

The Bury St Edmunds Athenæum Observatory

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The construction is described of a Victorian observatory in Suffolk, inspired by George Biddell Airy and Lord Arthur Hervey, in the year of Donati's spectacular comet.

Introduction

The Bury St Edmunds Athenæum is a distinguished Grade I listed building (Figure 1) located at the south end of the town's Angel car park, adjacent to the famous Angel Hotel and overlooking the historic Abbey Gateway; this gateway leads to the renowned Abbey Gardens and ruins. The whole town is steeped in history but the structure that will be of most interest to astronomers is the green dome sitting atop the Athenæum, behind the flagpole. It is unmistakably an astronomical dome, even to the casual onlooker, but to the astronomical historian it is nothing less than a remarkably preserved treasure trove. The astronomy historian Allan Chapman described it as 'an almost unique Victorian astronomy time capsule' in a communication to one of the authors (KJG).¹ But what, precisely, inspired its construction? The answer appears to be the coming together of a spectacular comet, a lecture from the Astronomer Royal and a dynamic scientific society led by one Lord Arthur Charles Hervey.

The Athenæum building

A large private house, 'taxed for 17 hearths', stood on the Athenæum site in 1674. During the 17th century, occupiers



Figure 1. The Bury St Edmunds Athenæum building viewed from the north.



Figure 2. The Athenæum dome and flagpole as seen from the steps of the Angel Hotel.

included Thomas Fletcher, a sergeant-at-law; Sir Adam Felton, third Baronet of Playford; Lady Monson; and Sir Roger Martin of Long Melford.² From surviving 18th century prints, the building obviously had three stories around the time of Sir Roger Martin's occupation, suggesting he may have rebuilt the large house that way and been responsible for renaming it as the 'New' or 'White House'. The building was first used for public assemblies some time after 1715. But in the latter part of that century, 1789 to be precise, the house was modified again with two storeys, this time by George Anderson. Anderson had purchased the White House in 1777 and went on to become the new landlord of the Angel

Hotel, barely thirty yards away. The building was renamed 'the New Assembly Rooms' and was used for various activities including dancing classes and holding balls. While the current ballroom displays some features similar to those designed by the renowned Robert Adam, an Adamesque imitator may well have been responsible.³ In 1801, George Anderson became bankrupt and James Oakes, a diarist and local banker, bought the New Assembly Rooms on behalf of his consortium, comprising himself and eleven other men. Anderson refurbished the building with assembly, coffee and billiards rooms. The new rooms were the work of a nearby Ickworth architect called Francis Sandrys, who lived at 1 Angel Hill, Bury St Edmunds. All this work, in 1804, cost a considerable amount, but the money was raised by subscriptions from those who wished to use the facilities. The building was



Figure 3. The front page of the 1858 October 19 *Bury and Norwich Post and Suffolk Herald*, in which Airy's talk was reported.

renamed as 'The New Subscription Rooms' and James Oakes conveyed it to the main subscribers in 1806, although the old name of 'the Assembly Rooms' was still widely used.

In 1854, seventeen years into the reign of Queen Victoria and three years after the Great Exhibition of 1851, the building took on its current Athenæum name and became the property of the 'Athenæum Institute', and various groups used it as their base. These included the local country club, chess club and the Bury library. The word Athenæum means 'an institution for literary or scientific study'.

A centre for scientific debate

During the mid to late 1850s the Bury Athenæum became a centre for local Victorian amateur scientists and many major talks by leading figures were held at the Subscription Rooms. Learned men from near and far met to discuss items of a scientific nature under the guise of 'The Bury Athenæum and Suffolk Institute of Archeology and Natural History.' The President of this society and of the Athenæum itself was a local man of high regard, Lord Arthur Charles Hervey. Fascinating summaries of some of the talks given at the Athenæum can be found by trawling through surviving microfilms of *The Bury and Norwich Post and Suffolk Herald* (Figure 3) kept in the Bury St Edmunds Records office.

