

The Correspondence of the Rev. B.W.S.Vallack

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SUMMARY

A collection of letters between several nineteenth century astronomers, including T.Dick, J.F.W.Herschel, and T.J.Hussey, has recently been acquired by the Society and is briefly described.

The Rev. Benjamin W.S.Vallack was, from 1832 to 1875, the Vicar of St Budeaux, near Plymouth. He had a private observatory and corresponded with other astronomers, and seems to have preserved those letters that were of particular interest or importance to him. A small collection of these letters recently appeared in a London saleroom and was acquired by the Society, using Library trust funds supplemented by generous aid from the Fund for the Preservation of Technological and Scientific Material administered by the Science Museum, which is here gratefully acknowledged. Some of the letters complement others from the same correspondents already in the Society's archives.

Vallack was particularly interested in practical astronomy and telescope design; there is a short note of his (contributed by Captain W.H.Smyth) on a binocular double Newtonian telescope he had built, in *Monthly Notices*, 8, 139, 1848, and this seems to have been the original of this form of telescope which is still occasionally built by amateurs. Vallack's draft of a related letter to Smyth is in the collection.

The earliest letters are from the Rev. W.J.Hussey, DD, Rector of Hayes in Kent. Hussey is now best remembered for his early part in the events that led to the discovery of the planet Neptune in 1846 September, for it was he who wrote at length to Airy some 12 years before to suggest both the analysis of the residuals in the motion of Uranus and the mode of searching for the suspected planet that Airy later recommended to Challis (1). In a letter written on 1847 March 3 Hussey apologizes for his tardiness in replying to a letter from Vallack

'... but I dislike being obliged for want of time to hurry over an agreeable task, and therefore having much to do which required close attention postponed writing until my mind was free from other matters ...'

(a charming excuse for unanswered letters that deserves to be remembered!).

He continues

'... I had not leisure to pursue such a complicated enquiry as that of an inverse problem of perturbations. Moreover I was out of practice, and in exploring the higher calculus, to be successful, you must never have interrupted your enquiries ...'

Adams will doubtless have his credit in Europe and indeed in all the world except France. It may be believed that the disappointment which every Englishman must feel is mainly to be ascribed to the absurd prejudice in favour of French Science, and which seems to prevail against English Science, in many minds, not excepting the Astronomer Royal . . .

At an earlier date, in 1838, Hussey was advising Vallack about the purchase of a telescope. Hussey had assembled a magnificent private observatory at Hayes but a severe injury had put a stop to his practical labours and on 1838 February 8 he wrote to Vallack:

'The whole contents of my observatory are for sale, dome and all. For any person who could afford to take the entire collection such another opportunity will never occur . . . Fraunhofer's large telescope, moved by clockwork, is about of ten feet focal length and 6.5 inches aperture . . . the price of this is five hundred pounds (2). The transit clock, one of Hardy's most expensive ones, is 150 pounds an akaremeter of his for measuring small portions of time $1/600$ of a second nominally, but which may be depended upon to the $1/40$ may go with it (3) . . .'

Other instruments included a reversible transit circle (£150), a fine Newtonian of 7 feet focal length by Herschel with many accessories (£150), and a 9.3-inch Gregorian-Newtonian (£150). The Herschel reflector Vallack seems, from later letters, to have bought and in turn later offered, unsuccessfully, to Dr Dick; the Gregorian was the one which Hussey had used to construct the *Hora XIV* star map (1831) that had earned him a prize from the Berlin Academy – the same map and atlas that ironically were later to play a part in the recognition of Neptune. Hussey was not being boastful about his instruments, and though the prices he asked were high they were no doubt not too different from what he had had to pay for them; other letters in the collection lament the high cost of good telescopes at the time.

'The learned Dr Dick' – Thomas Dick, honorary LLD – was a religious man of the strict persuasion of the Scottish Secession Church, whose home at Broughty Ferry near Dundee was equipped with a private observatory. He was a man of wide reading and both as author and lecturer he gained a considerable reputation in the middle years of the last century in this country and in North America; such books as *Celestial Scenery*, *The Sidereal Heavens* and *The Christian Philosopher* combined clear exposition with numerous opportunities to expound his favoured doctrine of the plurality of worlds and the omnipresent evidence of the wisdom of God in His Creation (4). *The Practical Astronomer* (London, 1845 and New York, 1846) is still a useful source for the history of astronomical optics in the nineteenth century. His letters to Vallack are written in a tiny but neat hand and composed in long, elegantly constructed and prosy sentences (one suspects that his sermons might have been rather tedious). They contain however much of interest relating to astronomical matters and Dick's personal affairs. Although his books sold well they brought him little profit, and indeed he is known to have been in receipt of a modest Civil List pension before his death at an advanced age in 1857. When Vallack offered him his Herschel reflector or a smaller achromatic he regretted (in a letter dated 1846 May 12):

' . . . I have long wished for an Achromatic $3\frac{1}{2}$ inch aperture. But my funds are insufficient to procure it. I have made comparatively little by my publications . . . the copyright of the "Christian Philosopher" was sold for £120 and it has passed through 9 editions of 1500 each; but I can lay no claim to any further profits – It

pleased Providence about three or four years ago, to leave to my charge five orphan grandchildren, whose parents died within 13 days of each other, without leaving almost anything for their support . . .'

