

Lalande, Joseph-Jérôme | Encyclopedia.com

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(b. Bourg-en-Bresse, France, 11 July 1732; d. Paris, France, 4 April 1807)

astronomy.

Lalande's father was Pierre Le François, director of the post office at burg and also director of the tobacco warehouse. his mother was the former Marie-Anne-Gabrielle monchinet. Lalande used the simple patronym Le François until 1752 when he began to write Le François de la Lande. With the abolition of noble titles during the Revolution he became simply Lalande. Apparently he had no brothers or sisters and was never married. His "nephew," Michel-Jean-Jérôme Lefrançais de Lalande, who became an astronomer under Lalande's tutelage was actually a grandson of Lalande's uncle. Lalande also frequently referred to Michel's wife as his niece or daughter and occasionally employed her in the calculation of astronomical tables.

Lalande was extremely well known during his lifetime, partly because of the enormous bulk of his writings and partly because of the enormous bulk of his writings and partly because of his love for the limelight. Nothing pleased him more than to see his name in the public press, a weakness that he readily confessed; "I am an oilskin for insults and a sponge for praise." He was first and foremost a practical astronomer, a maker of tables and an excellent writer of astronomical textbooks. His enormous energy and active pen could never be confined to astronomy, however; and he also wrote on the practical arts, published travel literature, and was very active in the scientific academies.

Lalande was educated by the Jesuits at the Collège de Lyone and at first indicated an intention to join the order. His parents persuaded him to study law at Paris instead. During his student years he lived at the hôtel de Cluncky, where the astronomer Joseph-Nicolas Delisle had his observatory. Lalande followed Delisle's lectures at the Collège Royal and assisted him in his observations. He also attended the lectures of Pierre-Charles Le Bonnier on mathematical physics, and it was Le Monnier who obtained for Lalande his first important assignment as an astronomer. In 1751 Abbé Nicolas de La Camille departed on an expedition to the Canoe of Good Hope, one of the main purposes of which was to measure that lunar parallax. It was important that simultaneous measurements be made in Europe at some point on the same meridian. The most advantageous site was Berlin, which unfortunately lacked an adequate instrument. Le Bonnier permitted Lalande to go in his place, entrusting to him his quadrant, which was generally considered to be the best in France. At Berlin, Lalande was admitted to the Prussian Academy, where he enjoyed the company of Maupertuis, Ruler, and the marquis d'Argens. He published his observations in the *Acta eruditorum*, the *histoire* of the Berlin Academy, and the *Mémoires* of the Paris Academy, which led almost immediately to his election to the latter on 4 February 1753 as *adjoint astronome*. He was promoted to *associe* in 1758 and became *pensionnaire* in 1772.

Lalande became involved in a series of controversies on astronomical questions. The first was with his teacher Le Bonnier over the best way to correct of the flattening of the earth in calculating the lunar parallax. A commission appointed by the Academy to judge the dispute decided in Lalande's favor. his enthusiasm in pressing his claim caused ill will on the part of his former teacher and resulted in a rupture of their friendship.

A more important controversy arose over Alexis Clairaut's prediction of the return of Halley's comet. Halley had predicted that the comet of 1682 would return late in 1758 or early in 1759, but his prediction was based on the gravitational attraction of the sun alone, without considering the perturbations caused by the other planets. Clairaut determined to calculate the orbit more precisely and was aided in the extremely laborious calculations by Lalande and Mme. Lepaute, the wife of a famous French clockmaker. The comet appeared on schedule, as Clairaut predicted, and his feat was acclaimed in the popular press as a great vindication of Newton's law of gravitation.

The work of Clairaut and Lalande was made possible by the recently discovered mathematical methods of approximating solutions to the three-body problem. Clairaut, d'Alembert, and Euler had all been competing to solve this particular problem during the 1740's; and at one point it seemed that Newton's law would be shown to be in error, since the more precise calculations of the astronomers gave the wrong figure for the motion of the lunar pap sides. A bitter controversy ensued between d'Alembert and Clairaut over the best method of approximation. D'Alembert was closely associated with Le Monnier and Lalande with Clairaut, and the recent rupture between Lalande and Le Monnier increased the hostility between the two camps. When the controversy was resumed over the return of Halley's comet, Lalande joined enthusiastically in the polemics. Many of the letters in the controversy were anonymous, however and the extent of Lalande's involvement is difficult to determine. He published his account of the comet in his *Histoire de la comète de 1759*, which contained a new edition of Halley's planetary tables.

