Biographical Encyclopedia of Astronomers

Lexell, Anders Johan

Born Turku, (Finland), 24 December 1740

Died Saint Petersburg, Russia, 11 December 1784

Anders Lexell was the first Finnish astronomer and mathematician of international fame. He was the first to suggest the modern view of short-term comets. His parents were Jonas Lexell, a goldsmith and politician, and Magdalena Catharina Björkegren. Lexell never married

Lexell studied in Turku, obtaining a master's degree in 1760, and then moved to Uppsala. In 1763 he became a lecturer of mathematics in the Academy of Turku. However, he found the international connections too limited. In 1768, Lexell sent a paper on integral calculus to Leonhard Euler, who was then with the Saint Petersburg Academy of Sciences, and applied for a position. He was nominated as an adjunct and moved to Saint Petersburg. In 1771, Lexell became professor of astronomy. He enjoyed working with Euler at the academy, and although he was invited to become a professor at the Academy of Turku in 1775, he never accepted the position and eventually resigned his Turku post. After Euler's death in 1783, Lexell was elected his successor as professor of mathematics at the academy. He held the chair only briefly; he died after suffering from a tumor

The orbit of the comet found by Charles Messier in 1770 had turned out to be problematic; a parabolic orbit typical for comets did not fit the observations. Lexell found that the orbit was an ellipse with an orbital period of only 5.6 years. However, the comet was never seen again. Lexell realized that the comet had passed close to Jupiter in 1767; the encounter had made the orbit elliptical, and another encounter had ejected it from the Solar System. Thus, he was the first to suggest the currently accepted model of short-period cometary orbits. Since the motions of Jupiter's satellites were not affected, Lexell also concluded that the mass of the comet must be very small

In 1780/1781, Lexell traveled to Germany, France, England, the Netherlands, and Denmark. In March 1781, William Herschel detected a new object, which was initially considered a comet. Lexell, then in London, found that the observations could be explained if the object moved on a circular orbit. Therefore, it was not a comet but a new planet, originally called Georgium Sidus in honor of King George III, but later renamed Uranus.

In addition to these contributions, Lexell wrote about 60 papers on mathematics and astronomy, covering topics such as solar parallax, lunar and cometary theory, differential equations, elliptic integrals, and geometry. He published most of his works in the volumes of the Saint Petersburg Academy of Sciences. In 1935, Lexell was honored by having a lunar crater (35°8'S, 4°2'W) named after him.

Hannu Karttunen

Selected References

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