He had been obliged to sell one of his best telescopes to meet this crisis. In his isolated home Dick was experimenting with back-silvered telescope mirrors, and explains his troubles in a letter to Vallack (1840 October 12):

' . . . I find it difficult to make even the Opticians in London to enter into my views, and when they have attempted to form some concave glasses according to my directions, I have found the *figure*, in most instances, not correct, and consequently not answering the purpose intended . . . in all such experiments there is a certain degree of expense incurred, and they are frequently attended with many disappointments.'

Vallack also numbered Sir John Herschel among his correspondents. One supposes that Herschel's name and distinction rendered him, like the Duke of Wellington, 'much exposed to authors', but he twice responded enthusiastically to letters from Vallack about the design of binocular telescopes and the possibility of large silver-on-glass reflectors. In a long letter from his home, Collingwood, he wrote (1866 February 16):

'As regards the proposal for a large 10[feet] diam of silvered glass (on the silver of which I would suggest that a coat of *Gold* might be precipitated if it would not render it less reflective (which query?) . . . such a mass of glass (which would weigh about 2½ tons) would be very difficult to mould and to anneal, but it does not seem impracticable . . .'

Herschel continues with the possibility of using similar mirrors of shorter focus as a solar furnace, and of other methods of producing high temperatures which were then interesting to him.

Vallack's seventieth birthday was on 1873 February 2, a Sunday, and his son wrote the previous day from the War Office, Pall Mall (evidently not doubting that the letter would be delivered on Sunday) to explain that he had acquired a solar prominence spectroscope as a birthday present:

'My first impression was that *Ladd* would be the man to go to about such an instrument, but I determined not to make any purchase without previously consulting *Lockyer* on the subject, so I called and asked him . . . and he at once said that *Browning* was the man to go to, not *Ladd*. He then took me down to his *Laboratory* and shewed me the sort of spectroscope to get . . .' (5)

Details of his visit, and of the London scientific scene, follow. In the collection there are further letters to or from the instrument makers Tulley of Islington, and William Simms.

Although containing no epoch-making discoveries, the collection of letters contains much of interest about astronomers of the time and their interests and concerns, and as such they form a useful addition to the large collection of material already available to scholars in the Society's archives. The Society is an appropriate permanent repository for historical material of this kind, and the Librarian or any member of the Library Committee will always be pleased to hear from, or advise, any Fellow of the Society who may know of the existence of similar collections of documents.

NOTES

(1) The letters are reproduced in *Mem. R. astr. Soc.*, 16, 389, 1848.

(2) These prices require multiplication by something like $\times 40$ to allow for inflation to 1982. See D.W.Dewhirst, *Vistas Astr.*, 20, 109, 1976.

- (3) The *akaremeter* is a source of puzzlement; the word is unknown to any dictionary or nineteenth century technical literature I have searched. It is evidently (*Greek*, moment-measurer) a timepiece serving the purpose of a modern stopwatch; Mr Beresford Hutchinson has suggested to me that it may have been similar to Justin Vulliamy's 'Timer', described at item 59 in the catalogue *Clockwork of the Heavens*, Asprey, London, 1973. The word may have been coined by Hussey, but another letter of Hussey's of about the same time, now at Durham and to which Professor G.D.Rochester has drawn my attention, speaks of the instrument as Hardy's invention: 'The akaremeter, his machine for measuring small portions of time, has his latest form of improvement. The result of Babbage's and my experiments with this indicate that it may be depended upon to about the one fortieth of a second' (letter, Hussey to Chevalier 1839 January 11, Durham University Archives). Some of Hussey's instruments were purchased for the Durham Observatory (G.D.Rochester, *Q. Jl R. astr. Soc.*, 21, 369, 1980) but the akaremeter was not among them. It would be interesting to learn more about this instrument.
- (4) In a recent article (*Sky Telesc.*, 62, 428, 1981) M.J.Crowe has argued that the celebrated 'Great Moon Hoax', perpetrated by Richard Adams Locke in the New York *Sun* in 1835 August, was not so much a hoax as a satire directed against the naïvety of Dick's, and other writers', arguments in favour of the plurality of worlds.
- (5) Ladd, with a shop in Beak Street, Soho, and Browning, trading at 111 Minories, were both well-known instrument-makers with a wide stock, but specializing in microscopes and spectroscopes respectively.