A snippet from a surviving account of an Athenæum talk about 'light', by a Cambridge scientist, Mr Hopkins, in April 1856, gives an idea of the atmosphere at the earliest meetings:

At the conclusion of the lecture, which was given in a very lucid and interesting manner, and listened to with great attention, Mr Hopkins said a few words on the value of speculative or theoretical science, shewing that enquiry into the truths which the Creator had placed within man's reach, when made in the humble spirit of the true philosopher, tended to confirm, instead of confuting, the truths of religion, and to advance instead of hindering their diffusion. Lord Arthur Hervey then thanked Mr Hopkins for one of the most interesting and instructive lectures he had ever heard in that room, and expressed his hope that, during the next session, he would fulfil the rest of his promise [i.e. to give another lecture].⁴

Charles Dickens gave readings at the Athenæum in 1859 and in 1861. A local newspaper report gave details of the

1859 and 1861 events as follows: *Chas Dickens is a great writer and he is a good reader* (1859). Tickets for his 1861 reading were advertised thus:

October 29th 1861. For one night only. Mr Charles Dickens will read at the Athenæum Hall at Bury St Edmunds on Wednesday evening at 8 o'clock, David Copperfield, in six chapters. The reading will be within two hours. Stalls 4s, Area 2s, Back Stalls 1s.⁵

Whether Dickens visited the observatory discussed here is unknown.

The Rev Charles Kingsley, author of *Westward Ho*, gave a lecture at the Athenæum in 1860 while W. M. Thackeray, writer of *Vanity Fair*, visited in the same year.

The Rev Lord Arthur Charles Hervey

In the late 1850s and 1860s the Honourable and Reverend Lord Arthur Charles Hervey (1808–1894) (pronounced Harvey) was the President of the Athenæum and appears to have been the driving force behind the Bury Athenæum and Suffolk Institute of Archeology and Natural History. Lord Arthur Hervey, the fourth of nine children, came from a wealthy, powerful and religious family.⁶ His father, Frederick William Hervey (1769–1859) died in the year that most concerns this paper and it is thought that he may have bequeathed some astronomy books to the Athenæum, in addition to a significant monetary bequest to the future observatory. Frederick William Hervey was the fifth Earl and First Marquis of Bristol, although he had no connection with that city. His London home, where his son Arthur was born, was at No. 6 St James Square, but the family home, since 1470, had been the 800 acre Ickworth Park, situated a mile or so to the south of Bury St Edmunds. From the 1830s the enormous, magnificent and circular Ickworth House became the Hervey family home.



Figure 4. Lord Arthur Hervey in later life, from the *Wedmore Chronicles* article by his third son. Photographer unknown.

Frederick Hervey installed his son Arthur, aged 24, as the rector of the ten-house parish of Ickworth: not the largest of parishes! However, Arthur expanded his parochial duties to Chedburgh and Horringer and was Chaplain to the Gaol at Bury St Edmunds. Over the years, being the father of twelve children must also have kept Lord Arthur busy. In 1862 he was appointed Archdeacon of Sudbury, which of course did not take him away from Suffolk nor from Ickworth. However,

in 1869 he was appointed by Mr Gladstone (1809–1898), a schoolmate from Eton, to the prestigious Bishopric of Bath and Wells, which took him far away from Suffolk and the Athenæum. However, that was ten years after the main focus of this astronomical story. Lord Arthur would be the Bishop of Bath and Wells for 25 years, until his death, at 85 years and 9 months, in 1894. Lord Arthur's third son, the long-lived and Rev S. H. A. Hervey (1845–1944) described the Bishop thus:

The mingled dignity and ease of my father's manners, his courtesy and pleasantness, always charmed those who met him. In height he was 5 ft. 10 in., active and well made, and though not heavily built yet possessing a certain breadth of shoulder. He always carried himself well. Though he probably could not have roughed it much, yet he was thoroughly sound and seldom had a day's illness. The youthfulness of his mind and his interest in everything that had interested him before, he kept to the very last day of his life.

