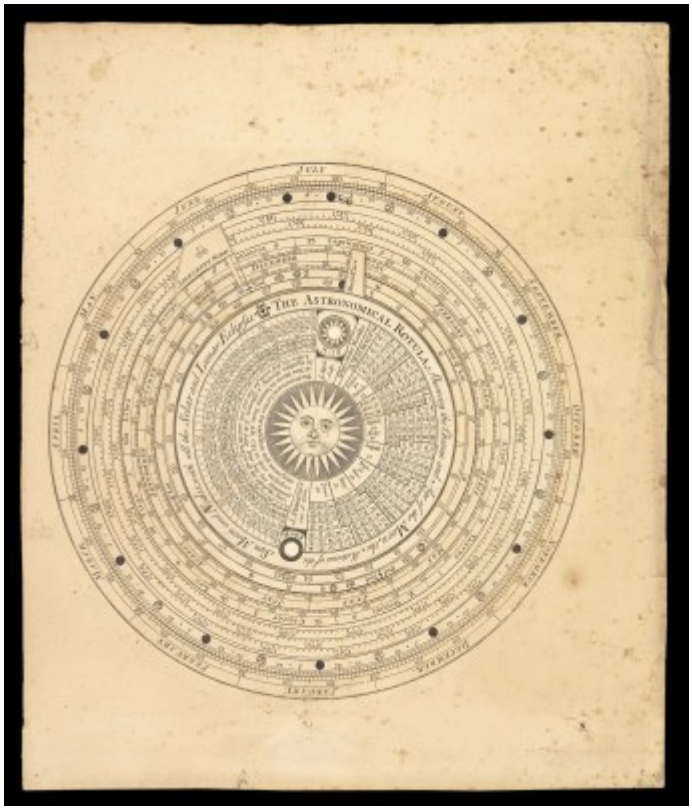


Astronomical instrument on paper, engraved by J. Mynde.

THE WHEELWRIGHT OF THE HEAVENS

The Astronomical Rotula Shewing the Change and Age of the Moon, the Motion of the Sun, Moon and Nodes, with all the Solar and Lunar Eclipses.

Author
FERGUSON, James

Publication date
[c.1750-60]

Publisher

Publication place

Physical description
Astronomical instrument on paper, engraved by J. Mynde.

Dimensions
440 by 370mm. (17.25 by 14.5 inches).

Notes
The instrument takes the form of four volvelles over a circular scale, the central volvelle with an engraved face of the sun. These volvelles are designed to show the ecliptic with its twelve signs through which the sun travels in twelve months, to the circle of twelve hours, similar to the dial plate of an early clock, the hour-hand to the sun, and the minute hand to the moon: moving in the ecliptic, the one always overtaking the other at a place farther than it did at their last conjunction. This shows the motions and places of the sun and moon in the ecliptic on each day of the year

perpetually and, consequently, the days of all the new and full moons from the years 1752 until 1800.

James Ferguson, astronomer, instrument maker, lecturer, natural and experimental philosopher, was born in 1710 at Core of Mayen in the east-most corner of Banffshire. His father was a cottar and too poor to provide him with any formal education. However, his aptitude for learning soon became apparent. At seven, he learned to read by listening to his father teach the catechism to his elder brother. At ten, to earn his keep, he was sent to tend sheep for a neighbouring farmer, and what little spare time he then had was devoted to his developing interest in astronomy, making maps of the stars using beads and thread.

Undaunted by the lack of access to books in his younger years, he set about discovering the principles of mechanics for himself, making models of the machines he saw, including a weight-driven wooden clock with a broken bottle chime – the only materials he had available. The clock kept quite good time, so he attempted to make a watch – the size of a cup – but getting it to work proved beyond the limits of wooden wheel and whalebone spring technology.

This extraordinary ingenuity became known to the neighbouring gentry, who gave him some help to improve his knowledge of mathematics and drawing. For a time he was employed by Sir James Dunbar of Durn, and it was while staying at Sir James's house that he painted the two gate stones: one as a terrestrial globe and the other as a celestial map. While there he was introduced to Lady Dipple, Sir James's sister, who assisted him in going to Edinburgh, where he supported himself for some years drawing miniatures.

After returning north to Inverness to find work, an astronomical rotula that Ferguson had produced was sent to Professor Maclaurin in Edinburgh, who immediately recognized Ferguson's ability and gave him encouragement and assistance. In 1743 Ferguson was able to go to London, where he was introduced to the Royal Society and published astronomical tables and lectures. he also gave lectures in experimental philosophy, and was heard by George III, then Prince of Wales, who afterwards gave him a pension of £50 a year.

In 1763 he was chosen a fellow of the Royal Society, without the usual fees. Ferguson's influence extended widely in his own lifetime: he was the first to form a nebular theory, Thomas Paine mentioned him in his publication 'The Age of Reason', and William Herschel studied astronomy from his books. However, it is, perhaps, as one of the first popularisers of science that his main influence was felt. Ferguson created a number of orreries and machines to illustrate his lectures, and published several books and paper instruments including: 'Astronomical tables and Precepts' (1763); 'Introduction to Astronomy' (1769); 'Astronomy explained' (1772); 'Lectures on Mechanics, hydrostatics, Pneumatics, and optics' (1772); 'Select Mechanical exercises' (1773); 'The Art of Drawing in Perspective' (1775); and 'An Introduction to electricity' (1775).

Bibliography

Provenance

Price:

Inventory reference: 1859

© Daniel Crouch Rare Books Ltd | 2025