

He was a member of the Geological Society. He was an accomplished linguist and philologist, being a master of Arabic and Turkish, well versed in Ægyptology, speaking French, German, and Italian like a native, and knowing much of several other tongues.

Of the Royal Geographical Society he was Foreign Secretary from 1866 to 1871. He succeeded his brother, Sir Lumley Graham, in the Baronetcy on 1890 October 25. He died on 1895 May 9.

[For the above particulars the Council is indebted to Mr. Dudley Hervey, C.M.G., brother-in-law of Sir C. C. Graham.]

JOHN RUSSELL HIND was the son of Mr. John Hind, of Nottingham, lace manufacturer, and was born at Nottingham on 1823 May 12.

He was educated privately and at the Nottingham Grammar School, and at the age of seventeen was sent to London as an assistant to Mr. Carpmael, civil engineer, for which profession he was intended.

But for some years previously he had studied astronomy, of which he soon became an enthusiastic devotee. When he was but sixteen years of age he contributed a number of astronomical notes to the *Nottingham Journal* and other newspapers.

He only remained in Mr. Carpmael's office a short time, his prevailing tastes drawing him still further towards his favourite study, and at the end of the year 1840 he secured, through Sir C. Wheatstone, a post at the Royal Observatory, Greenwich, Mr. Airy, then Astronomer Royal, appointing him to the Magnetical and Meteorological Department. He remained at the Observatory till 1844.

In 1843 he was engaged for a period of three months on the Commission appointed by the Government to determine the longitude of *Valentia*.

On leaving Greenwich he was appointed observer at Mr. Bishop's private observatory in Regent's Park, London, and there he made those discoveries which have rendered his name famous, including 10 new minor planets and 3 comets, besides variable stars and nebulae. For these discoveries he received one of the twelve testimonials of our Society on that well-known and exceptional occasion in 1848, when these testimonials were to be considered "equivalent to a Gold Medal"; and, further, the Gold Medal actually in 1853. He also received, in 1851, 100*l.* from the Royal Bounty Fund, and in 1852 was granted a pension from the Civil List of 200*l.* per annum "in consideration of his contribution to astronomical science by important discoveries."

In 1851 he went with Mr. Dawes to Sweden to observe the total eclipse of the Sun.

On the death of Lieutenant Stratford, in 1853, Dr. Hind was appointed Superintendent of the *Nautical Almanac* office, which position he held till his retirement under the superannua-

tion scheme in 1891. He continued to exercise a general superintendence over Mr. Bishop's observatory, the actual observers being in succession Mr. Norman Pogson, Dr. Vogel, Mr. Marth, and Mr. Talmage; and on the death of Mr. Bishop in 1861, when his son, George Bishop the younger, removed the instruments to Twickenham, Dr. Hind remained in charge.

Since his retirement in 1891 from the *Nautical Almanac* office Dr. Hind lived quietly at Twickenham, not appearing much in public, nor even visiting the societies to which he belonged; but he still kept up a lively interest in his favourite study, and was a regular subscriber and contributor to the scientific journals at home and abroad. He died at Twickenham, on December 23, 1895, of heart-disease accelerated by a chill, and was buried at the Twickenham Cemetery.

The number of minor planets is now, at the close of this eventful century, which opened with the discovery of the first of them, so large that it is difficult to realise the interest excited by the new discoveries half way through it in which Dr. Hind played so important a part, an interest which would doubtless have been greater still but for the overshadowing of the sensational discovery of *Neptune*. A few of the leading facts may be fitly here recalled; but a glance through our *Monthly Notices* of the period will give a far better idea of these exciting times.

The succession of discoveries was so rapid that a few dates are important. Hencke discovered *Astræa* (5) on 1845 December 8, as the result of a patient search for minor planets, continued during 15 years unrewarded, and after an interval of nearly 40 years since the discovery of the first four. *Neptune* was discovered on 1846 September 23. On 1847 July 1 Hencke discovered *Hebe* (6); and a few weeks afterwards Hind found *Iris* (7), and followed with *Flora* (8) before the end of the year.

Hind's discoveries, like those of Hencke, were the result of a patient search with the definite object of finding minor planets. Mr. George Bishop had determined before building his observatory that it "should do something." A successful business man, he had always had a great wish to possess an observatory, but never the opportunity until he was more than fifty years of age; and being then unable to work personally, he took great pains to get good assistants, and set them to observe with a definite object. "The search for minor planets was commenced in 1846 November, employing the Berlin star maps" (to which attention had doubtless been attracted by the discovery of *Neptune* two months before) "as far as they extended, small stars of 9·10 or 10th magnitude, not marked on the maps, being inserted from time to time as they came under examination."

The first discovery was announced to the Rev. R. Sheepshanks, then vice-president of our Society, in the following letter :—

" 3 Allsop's Terrace, New Road, London :

" 1847 August 13^d 16^h.

