

Biographical Encyclopedia of Astronomers

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Méchain, Pierre-François-André

Born Laon, (Aisne), France, 16 August 1744

Died Castellón de la Plana, Spain, 20 September 1804

Pierre Méchain discovered and calculated orbits for many comets and participated in important surveys and other geodesic work in France. As the son of a humble architect, Méchain spent his formative years in his native town. His talents eventually led him to attempt a course of study at the prestigious *École des Ponts et Chaussées*. Due to a lack of funds, Méchain was forced to leave the school in order to earn a living as a private tutor. A small telescope that he gave to his father to help the latter through some financial embarrassment brought the young man to the attention of an astronomer. His father sold the telescope to Jérôme Lalande, who then took the younger Méchain under his wing. Méchain owed his career as an astronomer to Lalande. Thanks to this patronage, Méchain obtained his first scientific employment in 1772, being appointed hydrographer in the *Dépot de la Marine*, the French navy's cartographic service, first in Versailles and then in Paris. During this work he gained experience in drawing maps, as well as in determining latitudes and longitudes on land.

Méchain also specialized privately in the search for comets. This met with success with the discovery of two comets in 1781 and the suggestion that William Herschel's planet, initially taken to be a comet, had a circular orbit. The following year, by calculating the orbits, he showed that two comet apparitions, those of 1532 and 1661, did not correspond to the same comet, as had been the general opinion until then. This work earned Méchain an award from the *Académie des sciences* and his election as a member of that institution.

Once started on the pursuit of comets, Méchain soon became the most famous comet-hunter in France, securing his reputation by the discovery of up to nine more comets in subsequent years, and also through the calculation of the orbits for all comets for which he had sufficient knowledge. Based on his reputation as an orbital calculator, Méchain took charge of the preparation of the *Connaissance des Temps*, the French yearbook of astronomical ephemerides, which he edited between the years of 1788 and 1794. His work as a cometary observer necessarily led him to discover other new nebulous objects, which were included by Charles Messier, also a famous comet-hunter, in his well-known catalogue.

Méchain's experience in cartography and his status as a member of the *Académie des Sciences* led to his selection, along with Jean-Dominique Cassini and a young mathematician, Adrien-Marie Legendre, for a major geodetic task: linking the Paris Observatory and Greenwich Observatory by a large triangulation chain. This operation resulted in a confrontation between two different methods of geodetic surveying. The British, under General Roy, used the well-known portable quadrant, whereas the French tried a new instrument, invented by another academician, Jean Charles de Borda, which later became known as the repeating circle.

Publication of the results, which was delayed until 1791 by the bellicose tension between France and Britain, was to be Méchain's first major astronomical/geodetic work

When the French National Assembly decided to create a new standard of measurement, based on nature, and accepted the definition of the meter proposed by the Académie des sciences, Cassini, Legendre, and Méchain were again selected to undertake a major geodetic operation: the measurement of the arc of the meridian between Dunkirk and Barcelona.

In the end, it was Méchain and Jean Delambre who were in charge of the operation, which, in time, led to Méchain's death. Between 1792 and 1798, Méchain and Delambre carried out both geodetic and latitude measurements on both French and Spanish territory. These they presented at the International Conference that met in Paris in 1799 to establish the decimal metric system; the results were published in *Base du système métrique décimal* (Paris, 1806–1810).

In 1798, Méchain was elected a member of the Bureau des longitudes, the organization set up to oversee French astronomical observatories and operations; he went on to hold the most important institutional positions in astronomy in France. On 10 September 1798, the bureau appointed him as Capitaine Concierge of the Paris Observatory. On 8 June 1801, he was entrusted with the functions of the director of the observatory, and on 5 December of that year he was nominated as president of the Bureau des longitudes. Méchain remained in this post until 31 August 1802 when the bureau decided to extend geodetic operations in Spain to link the Balearic Islands with the Spanish coast and extend the Dunkirk-Barcelona arc by 3° towards the south

Appointed as the person responsible for this work, Méchain left Paris on 26 April 1803. He carried out various subsidiary projects and made numerous terrestrial and latitude determinations both on the mainland and in the Balearic Islands. Méchain's death from malaria interrupted the work, which was completed between 1806 and 1808 by Jean Biot and François Arago.

Antonio E. Ten

Translated by: *Storm Dunlop*

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