Lord Arthur's younger brother (sixth of the nine), Lord Alfred Hervey (1816–1875) was also involved in the Athenæum's scientific endeavours. Alfred was in Parliament and held office at Court. He stood as a Conservative, but sometimes gave a Liberal vote, which caused him to fall between two stools and lose his seat, first at Bury St Edmunds, afterwards at Brighton.

From surviving microfilm records it is interesting to note that the Athenæum Institute had a similar structure to the BAA, with the main officials being the President (Lord Arthur Hervey), two Vice-Presidents, three secretaries and a Treasurer.

Donati's Comet

On 1858 June 2 the Italian comet hunter Giovanni Battista Donati swept up 'a very faint small nebulosity of uniform brightness'⁷ (probably of about eighth magnitude) which would turn out to be his most spectacular comet find and one of the most beautiful comets ever seen. Donati's comet, 1858 VI, or C/1858 L1 in modern parlance, would become a naked eye object from early August until November and was truly spectacular in early October of that year.

Donati had all four ingredients that are needed for a good comet:

- 1) It was intrinsically bright with an absolute magnitude of approximately 3.3.
- 2) It passed close to the Sun with a perihelion distance of 54 million miles (86 million km).
- 3) It passed close to the Earth, at a distance of 51 million miles (82 million km) ten days after perihelion.
- 4) It was sufficiently elongated from the Sun, for several months (September to November) to be an obvious naked eye feature, during a period when there were many clear evenings in which to observe it.



Figure 5. Donati's Comet as seen from Cambridge Observatory on 1858 October 11, from page 387 of the *Illustrated London News* supplement of 1858 October 23.

Donati was the Hale–Bopp of its day, but with a much longer tail and in a much less light-polluted sky. On 1858 October 5, five days after perihelion, it passed in front of Arcturus in the evening sky, as seen from Europe. The comet appeared almost as soon as the Sun had set and remained visible until the comet itself set (the head about 9 p.m. and the end of the tails many hours later). Its wonderfully broad, sweeping dust tail grew to 60° in length (estimated as 50 million miles) on October 10 and two thin tails, one a gas tail, the other (possibly) a synchronic feature were also visible. A fortnight later the *Illustrated London News* of October 23 contained a Comet Supplement showing paintings from a variety of observers, including a rendering from the Cambridge University Observatory made on October 11 (Figure 5).⁸

By the start of October the comet was attracting so much attention that observations of it were regularly being reported in almost every edition of the local Bury newspapers. For example, the following details were given,⁹ copied from a letter in a national newspaper,¹⁰ written by no less a person than J. R. Hind, the UK astronomer and asteroid discoverer:

The comet will arrive at its least distance from the Earth about midnight on the 10th of October, when we shall be separated from it by rather over 51,000,000 miles. Its maximum brilliancy will be attained the day previous, when the intensity of light will be twice as strong as at the present time. It is, therefore, obvious that during the absence of moonlight in the evening hours for the next ten days or upwards the comet will form a splendid object in the Western heavens. On the evening of October 5th the nucleus will make a near approach to Arcturus, the principal star in the constellation of Bootes. At six p.m. their distance will be little more than one-third of a degree. It is not probable that the comet will be visible in this country after the end of the third week in October, unless a few daylight observations be subsequently procured. In a somewhat hazy sky last evening the apparent length of the tail was about 12 degrees, corresponding to a real length of 16,000,000 miles. As usual in great comets, the tail is very visibly curved in the opposite direction to that of the motion of the nucleus.