" DEAR SIR,—I have this night discovered another member of the singular group of planets between *Mars* and *Jupiter*. It shines as a star of 8.9 magnitude, the observed positions being—

	G.M.T.			R.A.			δ		
	h	m	s	h	m	s	°	'	"
Aug. 13 at	9	35	17	19	57	30.52	—13	27	23.4
	10	45	19	19	57	28.02	—13	27	29.0

showing a retrograde motion in R.A. of 51^s daily. Have I been fortunate enough to detect the lost planet of *Cacciatore*?

"Yours very respectfully,

" J. R. HIND.

" Rev. R. Sheepshanks, M.A."

The discovery of *Flora* on October 18 was also announced to Mr. Sheepshanks by a letter written the same night at 16^h, giving three positions for 11^h 40^m 4^s, 15^h 4^m 10^s, and 15^h 52^m 27^s respectively.

These two discoveries were rewarded, as remarked above, by a "Testimonial." The exact significance of the term may have been forgotten by some, perhaps by many. The fierce controversy regarding the discovery of *Neptune* paralysed the action of the Council in 1847: they could not decide whether to give the medal to Adams, or to Le Verrier, or to both, and accordingly made no award at all. This course, however, did not remove, but only deferred, the difficulty. The action of the Council was criticised at the time, and as the next annual meeting approached it was felt that the question must still be dealt with. Attempts were made at evasion by advancing the claims of others, of whom Hind and Hencke were put prominently forward. Among the Sheepshanks letters, preserved in our library, there is one of great interest, bearing as it does the signature J. C. Adams, and dated 1847 December 10:—"My counsel would be," writes Professor Adams, "to give a medal each to Hencke and Hind. I think two planets each establish a fair claim. Now is the time to give them. Medals might be given to Sir John Herschel and M. Hansen next year. No one looks upon their works with more respect and admiration than myself, but it would be no slur upon them to give the medals this year for such a widely different department of science, not at all coming into competition with either of their subjects." Nothing could be more characteristic of the great man we lost a few years ago than this anxiety to have his own claims put aside, nor more effective in indicating the estimation in which the discoveries of Hencke and Hind were held in this eventful period.

The solution of the difficulty arrived at was the award of Testimonials "in place of and in the same rank with the usual Medal" to twelve persons, including Adams and Le Verrier,

Hencke and Hind, Sir John Herschel and M. Hansen, and, it may be remarked, Mr. George Bishop, who had founded the observatory where the planets were discovered. Of these twelve, Dr. Hind was at his death the sole survivor; nor is there now alive any member of the Council which dealt with these burning questions. The expedient of a Testimonial has never since been resorted to.

It fell to Sir John Herschel, himself one of the recipients, to deliver the address on the merit of those who received Testimonials. In speaking of Dr. Hind he remarked: "No name comes oftener before the astronomical world, as an assiduous observer and able computist in the department of astronomy which the nature of the instrumental means committed to his charge gives him an immediate connection with, as a diligent observer of double-stars and computer of their orbits, for instance, or as the first detector of several comets, one of them a very remarkable one, which, from his calculation of its orbit, he was enabled to follow up to its actual perihelion, and to behold it at noon-day presenting a clear and well-defined disc within 2° of the Sun."

This sentence reminds us that even before the discovery of *Iris* and *Flora*, Dr. Hind was already a discoverer of comets and an astronomer of distinction. He was also Foreign Secretary of our Society.

In 1853, when the number of his planetary discoveries had been increased to eight, Hind received the Gold Medal itself from the hands of Adams. After this he found two more planets; but the list closed when he settled down at the *Nautical Almanac* Office in 1854.

One or two circumstances connected with the naming of the early discoveries may be noted here. The name *Iris* was proposed by De Morgan, who also suggested a symbol. Writing to Sheepshanks (1847 August 22) Hind says, "I find the name is approved at Cambridge and Greenwich, though *Thetis* was preferred. However this will do for the next, if no better is to be found." The name *Thetis* was not, however, used till the discovery of (17) by Luther in 1852.

On the discovery of (12) in 1850, the Americans strongly objected to the proposed name *Victoria*, which happened to be also that of our Sovereign. Indeed, they went so far as to substitute *Clio*, and the Astronomer Royal wrote, "When I looked for *Victoria* in the index to *Gould's Journal* and expected at least to find '*Victoria*—see *Clio*,' and found it not, I was very indignant." At the same time he advised Dr. Hind not to use the name *Clio* for a subsequent discovery in 1852, which "would cause much confusion and would be interpreted as exhibiting a too angry temper." The name *Clio* had been apparently suggested by Adams, or at least approved by him. "*Clio* is the name which I should have preferred," he writes, "but since Mr.

