

Biographical Encyclopedia of Astronomers

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Plana, Giovanni Antonio Amedeo

Born Voghera, (Lombardy, Italy), 6 November 1781

Died Turin, Italy, 20 January 1864

Mathematical physicist and astronomer Giovanni Plana wrote more than 100 memoirs dealing with mathematical analysis, geodesy, astronomy, celestial mechanics, and heat theory, including his most important work, the theory of the lunar movements. Plana was the son of Antonio Maria Plana and Giovanna Giacoboni. From 1796, Plana studied in Grenoble, France, where he met and befriended Henry Beyle Stendhal. In 1800, Plana entered the École Polytechnique, where Joseph Lagrange taught analysis and mechanics, Gaspard Monge taught geometry, and Pierre de Laplace taught astronomy. He also became friends with Siméon-Denis Poisson. In 1803, Plana became professor of mathematics at the Turin Artillery School, located in Alessandria, and in 1811, professor of astronomy at the University of Turin. Before assuming his professorship, Plana practiced astronomy at the Brera Astronomical Observatory in Milan under the scientific direction of Barnaba Oriani. In 1816, he became director of the Turin Astronomical Observatory. In 1817, Plana married Alessandra Maria Lagrange, a niece of the great mathematician.

In Milan in 1811, Oriani proposed to the young astronomer Francesco Carlini some research in the theory of the Moon, probably at Laplace's suggestion. Plana was involved with this project and collaborated closely with Carlini, at least until 1820, when they won a prize of the Paris Académie des sciences. The prize, promoted by Laplace in 1818, was to be awarded to whoever succeeded in the construction of lunar tables based solely on the law of universal gravity. (The prize was shared with Charles Damoiseau.) Despite the prize, Laplace criticized the memoir of Carlini and Plana. A bitter dispute ensued. Plana set the tone of the dispute, perhaps recalling the discussions in Grenoble when the young students excitedly sided with Lagrange, the *man of principles*, or with Laplace, the *man of theories*. In the end, Laplace admitted that the two Italian astronomers were more accurate than he was. The Académie des sciences published Damoiseau's memoir but not that of Carlini and Plana, who decided to publish a complete theory of the Moon. But the collaboration was complicated and, in the end, Plana decided to continue his work alone, which was published in 1832 in three large volumes.

Plana's work is considered a milestone in celestial mechanics. The theory was derived solely from the principle of universal gravitation and borrowed only the essential data from observations. Plana's lunar theory had completed Laplace's program, along the path drawn by Isaac Newton, for one of the most complex celestial phenomena.

In 1825 and 1827, Plana and Carlini published the data of their observations obtained by measuring the mean parallel (45°) linking the French geodesic network to the northern Italian one, from Bordeaux to Fiume (today Rijeka), crossing the Alps. They were also able to explain the anomalies of Giovanni Battista Beccaria's measurements of the meridian arc between

Mondovì and Andrate, as they noted the deviation of the plumb line due to the presence of high mountains

In 1822, Plana inaugurated the new Turin Observatory and the new instrument, a meridian circle of Reichenbach. He published the results of his observations from 1822, 1823, 1824, and 1825 and his theoretical considerations on astronomical refraction. Other astronomical memoirs dealt with Foucault's pendulum, the movement of a body launched from the Moon to the Earth, and comets.

Plana won the Copley Medal of the Royal Astronomical Society. He was president of the Turin Accademia delle Scienze, a foreign member of the Académie des sciences, and a corresponding member of the most important European academies. Plana's archives are in Turin at the Accademia delle Scienze. Plana's letters to Carlini about the theory of the Moon and other subjects are in the Archives of the Brera Astronomical Observatory.

Pasquale Tucci

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