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(b. Paris, France, 18 February 1677; d. Thury, near Clermont, Oise, France, 15 April 1756). *astronomy, geodesy.*

The son of Gian Domenico Cassini (Cassini I) and Geneviève de Laistre, Cassini began his studies at the family's home in the Paris observatory and then entered the Collège Mazarin, where, in August 1691, he defended a thesis in optics under the direction of Varignon. Oriented very early toward astronomy, he was admitted as a student to the Académie des Sciences in 1694 (he became an associate at the time of the reorganization of 1699 and succeeded his father as a *pensionnaire* on 29 November 1712). In 1695 Cassini accompanied his father on a journey through Italy, where he made numerous scientific observations and carried out several geodesic operations, collaborating in particular on the restoration of the meridian of the church of San Petronio in Bologna. He traveled next to Flanders, the Netherlands, and England, making various geodesic and astronomical measurements, which he published on his return; while visiting these countries he became acquainted with Newton, Halley, and Flamsteed and was admitted to the [Royal Society](#).

In 1700–1701 Cassini participated in his father's project of extending the meridian of Paris as far as the southern border of France. After having criticized the measurement of the arc of meridian made by Snell in 1617 and having presented a new method for the determination of longitudes (by means of the eclipses of the stars and the planets by the moon),

in 1713 he took a position clearly supporting the hypothesis of the elongation of the terrestrial ellipsoid. He based his view on the results of earlier measurements of arcs of meridian—especially on that of the meridian of Paris in which he had participated—which seemed to show “that the degrees of a terrestrial meridian grow smaller from the equator toward the pole.” Until his retirement Cassini expended great effort in defending this point of view, thus taking part in the battle led by the last Cartesians against the expansion of Newtonianism.

Important administrative positions were soon added to Cassini's purely scientific work. Although at this time the Paris observatory had no official director, Cassini succeeded his father as its manager from the time that the latter's state of health reduced his activity (before 1710) and abandoned this position only in the last years of his life, in favor of his son César-François. Moreover, despite his quite modest legal background, in 1706 Cassini was named *maître ordinaire* of the *chambre des comptes*. In this office he acquired a reputation for seriousness and honesty, but also for indecision. Designated magistrate of the *courde justice* in 1716, he necessarily obtained the title of *avocat*; and that of *conseiller d'état* was awarded him in 1722.

In 1710 Cassini married Suzanne-Françoise Charpentier de Charmois, by whom he had three sons (Dominique-Jean, later *maître ordinaire* of the *chambre des comptes*; César-François, who succeeded him as astronomer and geodesist and was known as Cassini III or Cassini de Thury; and Dominique-Joseph, a brigadier general) and two daughters (Suzanne-Françoise and Elisabeth-Germaine).

In 1718 Cassini managed to complete the determination of the meridian of Paris, extending as far as Dunkirk the Paris-Amiens axis measured by Picard. Relying on the results of this operation, which were presented in the *Histoire de l'Académie des sciences* for 1718, in 1722 he published the important work *De la grandeur et de la figure de la terre*, in which he confirmed his support for the hypothesis of the elongation of the terrestrial ellipsoid and opposed that of its flattening, which was defended by the supporters of Newton and Huygens. While Mairan sought to justify this apparent disagreement between theory and observation, the Newtonians criticized Cassini's position: Desaguliers in 1725, Maupertuis in a veiled form in 1732, and Giovanni Poleni in 1733. In order to reply to them Cassini, with the aid of his sons and of other collaborators, undertook in 1733–1734 the determination of the perpendicular to the meridian of Paris, from Saint-Malo to Strasbourg. Although the results of this operation seemed to confirm his point of view, the young Newtonians of the Academy arranged for the sending of geodesic expeditions to Peru and to Lapland in order to obtain measurements of arcs of meridian of latitudes sufficiently different to permit a settlement of the dispute. After having proposed a few more improvements in geodesic methods, Cassini left the pursuit of the polemic to his son César-François, who had participated in the last operations and had improved certain methods of measurement; Cassini limited himself to replying in 1738 to a direct attack by Celsius.

In astronomy proper Cassini's work is vast. Besides working patiently as an observer and directing frequently effective work while head of the Paris observatory he published a great number of memoirs in the *Histoire de l'Académie* and two books on astronomy (1740): a collection of tables and a manual. Cassini's principal areas of interest were the study of the planets and their satellites—particularly the inclination of the orbits of the satellites and the structure of Saturn's ring—the observation and the theory of the comets, and the tides.

Certainly these fields yielded valuable observations, particularly, in 1738, the revelation of the proper motions of the stars; the presentation of improved instruments and of several new methods; and some original hypotheses of limited scope. Their theoretical value, however, is considerably lessened by Cassini's biases. A timid Copernican but a convinced Cartesian and a fervent disciple of his father, Cassini fought unceasingly to defend the work of his father and to reconcile the facts of observation with the theory of vortices; he also never admitted the value of the theory of gravitation. Furthermore, as Delambre notes, the use he made of graphical methods often did not allow one to compensate for the insufficiency of his calculations.

Beginning in 1740, perhaps realizing the futility of his opposition to the triumphant Newtonianism, Cassini progressively abandoned his scientific activity, leaving to his son the task of pursuing the family work in a less outmoded perspective. He restricted himself to some astronomical and physical observations and to collaborating on the map of France, an undertaking directed by his son.

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