Figure 6. Donati's Comet on 1858 October 11, painted by J. Henry Griesbach. (Royal Astronomical Society Library)

Hind continued with a slight digression into instrumentation:

HOW TO OBSERVE THE COMET:- It is not generally known that for about four shillings a telescope may be constructed, the possession of which may add greatly to the enjoyment of a family group and others during the next two or three weeks in the admiration of the comet. Procure from an optician a 36-inch object glass (i.e. a convex glass which produces a focus of the sun's rays at a distance of 36 inches), and a one-inch eye-glass (a convex glass with a focal distance of one inch). Employ a tin-plate worker to make two tubes of tin, the one 30 inches long and about 1¼ inch diameter; the other 10 or 12 inches long, with its diameter such that it will easily slide inside the larger. The inside of these tubes should first be painted, or otherwise lined, with a dull black. At the end of the larger tube an ingenious workman will have no difficulty in securing the object glass, so that not more than an inch in diameter of it shall be exposed; and at the end of the smaller tube insert the eye glass. When the open end of the one tube is inserted inside the open end of the other, so that there shall be a distance of about 37 inches between the eye and the object glass, a telescope will be present which will magnify the diameter of objects thirty-six times, and will cause celestial bodies to appear thirty-six times nearer than they are. With such a telescope the satellites of Jupiter, the crescents of Venus and the inequalities of the surface of the moon may be distinguished. The telescope with which Galileo made his first discoveries in the heavens did not magnify more than it. With this instrument all objects appear inverted; but this is of no consequence when viewing heavenly bodies.

Also in the October 5 edition of the same local newspaper¹¹ we find the following letter regarding 'The Comet', dated 1858 October 2 from Mr A. J. Green of Sudbury in Suffolk. The letter is titled 'THE COMETS OF 1858 and 1811':

Sir - This evening, Oct. 2, the comet appeared with greater brilliancy and a tail of greater length and breadth than has been observed since it became visible; yesterday morning (Friday), at about 4 a.m., it was also seen in the East by several persons with similar splendour. It now appears to be nearly equal to the great comet of 1811, but with this difference, that the latter was higher above the horizon, and was distinctly visible much earlier in the evening than the present one, and continued much longer in view, appearing com-

paratively stationary for hours. This difference has been noticed by several who remember that of 1811, whereas the present comet is not distinctly visible until it is getting dark, and then it appears to travel with much greater velocity, and is foretold to be visible for a few weeks only, while that of 1811 continued visible for several months. There is, however, a striking similarity in the fine weather attending upon both; in 1811 scarcely a shower fell during the time it continued visible, and the weather was very warm; just so it is with the present comet, little or no rain having as yet fallen, but I believe it has not been so warm. I write only from recollection, but if any of your readers possess better information the insertion of it in the Bury Post would gratify many as well as Your's obediently. A. J. Green, Sudbury, Oct 2, 1858.

A lecture by the Astronomer Royal

According to books about Bury St Edmunds, it was a talk, in 1858, by the 7th Astronomer Royal, George Biddell Airy (1801–1892), 'a local Suffolk man', that triggered the construction of the Athenæum's astronomical observatory. In fact, Airy was not born in Suffolk, but as a boy he had visited his Uncle Biddell's farm at Playford, near Ipswich and so liked the region that in 1844/'45 he had purchased a cottage there as his country retreat.¹² Also Airy, according to a number of popular guide books, advised on the design of the Athenæum dome and even the choice of the telescope. Based on this tantalising evidence, KJG acquired a copy of Airy's edited autobiography, compiled from his records, in which the Professor meticulously noted almost everything he did. Sure enough, he mentions¹³ giving a lecture in 1858 at Bury St Edmunds: 'In October I gave a Lecture on Astronomy in the Assembly Room at Bury'. The Assembly Room(s) being, as we have seen, another name for the Athenæum. October 1858 was, by an incredible coincidence, the month that Comet Donati attracted more interest in the night sky than any other object in living memory: what an inspiring combination, a lecture by the Astronomer Royal and a fantastic comet!

