

in 1878 he became affiliated to the English Congregation of Benedictines at Downside Abbey, Bath.

He served for a short time at Bath, Stanbrook, and Coventry, until he was appointed to Acton Burnell in 1889. Here as chaplain to the Smythe family—who had harboured the Downside monks when driven from France by the Revolution—he remained for thirty-one years. Failing health caused him to return to Downside in 1920. In 1922 October he had left Downside for a short holiday, and was taken ill in Birmingham, where he died on November 4, aged 80. He was buried at Downside on November 6.

From his earliest days at Subiaco, Father Stutter evinced a keen interest in every form of scientific study, but it was astronomy which gave him the greatest pleasure. At Acton Burnell he built himself a small observatory, containing a 6-inch equatorial—chiefly made by his own hands—and an excellent 3-inch transit instrument. He had reconstructed the sidereal clock which used to be in the ill-fated Downside Observatory, destroyed by fire, and from his sitting-room it actuated the chronograph in the observatory. Once he was offered a post at the Vatican Observatory, but could not see his way to accept the position.

He spent the greater part of his last two years in his workshop at Downside; and although in his eighty-first year he continued to make scientific instruments and to instruct some of his younger brethren who shared his interests. At the time of his death he was interested in radio-activity, and also contemplated the construction of a quadrant electrometer.

He was elected a Fellow of the Society 1901 May 10.

GEORGE LYON TUPMAN was born at Boulogne on 1838 September 7, being the eldest son of Commander George Tupman. He was educated at the Royal Naval School, New Cross, and entered the Royal Marine Artillery as Second-Lieutenant on 1855 October 26. He became in succession First-Lieutenant (1859), Second-Captain (1867), Captain (1873), Major (1879), Lieut.-Col. on retirement in 1880. He served on *H.M.S. Sidon* and *H.M.S. Forte* off the coasts of Africa and South America (1859–1864) and on *H.M.S. Prince Consort* in the Mediterranean 1868–71.

He took an active interest in astronomy from his youth, and one of his earliest papers (*M.N.*, 33) was a catalogue of meteor radiants based mainly on his own observations in the Mediterranean. He was one of the first to make estimates of the velocity of meteors, and was thus enabled to disprove the suggested explanation of stationary radiants, as being due to extremely high velocities, far in excess of the parabolic value.

Probably his most important contribution to the science was his work in connection with the Transits of Venus in 1874, 1882. He was appointed instructor to the observing parties in a course of training which they undertook at Greenwich in 1873–4, and was the chief of the party that observed the 1874 transit from Honolulu. As there was then no cable to the Sandwich Islands, he made numerous lunar observations for longitude, and subsequently made a full discussion of

the errors of the lunar ephemeris, and the resulting longitudes of the different observing stations. On his return he consented, at the request of Sir George Airy, to remain at Greenwich as a voluntary worker in carrying out the reduction of the observations made by the various British parties. He completed this work, which occupied four years, *con amore*, and his preliminary value of the solar parallax, $8''.813$, is quite close to the value now accepted; but he later increased it to about $8''.85$. He recognised the drawbacks to the Transit Method, and I have heard him lament that the conditions of contact in the actual transit were so much less satisfactory than in the clockwork model used for training the observers. In the latter case the accordance between observers was all that could be desired.

He observed the transit of 1882 from Christchurch, New Zealand. Not long after his return he set up the Hillfoot Observatory at Harrow, which was equipped with a transit circle and two equatorials, reflector and refractor. He observed a large number of faint stars on the meridian, and as he was a most careful observer, it is to be desired that these should be published in catalogue form, which was not done during his lifetime. The equatorials were used for the observation of occultations, especially during the lunar eclipses of 1884, 1888, 1895, comets and minor planets. The results were communicated to the Society in a number of papers. He used the cross-bar micrometer for comets, and contributed a paper (*M.N.*, 48, 96) on the method of adjusting and the correction of errors. He frequently put the instruments at the disposal of visitors, and was delighted to give them hints on methods of observation.

Tupman was on the Council from 1873 to 1880, and again as Secretary from 1884 to 1889. His last paper to the Society was on the occultations observed during the lunar eclipse of 1895 March.

Tupman's interests extended not only to astronomy, but to various kindred sciences; geology, microscopy, natural history, archæology, and wireless telegraphy. He had a wireless station in his house up to the outbreak of war in 1914.

He married on 1876 October 26, Miss Rebecca G. Wetherill of Philadelphia, who survived him for two months only. They had no children.

He died on 1922 November 3, at the age of 84.

He was elected a Fellow of the Society on 1863 May 8, and held his Fellowship for the unusually long period of $59\frac{1}{2}$ years.

A. C. D. C.

PETER HATELY WADDELL, son of the Rev. P. Hatcly Waddell, LL.D., was born at Girvan, Ayrshire, on 1854 June 15. He was educated at the High School and the University of Glasgow, where he had a distinguished career. After being ordained a minister of the Church of Scotland, he was appointed in 1879 to the charge of Whitekirk Church, East Lothian. In 1904 ill health compelled him to resign and he went to live at Fairknowe, North Berwick, where he died on 1922 November 22. As an author he wrote several important works—many of them of a theological or religious nature—and a number of articles for various