

in his life and he became obsessed with work. His opinions hardened. "He does not strike me as a gentleman", wrote John Trowbridge, an American visitor, to President Gilman of Johns Hopkins in 1882.

Between 1887 and 1888, Lockyer's theory of the luminosity of comets aroused wide interest, as did his far-sighted meteoric hypothesis published in 1890 with the assistance of Fowler, Gregory and other students at the Royal College of Science. Tennyson thanked Lockyer³⁰ for his "splendid hypothesis . . . in my anthropological spectrum you are coloured like a first rate Star of Science", but both cost him friends among astronomers and may have led to his resignation from the Royal Astronomical Society. His dissociation hypothesis brought him repeated blows from the chemists. Only Abney, Schuster and Crookes were consistently behind him, although Thorpe and Roscoe were sympathetic. Only with the late 1890s and the work of J. J. Thomson on electrons did some of his more speculative views begin to win more general acceptance, though even then on a different conceptual basis.

One of Lockyer's least celebrated but most damaging controversies took place with William Huggins. Huggins is credited with having devised the stellar spectroscope, and with being the first to apply Kirchhoff's spectroscopic method of chemical analysis. Huggins and Lockyer argued repeatedly over the interpretation of solar spectrum evidence and Huggins disagreed strongly with the dissociation theory applied to stellar bodies. Ironically, Huggins sent his views to *Nature*. There was, as Lockyer explained³¹ to Sir George Stokes, little redress for him. "I am practically bound to print all attacks on my work and I printed Huggins, but I don't propose to print my reply."

In 1889, William Huggins and Lockyer again collided over the interpretation of certain metal spectra. Huggins, normally a shy and retiring man, claimed that *Nature* misinterpreted his conclusions. "Nothing is so painful to me as controversy, but if the paragraph is allowed to stand, there is nothing for me but to point out that the statement in it should certainly not be made. . . ." Lockyer stood firm: "I too hate controversy; it wastes too much time, but I do not shirk it with an honourable antagonist". A compromise was reached and Huggins thanked Lockyer for having spared him from debate³². "I am

anxious that we should remain friends however we may differ in opinion." But this had already proved impossible. The last decade of Lockyer's life saw *Nature* moving away from controversy and towards greater harmony among British scientists. In this new order of business, Lockyer played less and less a part.

In January 1894, Lockyer was knighted KCB in the New Year Honours and in November *Nature* celebrated its twenty-fifth anniversary³³. Huxley, who had written the journal's first article, wrote its celebratory retrospect, recalling the closer bonds between speculation and scientific method that rational development and Darwinian evolution had helped inaugurate. The working synthesis of mind and method that Huxley had preached from Goethe's prose text twenty-five years before had not, perhaps, progressed far, but the continued existence of *Nature*—not to mention Lockyer's own speculative research—had kept it within sight.

Nature's birthday was celebrated, by publishing the list of nearly 800 men who had contributed in any way to the journal, and by a huge dinner at the Savoy. Fifty people attended, including Frederick, George and Maurice Macmillan (for a complete list see ref. 34). Craik pronounced it "the most influential journal of science in Europe". Huxley praised Lockyer's success—"it was often better to be an architect building a house under the dual control of a husband and wife or a member of the London School Board than an editor"—criticized recent standards of science writing, and toasted the name of Alexander Macmillan who had retired four years before. Publishers, he said, were generally regarded as *ferae naturae*, to be preyed on by authors; but Macmillan had been not so much publishers as friends. Macmillan's kindness to Lockyer, editorial and personal finance and freedom were repaid by loyalty to the firm. It was this abiding relationship that gave *Nature* its solid hold on life.

¹ Draper, J. W., to Draper, Henry, December 1, 1870, quoted in Reingold, Nathan, *Science in Nineteenth Century America*, 257 (London, 1966).

² T1/8499/11997, Clerk to First Lord of the Treasury, June 16, 1890.

³ Morgan, Charles, *The House of Macmillan*, 69 (London, 1943).

⁴ *Macmillan Archives*, 22, f. 121, Macmillan to Lockyer, July 9, 1873.