Armed with this vital date information, MPM returned to the Bury Public Records Office and located a summary of Airy's lecture in the local paper.¹⁴ The talk date, Tuesday October 12, occurred, remarkably, during the absolute peak of Donati's beauty in the evening sky. Not surprisingly, with such an eye-catching celestial visitor, Airy's lecture was very well attended, and his comments on 'The Comet' indicate the limited knowledge of even the Astronomer Royal at that time. The newspaper summary of his delivery reads as follows:

Of all the crowded audiences which have filled the Lecture Hall of the Bury Athenæum, that which assembled on Tuesday last to hear the learned Astronomer Royal was by far the largest. In addition to the eminent position of the learned lecturer and his high reputation for astronomical and mathematical powers, the fact of his being a Suffolk man gave additional interest to his coming amongst us. Every available spot in the museum, passages, and lobbies from which a word could be caught was filled, and not less than 150 persons were unable to obtain even such imperfect ac-

commodation. The Hon. and Rev. Lord A. Hervey was in the chair, Earl Jermyn, M.P., Lord Alfred Hervey, and other members of the House of Bristol, with many of neighbouring gentry, being present. The learned Professor, who chose for his subject 'The observations, ordinary and instrumental, on which the fundamental points of Astronomy are established,' said it would be impossible to explain more than the principles on which the foundations of the science rested. Of these he gave a most lucid exposition, in the course of which he explained, by the aid of some excellent models, the mode of taking observations by means of the equatorially-mounted telescope, the transit instrument, the mural circle, &c., and exhibited the manner in which all the elements required to fix the position of a star were obtained.

At the conclusion of his lecture the Professor said he was doubtless expected to say a few words on a subject of which they (the astronomers) did not know anything – The Comet. He must confess that it was a perfect puzzle, and although there were many theories, neither he nor anyone else knew anything about it, comparatively speaking. He could only shew them a diagram presenting the appearance of the nucleus and surrounding coma. The lecturer concluded by expressing a hope that his lecture, which would probably be the last he should ever deliver; might lead some of his audience to go farther into the sublime science of which he had been speaking: if only one person made his lecture a foundation for future study – it would be a small thing to say that he had been repaid for his trouble – this meeting would not have been held in vain.

The noble President returned the thanks of the audience to Professor Airy, and hoped he might at some future time be able to tell him that some young member, led by his kind words and the simplicity of language in which he had clothed vast truths, had been encouraged to enter the study of the great and glorious subject of Astronomy.

The Athenæum club minutes indicate that authorisation to build an Observatory on the roof of the Athenæum was granted around the same time as Airy's lecture and comet Donati's appearance. Also, initially, a Quadrant and two Globes were ordered to start things off.

On the very day of Airy's lecture (October 12) the same local newspaper that reported his talk had two fascinating items¹⁵ about another comet and about Airy himself, buried deep in the local news columns. Firstly, an item entitled 'Another Comet':

A telescopic comet, whose elements do not appear to resemble those of any other yet observed, was discovered at the Cambridge (U.S.) Observatory on the 5th ult. The comet when first seen was situated in the constellation Perseus; its perihelion passage is calculated for the 17th inst.

This was almost certainly comet 1858 VII (= C/1858 R1), a much fainter comet, discovered by Tuttle.



Figure 7. G. B. Airy: a 'spy' cartoon by the artist 'Ape'. One of a series published by *Vanity Fair* in the 19th century, dated 13.11.1875. (From a print owned by KJG).

The second item of news, concerning Airy, reads as follows:

THE ASTRONOMER ROYAL AND THE COAST GUARDSMAN

A very ill-spelt letter, dated 'Sheerness' and signed 'C. Moren,' was published in the Times. The writer described, in his own remarkable way, his discovery of the comet that everyone is now observing with interest, and the manner in which, by the aid of two sticks, he obtained the bearing of the visitor. The writer is a Coastguardsman on the Isle of Sheppey, and therefore, as his letter implied, much accustomed to nocturnal aspects and phenomena. Although his letter evinced a profound want of the common rudiments of education yet it afforded manifest evidence of natural sagacity; and in recognition of these Professor Airy has considerably sent the writer a set of elegant volumes from the Royal Astronomical Society. We wish Mr Moren much success in the study of them – Mechanics' Mag.

