his lessons from the Collège de France, he published his *Abridged Astronomy* (1813), an elementary-level textbook. The following year, his most important astronomical work appeared: *Theoretical and Practical Astronomy* (three volumes, 1814), which presented the best summary of its subject to date and replaced the previous text authored by his teacher, Lalande. Delambre's *Astronomy* became the text from which this science was studied by the following generation of French astronomers and others throughout Europe.

Starting in 1817, Delambre began to publish a monumental history of astronomy, in six volumes, that is still in use today. Its final volume, *History of Astronomy in the Eighteenth Century* (1827), was published posthumously by his student and heir of his scientific papers, Claude Mathieu.

Antonio E. Ten

Translated by: Claudia Netz

Selected References

Cohen, I. Bernard (1971). "Delambre, Jean-Baptiste Joseph." In *Dictionary of Scientific Biography*, edited by Charles Coulston Gillispie. Vol. 4, pp. 14-18

New York: Charles Scribner's Sons.

Dupin, Charles (1822). "Notice necrologique sur M. Delambre." *Revue encyclopédique* 16: 437-460.

Mathieu, Claude Louis (1837). "Delambre (Jean-Baptiste-Joseph). In *Biografie universelle, ancienne et moderne. Supplément*. Vol. 62, pp. 249-257. Paris: L. G. Michaud.

Ten, Antonio E. (1996). *Medir el metro: La historia de la prolongación del arco de meridiano Dunkerque-Barcelona, base del Sistema Métrico Decimal*. Valencia: Instituto de Estudios Documentales e Históricos sobre la Ciencia, University of Valencia