Airy so strongly objects, and others may perhaps take the same view, it is perhaps better not to risk the breaking of unanimity ;” and he goes on to suggest *Calliope*. The choosing of this name was attended with more than ordinary interest, since the planet had been discovered on the morning of the Duke of Wellington’s funeral ; hence the name of *Calliope*, “whose office in ancient mythology required her to perpetuate the illustrious deeds of heroes.” The rejected name *Clio* was not used till the discovery of (84) in 1865 (curiously enough by Luther, who had previously appropriated the rejected name *Thetis*).

Besides minor planets and comets, Hind discovered two objects of conspicuous interest—viz., the “new star” in *Ophiuchus* ; and the variable nebula in *Taurus*, the variability of which has been recently confirmed by Barnard and Burnham. His following of a comet into full sunshine has already been mentioned in the words of Sir John Herschel. His prediction of the “return of the Great Comet of 1264 and 1556” was not so successful, minuter examination showing that perturbations vitiated the results. The prediction appeared in the *Monthly Notices*, and also in a separate work. Of other works on Astronomy by him the chief are *The Solar System*, *Recent Comets and the Elements of their Orbits*, *An Astronomical Vocabulary*, and a *Descriptive Treatise on Comets*. His list of scientific papers is a very long one, and he contributed to many periodicals.

Dr. Hind was elected a Fellow of this Society on 1844 December 13. At the same meeting was elected as an Associate Signor Cacciatore, whose “lost planet” Hind had been inclined on the night of discovery to think that *Iris* might be. At the preceding meeting Sir John Herschel had read his memoir on Francis Baily, who had died while President for the fourth time ; but although the date of Dr. Hind’s election thus links us with the foundation of our Society, three of our present Fellows were elected before him. In 1846 he was placed on the Council, and in 1847 he succeeded Sir John Herschel as foreign secretary, which position he retained till 1857. In 1880 he was elected President, and he presented the medal to Dr. Axel Möller and to Dr. Gill. It is proper to mention here the work Dr. Hind undertook for the Society in superintending the comparison of Hansen’s and Burckhardt’s tables of the Moon for the years 1847–1865, published as an appendix to vol. I. of our *Monthly Notices*.

In 1847 he was made a corresponding member of the Société Philomathique of Paris. In 1850 he was one of a Commission, for the Exhibition of 1851, respecting machinery as applied to direct use. In 1851 he was elected a corresponding member of the Academy of Sciences of Paris, in the place of Schumacher. There were eighteen candidates for the election, Dr. Hind being chosen by forty-five out of forty-six votes. The same year he was made a Fellow of the Royal Society, and subsequently he was elected into the Royal Society of Edinburgh, the Imperial

Academy of Sciences of St. Petersburg, and the Swedish Royal Society (Lund). He was also made Hon. LL.D. of the University of Glasgow. He was the recipient of many medals, the chief of which were the gold medal of the Royal Society, the gold medal of the Royal Astronomical Society, a gold medal from the King of Denmark, six times the Lalande medal (with money prizes amounting to over 60*l.*), and a medal from the French Institute, struck to commemorate the discovery of one hundred minor planets, in 1869. The obverse of this medal consisted of the profiles of the Englishman, the Frenchman, and the German, who had discovered most of these planets, the Englishman represented being Dr. Hind.

It is curious that during the years of his greatest activity (1844–1856) Dr. Hind suffered from extreme bad health. Physically he was apparently a strong man, but he was excessively nervous and frequently had to give up work for a time on account of “excessive nervous exhaustion.” He was of a most retiring disposition, and worked more for science’ sake than for the approbation of his fellow-men or for his own pecuniary advancement. In his diary, under date 1849 January 15, he wrote, “I mentioned to Mr. Airy to-day that I thought very soon I should have to relinquish observations at night entirely,” but happily a few months’ rest enabled him to resume work and complete the task he had set himself to do.

He married in 1846 and had six children. For the personal details of the above notice, and for much valuable assistance, the Council is indebted to his son, Mr. T. Almond Hind.

FREDERICK ROBERT HUGHES was born in London on 1807 November 29. His father was a clergyman, and volunteered as a missionary to Sierra Leone; but both he and his wife died soon after their arrival, and their son returned to London, where he was brought up under the care of an uncle. He received a liberal education; and when a young man held an appointment in a chemical manufactory till 1830, when he removed to Borrowstowness, in Scotland, and very soon afterwards went into partnership for the manufacture of prussiate of potash, to which was subsequently added that of iodine from kelp. After a prosperous business career he retired in 1877. He enjoyed good health until within about a year of his death, at Borrowstowness, on 1895 March 11. His wife died in 1840, but a daughter (the wife of Colonel Harwood, of Sanday, Orkney, to whom the Council is indebted for this notice) survives him.

He was deeply interested in science, especially astronomy, optics, and mathematics, and had numerous appliances specially constructed for him. He possessed a fine equatorial by Cooke, and many other instruments.

He was elected a Fellow on 1866 January 12, but contributed no papers to the Society.

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