

curves, (3) Mercator's chart, (4) solution of the Keplerian problem and (5) geometrical methods for drawing tangents to curves. His brother David strongly urged him to publish his results on quadrature. But he very generously refused to do so on the ground that, as he had been led to it by Newton's discovery, he was bound in honour to wait till Newton should publish his.

Vera Circuli et hyperbolae quadratura (1667), *Geometriae pars universalis* (1668) and *Exercitationes geometricae* (1668) were his works.

HIS END

Gregory has been described as a man of very acute and penetrating genius, though of an irritable temper. He was devoid of ambition but was keenly sensitive to criticism. One night in October 1675, while showing Jupiter's satellites to his students, he was struck blind by an attack of amaurosis, and died of apoplexy three days later.

Becket, William (1684-1738)

WILLIAM BECKET, a British surgeon and antiquary, was born at Abingdon in 1684. He was elected a fellow of the Royal Society in 1718 and read three papers on the *Antiquity of the venereal disease*. He was also an original member of the Society of Antiquaries, which was virtually established in 1717. He was for some years surgeon to St. Thomas's Hospital, Southwork.

His works are: (1) *New discoveries relating to the cure of cancers* (1711-1712); (2) *An enquiry into the antiquity and efficacy of touching for the king's evil* (1722); (3) *Practical Surgery, illustrated and improved, with remarks on the most remarkable cases, cures and discussions in St. Thomas's Hospital* (1740) and (4) *A collection of chirurgical tracts* (1740).

Becket died at Abingdon, November 25, 1738.

Herschel, William (1738-1822)

WILLIAM HERSCHEL, a famous European astronomer, was born at Hanover, November 15, 1738. He was a son of a musician. His father brought him up to his own profession with four other of his sons. He came to England sometime between 1757 and 1759 and during this period it is said that his philosophical

tastes were so strong that he spent all his pay on a copy of Locke's *On the human understanding*.

URNS TO MATHEMATICS

About 1766 when Herschel was organist of a Chapel at Bath, he "resolved to place all his future enjoyment" in the pursuit of knowledge and turned his attention to mathematics. "After fourteen to sixteen hours' teaching he was won't to unbend his mind with Maclaurin's *Fluxions*. Smith's *Optics* and Fergusson's *Astronomy* were the companions of his pillow and inspired his resolution to take nothing upon trust."

HIS CONTRIBUTIONS

After two hundred partial failures Herschel made his own telescope of five feet focal length and began his famous observations which have been recorded in the *Philosophical transactions* of the Royal Society in a series of about 69 papers, the first of which was published in 1780 under the title *Astronomical observations on the periodical star in Collo Ceti*. His last paper which was *On the places of 145 new double stars*, was published in the first volume of the *Memoirs* of the Astronomical Society (1822). Herschel must be remembered by the number of bodies which he added to the solar system. Including Halley's Comet and the four satellites of Jupiter and five of Saturn, the number previously known was eighteen; to which he added nine, namely Uranus (1781) and six satellites and two satellites to Saturn. His announcement of the motions of binary stars, his discovery of the proper motion of stars (1783) and his speculations on the Milky Way and the constitution of nebulae first opened the road to other systems in the universe. He was the virtual founder of sidereal science and his only rival in exploring the heavens was his son. He also made telescopes for most of the European Observatories.

HIS ABSORPTION IN WORK

He had his telescope set in his own garden. During intervals of a concert he would run, still in lace ruffles and powder, from the theatre to the workshop. He would polish his mirror continuously for sixteen hours and more. He is stated to have once worked and observed without rest during three days and nights, sleeping at the end for twenty-six hours at a stretch. Miss Burney describes him as "a man

without a wish that has its object in the terrestrial globe, perfectly unassuming (yet) openly happy in his success."

HIS HONOURS

His discovery of Uranus won him the Copley Medal and Fellowship of the Royal Society. It also brought him to the notice of the king who appointed him court astronomer with a salary of £ 200 a year. In

1786 he was elected a fellow of the Royal Society of Gottingen. The King of Poland sent him his portrait. His place became a place of pilgrimage for scientists, princes and grand dukes without number. Academic honours came from many universities and learned bodies. He was created a knight in 1816.

In his eighty-fourth year, Herschel died of bilious fever on August 25, 1822.

ASTRONOMICAL NOTES.

Planets during December 1938.—Venus is a morning star and will be a bright object visible in the eastern sky for about two hours before sunrise. On December 26, it attains greatest brilliancy, the stellar magnitude at the time being — 4.4. Mars is gradually getting brighter and can be seen as a star of the first magnitude, rising about two and a half hours after midnight; it will be in the constellation Libra at the end of the month.

Jupiter will continue to be visible in the western sky in the early part of the night. So also will be Saturn which will be on the meridian at about sunset. On December 15, the planet will be stationary as seen from the earth. The ring ellipse is still nearly edgewise, the dimensions of the major and minor axes being 41.6" and 5.9" respectively. Uranus is slowly moving westwards in the constellation Aries and observers with a binocular can easily locate the planet about a degree north of the fifth magnitude star σ Arietis. The following close conjunctions of the Moon with planets will occur during the month—on December 5, Uranus; on December 17, Mars; December 18, Venus; and December 20, Mercury.

Jupiter's Satellites X and XI.—Since discovery, further observations of the two new satellites of Jupiter have been made at Mount Wilson. From the first five positions obtained, Dr. Paul Herget of Cincinnati has computed two orbits for satellites X, one assuming a retrograde motion for the satellite and the other a direct one. He states that the later observations, however, do not appear to confirm the retrograde orbit. Dr. R. H. Wilson has calculated an orbit (U.A.I. circ 728) with eccentricity 0.14 and period 254.21 days. The elements of the direct orbit are similar to those of the sixth and seventh satellites of Jupiter.

A Faint Star with Large Proper Motion.—In the course of the survey for proper motions of faint stars at the Nizamiah Observatory, the star Hyd.ph, — 18°.9743 has been found to have a motion of nearly one and a half seconds of arc per annum. The star is of the twelfth magnitude (photographic scale) and the position (1900.0) is given by R. A. 5^h 4^m 7^s, Declination 18°15'.7.S The star is probably a dwarf and one of the nearest neighbours of the Sun.

T. P. B.

OBITUARY.

N. G. Majumdar.

WE regret to record the death of Mr. N. G. Majumdar, Superintendent of the Archæological Section of the Indian Museum, under very tragic circumstances. He was murdered by dacoits on the night of 10th November 1938, at Johi, in the district of Dadu, Sind, where he was camping in connection with an explorative survey of the hilly country, northward of Manchur Lake,

Mr. Majumdar was a brilliant graduate of the Calcutta University. After taking his M.A. in 1920, he took up the study of Archæology under Sir John Marshall. He carried out extensive excavations in southern Sind. He was reputed to be one of the best archæologists of India and his untimely death has brought to a close, a very promising career.