There followed new successes for Lalande. He was chosen to succeed G. D. Maraldi as editor of the astronomical almanac *Connaissance des temps*, which he greatly expanded during his years as editor from 1760 to 1776, adding accurate tables of lunar distances from the stars and the sun and other information of value for navigation. He also made it a chronicle of important astronomical events. During the Revolution, Lalande returned again to the *Connaissance des temps* and edited it from 1794 until his death in 1807. Also in 1760 he succeeded Delisle as professor of astronomy at the Collège Royale. Lalande was an excellent teacher and had many distinguished pupils during his forty-six years of service at the Collège Royale, including J. B. J. Delambre, G. Piazzi, P. Méchain, and his nephew, Michel Lalande.

Next to his indefatigable efforts to improve astronomical tables, Lalande's greatest contribution was as a writer of textbooks, the most important being his *Traité d'astronomie* of 1764, with subsequent editions in 1771 and 1792. It became a standard textbook and had the advantage over other texts of containing much practical information on instruments and methods of calculation. In 1793 he wrote *Abrégé de navigation historique, théorique, et pratique, avec des tables horaires*, for which the calculations were done by his niece, Mme. Lalande. Other major works are his enormous *Bibliographie astronomique* (1802), the last two volumes of Montucla's *histoire des mathématiques* (1802), *histoire céleste française contenant les observations de plusieurs astronomes français* (1801), *Traité des canaux de navigation* (1778), and numerous smaller works, including *Astronomie des dames* (1785, 1795, 1806) and annotated editions of work by earlier astronomers.

Lalande's leaning toward the spectacular attracted him to the most important astronomical event of the eighteenth century, the transits of Venus across the face of the sun, which occurred in 1761 and 1769*. Astronomers believed that careful observations of the transits made from different places on the earth would provide a means for measuring very precisely the sun's parallax. Lalande's teacher De Lisle had a major role in preparing for the transit of 1761 and benefited from Lalande's assistance. Before the second transit Lalande took a major organizational role and wrote to ministers and even to sovereigns of many countries in an attempt to coordinate a second international effort to send expeditions to the locations best suited for observing the transit. It was Lalande who constructed the mappemonde showing the portions of the world from which the transit could best be observed. He refused all offers to lead an expedition (he excused himself because of his extreme susceptibility to seasickness), but he regarded himself as the obvious person to compile the data and compute the solar distance. When Maximilian Hell refused to send his data from observations made at Wardhus in Lapland, Lalande intimated that Hell had failed to obtain satisfactory results and was concealing his ineptitude by refusing to send the data. Hell was later vindicated, and Lalande was forced to concede that his observation was one of the best. The most important calculation of the solar parallax from the transit of 1769 were those of Lalande (published in his *Mémoire sur le passage de Venus observé le 13 June 1769*) and Pingré.

Lalande caused another stir in 1773, when he discussed the possibility of a collision between the earth and a comet. His work on the perturbation of comets by the planets indicated that the orbit of a comet might be altered enough to make a collision with the earth possible. He realized that the likelihood of such collision was extremely slight, but he failed to emphasize this point in summarizing his paper before the Academy. The result was a panic in Paris based on the rumor that Lalande had predicted the imminent destruction of the earth. Even prompt publication of the entire paper did not completely reassure the public.

Lalande also wrote lengthy accounts of his travels, the most important being his description of a trip to Italy in 1765 and 1766. The *Voyage d'un français en Italie* (1768) appeared in eight volumes and was the most complete guide available for the French traveler. Lalande went into great detail about prices, interesting places to visit, and other information of interest to the tourist. A similar description of a journey to England was never published but is of interest to the historian for the wealth of detail that it includes.

Another of Lalande's enthusiasms was for the practical arts, and he contributed a series of articles on technology to the collection of the Academy, eventually published as *Description des arts et métiers*. Lalande was not one of the original *encyclopédistes*; but he did contribute to the supplement and later rewrote the astronomical articles for the *Encyclopédie méthodique*, replacing d'Alembert's articles, which were drawn largely from Le Monnier's *Institutions astronomiques*, with material that he took from his own *Traité d'astronomie*.

Lalande had an important organization role in many institutions of the *ancien régime*. He organized a literary society at Bourges in the winter of 1755–1756 which was active for over a year but was finally refused authorization after the attempt to assassinate the king in 1757. In 1783 Lalande renewed his efforts and obtained authorization to found a new *société d'émulation et d'agriculture de l'Ain*. He was also a very active member of the Masonic order and founder of the famous Lodge of Nine Sisters at Paris. He had had an important part in the founding and early history of the Grand Orient de France in 1771 and wrote the short *Mémoire historique sur la maçonnerie* (1777) as well as a new article "Franc-Maçon" for the supplement of the *Encyclopédie*. The Lodge of Nine Sisters was to be an "encyclopedic" lodge to bring together men of learning and talent. Originally conceived by Helvétius and Lalande, it was pursued by Lalande after the death of Helvétius in 1771. After some difficulty in getting permission from the Masonic hierarchy, the lodge was constituted in 1777. Membership in it was open only to those who were endowed with a specific talent in the arts or sciences and had already given public proof of that talent. The membership of this lodge (crowned by the initiation of Voltaire in 1778) reflected the essentially elitist ideas of Lalande. The most illustrious writers, scientists, artists, and political dignitaries became members.

