

## Biographical note

- 1786** Giovanni Battista Amici was born in Modena on 25 March to Giuseppe Amici Grossi and Maria Dallocca.
- 1806** He married Teresa Tamanini, with whom he had three children, Vincenzo (1807), Elena (1808) and Valentino (1810).
- 1808** He graduated as an Architectural Engineer at the University of Bologna.
- 1811-1825** Professor of Mathematics (Geometry, Algebra and Plane Trigonometry) at the Liceo, where university subjects were taught, and then at the University of Modena.
- 1811** One of Amici's reflecting telescopes, judged by the astronomers of Brera to be the equal of the Herschel telescope in possession of their Observatory, was awarded the gold medal during the National Exposition. In November he supplied a second telescope of 17 Paris foot focal length and 11 inch aperture to Brera. This was the largest reflector ever built in Italy.
- 1812** He devised his catadioptric microscope as an inverted application of a Newtonian telescope. According to John Quekett, a new and most important era in microscopic science had commenced in England with the improvement in the reflecting microscope constructed by Amici in 1815.  
Between 1812 and 1813 his workshop produced various reflecting telescopes and a new double-image micrometer.
- 1814** He presented his paper *Descrizione di un nuovo micrometro* < *Description of a new micrometer* > ("Memorie di Matematica e di Fisica della Società Italiana delle Scienze", Tomo XVII-1816).
- 1817** He made his first long journey, which took him to Naples via Bologna, Florence and Rome. His *camera lucida* enjoyed enormous success.
- 1818** He presented his paper *De' microscopj catadiottrici (On Catadioptric Microscopes)* to the Società Italiana delle Scienze and his first discoveries about the circulation of sap in plants, *Osservazioni sulla circolazione del succhio nella Chara* (both in "Memorie di Matematica e di Fisica", XVIII-1820).
- 1819** He published his paper *Sopra le camere lucide*.
- 1821** Invention of an achromatic telescope without lenses and with only one refracting medium (*Sulla costruzione di un cannocchiale acromatico senza lenti eseguito con un sol mezzo refringente*), and of an iconantidiptic telescope.
- 1822** His name was associated not only with micrometers, telescopes, *camera lucida* and fundamental improvements in the compound microscope, but also with navigation instruments such as a prism reflecting sector which was very well received by Baron von Zach (*Sur un nouvel instrument de réflexion*). In his *Osservazioni microscopiche sopra varie piante* < *Microscopic observations of various plants* > ("Memorie di Matematica e di Fisica", XIX-1823), he announced the important discovery of the pollen tube.
- 1823** He built a new prismatic micrometer which he mounted between the object and eye-glasses of a refracting, or between the mirror and eye-glass of a reflecting telescope. He used it to measure the diameters of the sun and planets and the distances and positions of double and triple stars.
- 1824** Reading Selligie's report to the Royal Academy of Science in Paris encouraged Amici to resume his work with achromatic object-glasses. He demonstrated that in order to obtain a high resolution power the objective had to be composed by different parts whose aberrations were not totally eliminated, if taken separately, but calculated to neutralize reciprocally when combined.

- 1825** He made observations of Jupiter's satellites in broad daylight.
- 1827** In January he presented his paper *Descrizione di alcune specie nuove di Chara ed osservazioni microscopiche sulle medesime* (*Description of some new Chara species and microscopic observations of the same*). In the summer he embarked on his first journey to Paris and London, where he presented his instruments to the scientific community. In August the new observatory began operating in Modena. Amici provided a transit instrument, an equatorial telescope and a Newtonian telescope.
- 1830** His *Note sur le mode d'action du pollen sur le stimate* was published in the "Annales des sciences naturelles", Tome XXI.
- 1831** Invited by the Grand Duke of Tuscany Leopold II to the position of astronomer at the I. R. Museum of Physics and Natural History in Florence and nominally professor of Astronomy at the University of Pisa, in December he moved to Florence with his family and two workmen. First polarizing microscope.
- 1836** He constructed a prism reflecting circle. According to Rev. Th. R. Robinson, one of these instruments was delivered to HMS Erebus for the Antarctic Expedition (1839-1843) led by Captain James Clark Ross.
- 1838** Invention of the hemispherical front lens.
- 1839** Amici was one of the six promoters of the first Italian Scientific Congress, which was held in Pisa in October. Here he presented the paper entitled *Sul processo col quale gli ovuli vegetabili ricevono l'azione fecondante del polline* (*On the process with which plant ovules receive the fertilizing action of the pollen*).
- 1841** At the Third Italian Scientific Congress in Florence he presented a refracting telescope of a 16 foot focal distance built in the workshops of the I. R. Museum. This was the *Amici I* (28 cm aperture and 5.2 m focal distance).
- 1842** At the Accademia dei Georgofili he described the research conducted by William Henry Fox Talbot to use light to impress images of objects on paper. At the Fourth Italian Scientific Congress in Padua he announced his observations *Sulla fecondazione delle piante <Cucurbita Pepo>* (*On the fertilisation of plants <Cucurbita Pepo>*), which prompted a harsh attack from Matthias Jacob Schleiden.
- 1844** Again in Paris and London, where, according to Quekett, he exhibited an object-glass of one-seventh of an inch focal length, with an aperture of 112°, in part composed of Michael Faraday's dense glass. On his return journey he stopped in Berlin, Vienna and Munich. In the Prussian capital he visited the microscope maker Friedrich Wilhelm Schiek together with Humboldt and Ehrenberg.
- 1845** He built his second large achromatic telescope objective (23 cm aperture and 3.18 m focal distance). This was the *Amici II*.
- 1846** At the Eighth Italian Scientific Congress in Genoa, Amici read his groundbreaking Paper *Sulla fecondazione delle orchidee* (*On fertilisation of Orchids*). The complete process of fertilization of a plant in all stages, from pollination of the stigma through to perfect development of the embryo, was described for the first time.
- 1847** He introduced the water-immersion technique to microscopy.
- 1852** The Accademia dei Georgofili appointed him to the Committee responsible for studying grapevine disease. Up until 1862 he made several microscopic observations on the cryptogam of the grape (*Oidium Tuckeri*) and on diseases of wheat, mulberry-tree and silkworm.
- 1855** At the Paris Exposition his objectives for microscope, displayed out of competition, surpassed all others. He applied the oil-immersion technique.
- 1857-1860** On an uncertain date he built a direct vision prism for observing the striae of stellar spectra for Giovanni Battista Donati, his assistant at the Observatory in the R. Museum.

- 1858** He described a portable microscope and published his paper *Sulla fibra muscolare* (*On muscle fibre*).
- He used one of his refracting telescopes to observe the comet from his villa.
- 1859** He was made Honorary Professor of astronomy (thus being relieved of his duties as astronomer) and appointed to make microscope observations at the R. Museum.
- 1861** He chaired the Jury Commission for the *Precision Mechanics and Physics* category at the Italian Exposition in Florence.
- 1863** He died in Florence on 10 April.