

recorded in the weekly press and the want of a weekly organ which would afford scientific men a means of communication between themselves and with the public, have long been felt. They have been the subject of special consideration lately by some of the leaders of Science in London.

To remedy this, the *Reader* expanded its science space to eight pages out of twenty-five. The new prospectus was issued and a new series launched. Spencer told Mill¹⁹: "If this opportunity of establishing on a safe footing an organ of scientific thought and of conscientious literary criticism is lost, it may be long before this very desirable object can be achieved".

In November 1864, Francis Penrose, archaeologist and astronomer, enthusiastically told Lockyer²⁰ that he had seen Ludlow "from whom I learnt that the *Reader* was casting off its old slimy skin and coming out renewed in better style. I hope it is for your sake—you were very despondent about it when I saw you". For about ten months the journal attracted scientific work; Lockyer published Croll's paper on the physical causes of climatological changes during geological time²¹, and a paper by William Huggins on nebulae.

Unhappily, these good omens were short lived. Unexpected difficulties of communication and disagreements about agreed commitments arose among the team. Moreover, according to Spencer, John Bohm, the paid sub-editor and the only man with journalistic experience, found himself out of sympathy with his scientists. "In the end their aims as well as the expectations of our subscribers were balked." In April 1865, Spencer signifi-

cantly tried to arouse wider interest by getting²², "so far as possible, occasional brief letters from the leading men of science announcing such interesting novelties as admit of being understood by the general public and one of fit nature to be quoted for our columns". In August 1865, Thomas Bendyshe*, a professional author, editor and anthropologist, purchased the paper and the management improved a little, but personal relations between the editor and the staff remained poor and the journal ran aground in stormy literary disputes.

There were other disappointments. Huxley, struggling with the *Natural History Review*, found the strain of one collapsing journal too much and he wrote nothing for the *Reader*. In January 1867, the last issue appeared and the *Reader* died soon afterwards. The paper had suffered, according to Galton²³, from continuing inefficiency in operation and dullness in style "notwithstanding some really good articles".

The management was naturally too amateurish; promised articles were delayed and the time of the Committee was too much wasted in frequent discussions about first principles upon which Spencer loved to dilate.

But there were other reasons for its failure. Karl Pearson²⁴ noted first that, while its scientific list "was a tremendous force to bring together", because "there was no one man who would devote his whole life to the projected task, the *Reader* came to nought". Second, the powerful scientific guns who had given tacit support remained silent when asked for reviews. The great men of the day—Lyell, Darwin and Herschel, for example—were solicited but did not reply. Lacking this appeal, the journal's circulation could only suffer. Third, the journal was dissipated by divided responsibility among the editors²⁴. "The ship had too many first rank commanders aboard and no one whose livelihood depended on successful voyages. It is small wonder that it never reached port." As Pearson adds, *Pereat lector, Natura resurgat*. Indeed, at its death the *Reader* was the closest approximation yet to the wishes of the London scientific circle.

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¹ Ludlow Papers, Macmillan to Ludlow, November 7, 1859 (Cambridge University).

² Advertisement, *The Reader: A Review of Literature, Science and Art*, Saturday, January 3, 1863.

³ Hansen, Roll, D., *The Academy, 1869-1879*, Anglistica, VIII, 30 (Copenhagen, 1957).

⁴ *Annual Register for 1863*, p. 359.

⁵ Graham, W., *op. cit.*, p. 331.

⁶ Huxley, Leonard, *Life and Letters of Sir Joseph Dalton Hooker*, I, 541 (London, 1918).

⁷ Macmillan, George A., *Letters of Alexander Macmillan*, 156, to Rev. F. J. A. Hart, October 23, 1863 (privately printed, 1908).

⁸ Masterman, N. C., *John Malcolm Ludlow: The Builder of Christian Socialism*, 159 (Cambridge, 1963).

⁹ Ludlow, J. M., *Biographical Notes to My Life*, 23.

¹⁰ *Masson Papers* (Edinburgh University), DC.3.99 (14). Masson to Sharpey, March 11, 1868.

¹¹ *Scientific Record*, 14 (April 9, 1864).

¹² Galton, Francis, *Memories of My Life*, 167 (London, 1908).

¹³ *Tyndall Papers*, to Bence Jones, November 18, 1864.

¹⁴ *Tyndall Papers*, II, 534, Tyndall to Herschel, November 21, 1864.

¹⁵ *Tyndall Papers*, II, 535, Herschel to Tyndall, November 21, 1864.

¹⁶ *Add. Mss.*, 49,639, f. 40, Spencer to Lubbock, November 12, 1864.

¹⁷ Mack, E. C., and Armitage, T. H., *Thomas Hughes*, 125 (London, 1952).

¹⁸ *Reader*, V, 152 (February 4, 1865).

¹⁹ *Add. Mss.*, II, p. 119, to Mill.

²⁰ *Lockyer Papers*, Penrose to Lockyer, November 23, 1864.

²¹ *Lockyer Papers*, Croll to Lockyer, January 14, 1865.

²² Duncan, David (edit. by), *Life and Letters of Herbert Spencer*, I, 153-154.

²³ Galton, Francis, *Memories of My Life*, 168 (London, 1908).

²⁴ Pearson, Karl, *Life of Sir Francis Galton*, II.

Reprinted from *Nature*, December 2, 1869

The Corona

In connexion with Mr. Lockyer's paper "On the Recent Total Eclipse of the Sun," the following observations may be useful.

I observed the total eclipse of July 1860, in company with my friends Professor Chevallier and Mr. B. E. Hammond, at the village of Pancorbo, in Spain. We were on the summit of a mountain of considerable height, about 5,000 feet above the sea, and were therefore under somewhat peculiar atmospheric conditions. I observed specially four things:—

(1) Venus; which was then extremely near the sun, the thickness of the crescent being only 1 or 2 seconds, and therefore very favourably placed for observing whether it has an atmosphere.

(2) The extent of the corona, and its form. This I am sure was very irregular; very nearly, if not quite, permanent during the three minutes of totality; was nowhere less than 25' in breadth; in one part, the top in an inverting telescope, 40' in breadth; and in another, the right, was more than 60' in breadth, running out in a long wavy line like floss silk. I have before me the drawing I made at the time, during the totality.

(3) The amount of light given by the corona. This was estimated by a photometer, consisting of a wedge of dark glass, with a moveable slit, contrived by Mr. Chevallier, and now, I believe, in the possession of the Astronomical Society, with the place marked through which I saw the corona. It was as bright as a small cloud, distant 8° from the sun, 10 minutes after reappearance; or as the moon when 2½ days old, as the sun was setting.

(4) The colours shown by a variety of coloured ribbons during totality. Of these, the only observation that bears on Mr. Lockyer's paper, was that on the extent of the corona. I estimated it twice; once as reaching, to the right, 2½ diameters of the sun, and once, later on, at nearly 2½ diameters. I had no micrometer, but could not possibly have been wrong by so much as 10'. I wrote down at the time, that it underwent no perceptible change during the eclipse. It remained visible for six seconds after the reappearance of the sun.

I had, and have, little doubt that the corona is in the solar, and not terrestrial atmosphere.

Rugby School, Nov. 11

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