In the Paris Academy, Lalande had little sympathy for those artisans, unskilled in mathematics, who complained about the autocratic manner of the Academy in dealing with their inventions. He supported the professional character of the Academy, a

position that became increasingly unpopular after 1789. Lalande's political views were those of cautious royalist, and he had to exercise great care during the Revolution. Nevertheless, he had the courage to hide the Abbé Garnier and Dupont de Nemours at the Paris observatory during the tempestuous days following 10 August 1792.

After Thermidor, Lalande worked to promote new scientific activity and to reestablish scientific organizations. On 21 November 1794 he gave a well publicized speech at the Collège de France in which he attacked "Jacobin vandalism" of the sciences and described the reawakening of scientific activity in France. In February 1795 he founded a new scientific organization, the Réunion des Sciences, which, along with many other such societies, attempted to assume some of the functions of the old Academy of Sciences.

Lalande's desire for fame and his reputation as a freethinker led him into conflict with Napoleon. In 1803 he published a biographical notice on Sylvain Maréchal along with a supplement to Maréchal's *Dictionnaire des athées*. In a second supplement of 1805 he claimed that only philosophers could propagate sciences and thereby perhaps decrease the "number of monsters who govern and bloody the earth by war." "Since Napoleon was busily at war and wished to retain cordial relations with the Church, he was greatly displeased and insisted that Lalande be censured before the entire Institute de France.

Throughout his life Lalande drew attention to himself by his numerous publications, by frequent letters to the Paris journals, by organizational activities, and by more bizarre episodes, such as a balloon ascent and a campaign to lessen the fear of spiders. (He ate several to prove his point.) He was an indefatigable worker, and the total volume of writing that flowed from his pen was prodigious. As a creative scientist he was not outstanding, but in the teaching and practical operations of astronomy he made major contributions. He remained an important figure in French astronomy until his death in 1807.

BIBLIOGRAPHY

Lalande's MSS are in the Bibliothèque Nationale, Paris (MS fr. 12271–12275); the archives of the Académie des Sciences, Paris, dossier Lalande; and in the archives of the Soviet Academy of Sciences. There is a diary of Lalande in the Bibliothèque Victor-Cousin, Paris, MS 99; and a MS of the Académie des Sciences "Collection de ses réglemens et délibérations par ordre de matière," annotated by Lalande, in Bibliotheca Medicea-Laurenziana, Florence, Ashburnham-Libri no. 1700.

Galina Pavlova has written a short biography in Russian, *Lalande, 1732–1807* (Leningrad, 1967), and a description of the Lalande letters in the Russian archives, "J. J. Lalande and the St. Petersburg Academy of Sciences," in *Proceedings of the Tenth International Congress of History of Science, Ithaca, N. Y.* (Paris, 1964), pp. 743–746. His *éloge* at the Académie des Sciences was given by J. B. J. Delambre and expanded for his *Histoire de l'astronomie au dix-huitième siècle* (Paris, 1827) and for the article on Lalande in Michaud's *Dictionnaire de biographie française*. The most complete description of Lalande's scientific work is that given by Delambre in his *Histoire*, but his evaluation is so hostile that it cannot be accepted uncritically. Valuable biographical information is contained in Louis Amiable, *Le franc-maçon Jérôme Lalande* (Paris, 1889); and in Constance Marie Salm-Reifferscheid-Dyck, "éloge historique de M. de la Lalande," in *Magasin encyclopédique* (April 1810).

Several articles on Lalande have appeared in the *Annales de la Société d'émulation et d'agriculture de l'Ain*: Joseph Bluche, "Jérôme Lalande," **37** (1904), 5–34; Denizet, "Lalande et l'art de l'ingénieur," **38** (1905), 232–261; and Charles E. H. Marchand, "Jérôme Lalande et l'astronomie au XVIII^e siècle," **40** (1907), 82–145, and **41** (1908), 313–417. Lalande's MS account of his English tour is described in Hélène Monod-Cassidy, "Un astronome philosophe, Jérôme de Lalande," in *Studies on Voltaire and the Eighteenth Century*, **56** (1967), 907–930. François Aulard described Lalande's conflict with Napoleon in "Napoléon et l'athée Lalande," in *Études et leçons sur la Révolution Française*, 4th ser. (Paris, 1904), pp. 303–316. Roger Hahn describes Lalande's activities at the Academy in *The Academy of a Scientific Institution; the Paris Academy of Sciences, 1666–1803* (Berkeley, Calif., 1971); and his involvement in the events of the transits of Venus are narrated by Harry Woolf in *The Transits of Venus. A Study of Eighteenth-Century Science* (Princeton, 1959).

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