⁵ *Macmillan Archives*, 24, f. 248, Macmillan to Foster, January 12, 1875.

⁶ *Macmillan Archives*, 24, f. 787, Macmillan to Foster, January 14, 1875.

⁷ *Macmillan Archives*, 24, f. 574, Macmillan to Balfour Stewart, December 7, 1875.

⁸ *Macmillan Archives*, 31, f. 451, Jack to Lockyer, August 19, 1877.

⁹ *Lockyer Papers*, President, University of Virginia, to Lockyer, January 17, 1871.

¹⁰ *Lockyer Papers*, Philip Howard to Lockyer, August 9, September 13, October 2, 1869; April 7, 1873.

¹¹ *Lockyer Papers*, Geikie to Lockyer, c. 1870.

¹² *Macmillan Archives*, 19, f. 792 (an abridged form of this letter omitting the mention of salary or any suggestion of Lockyer's leaving appears in Macmillan, G. A., *Letters*, p. 264).

¹³ *Hooker Papers* (Kew), *English Letters*, 1865-1900, f. 92, Lockyer to Hooker, November 7, 1874.

¹⁴ T1/7402/7067, Margin note (c. May 1874).

¹⁵ *Macmillan Archives*, 31, f. 552, Jack to Lockyer, August 29, 1877.

¹⁶ *Macmillan Archives*, 31, f. 568, Jack to Lockyer, September 1, 1877.

¹⁷ Morgan, Charles, *The House of Macmillan*, 185, London, 1943.

¹⁸ *Macmillan Archives*, 31, f. 649, Craik to Lockyer, September 14, 1877.

¹⁹ *Macmillan Archives*, 32, f. 711, Jack to Lockyer, June 8, 1878.

²⁰ *Macmillan Archives*, 27, f. 882, Jack to Lockyer, July 24, 1876.

²¹ T1/8267/9653, Welby to Jackson, December 11, 1886.

²² T1/7647/20401, Lingen minute (1877).

²³ *Hooker Papers* (Kew), 14, f. 124, Lockyer to Hooker, February 28, 1877.

²⁴ *Hooker Papers* (Kew), 10, f. 232, Hooker to Lockyer, November 2, 1877.

²⁵ *Lockyer Papers*, Macmillan to Lockyer, March 21, 1877.

²⁶ *Lockyer Papers*, Thomas Cheney to Lockyer, October 10, 1878; November 16, 1878.

²⁷ *Lockyer Papers*, Sir William Besant to Lockyer, September 26, 1884.

²⁸ *Lockyer Papers*, De La Rue to Lockyer, November 6, 1872.

²⁹ *Lockyer Papers*, Tait to Lockyer, c. February, 1876.

³⁰ *Lockyer Papers*, Tennyson to Lockyer, November 17, 1881.

³¹ *Stokes Papers* (Cambridge), Lockyer to Stokes, January 20, c. 1883.

³² *Lockyer Papers*, Hooker to Lockyer, May 6, 1889; Lockyer to Hooker, May 7, 1889; Hooker to Lockyer, May 7, 1889.

³³ "The Fiftieth Volume of *Nature*", *Brit. Med. J.*, II, 1262 (1894).

³⁴ *Nature*, 151, 234 (1943).

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Euclid as a Text-book

THERE are many engaged in the work of education in this country, besides those who have come prominently forward in the matter, who feel strongly that Geometry as now taught falls far short of being that powerful means of education in the highest sense which it might easily be made. They find themselves, in the majority of cases, compelled to use in their classes a text-book which should long ago have become obsolete.

We have lately had instances in abundance of the power of combined action. If the leaders of the agitation for the reform of our geometrical teaching would organise an Anti-Euclid Association, I feel sure they would meet with considerable and daily-increasing support.

We of the rank and file do not feel strong enough to act alone, and yet think we might do something to help forward the good cause by co-operating with others.

The immediate objects of such an association should be in my opinion (1) To collect and distribute information connected with the subject; (2) To induce examining bodies to frame their questions in geometry without reference to any particular text-book.

RAWDON LEVETT

King Edward's School, Birmingham