A week later, on October 19, in the miscellaneous column of the newspaper,¹⁶ not far from the description of Airy's talk, the following extra information on 'THE COMET' was supplied:

Mr Hind, of Mr Bishop's Observatory, states that the longer diameter of the comet's orbit is 35,100 millions of miles or 184 times that of the earth, and its shorter diameter 2780 million miles; that its time of revolution, according to the calculation of M. Loewy of Vienna, is 2495 years, or 500 years less than that of the comet of 1811; and its hourly velocity varies between 127,000 miles at the perihelion, and 480 miles at the aphelion; the tail, during the last fortnight appears to have maintained an average length of 40,000,000 miles subtending an angle of 30 to 40 degrees.

Immediately beneath this, a banner proclaimed 'MORE COMETS' and continued:

The latest advices from Tunis report that two comets are visible there with the naked eye, both of great splendour, one travelling from the north and the other from the south.

In fact, both comets would have been Donati (this fooled a number of people) as it had been visible in the evening and morning skies at northern latitudes, its northerly declination being much higher than that of the Sun.

The Observatory is built

Following Airy's inspiring talk in 1858 October Lord Hervey made it clear to the Astronomer Royal that he wanted to acquire a suitable telescope and observatory for the Bury Athenæum as soon as possible. Thanks to Dr Allan Chapman, on 2004 August 11 both authors of this paper were able to gain access to correspondence between Airy and Hervey, stored in the Oxford Bodleian Library. A series of fascinating letters from Airy, written between November 1858 and October 1859 still survives.¹⁷ It transpires that Airy initially attempted to acquire a five inch refractor from a Scottish baronet for the Athenæum. However, he could only negotiate the price down from £150 to £130. Nevertheless, in January 1859, Airy wrote that William Simms (of Troughton & Simms) had stated that he could supply 'an appropriate

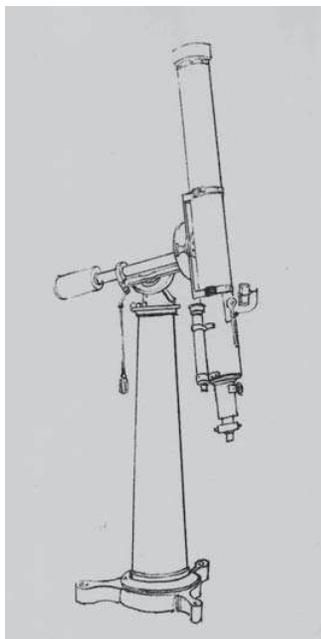


Figure 8. A sketch by William Simms (of Troughton & Simms) of the proposed Athenæum refractor, enclosed in a letter to Airy dated 1859 January 14 and forwarded by Airy to Lord Hervey on 1859 January 15. Apart from the stubby tripod used to attach the telescope to the wooden floor, the sketch is an accurate portrayal of the instrument installed in the Athenæum dome. (*Bodleian Library, Oxford*)

four inch aperture achromatic object glass, mounted equatorially upon an iron pillar with lamp, transit-eyepiece and fine negative eyepieces, but no micrometer, for £100.’ Remarkably, the original sketch of the proposed telescope, sent from Simms to Airy and on to Hervey, still survived in the Bodleian folder (Figure 8). It is, unmistakably, the Athenæum telescope.

It would appear from surviving newspaper microfilms and society accounts that the construction of the Athenæum observatory started in late 1859, the same year that Charles Darwin published *On the origin of species*. This agrees with a letter in the aforementioned Bodleian folder, dated 1859 October 25, in which Airy informs Hervey that William Simms was in correspondence with a Mr W. Jones with regard to the ‘architects arrangements’.

In the official, but sparse, Bury Athenæum records, provided by Carol Rowntree, the Bury St Edmunds Research Officer, only the following (undated) historical note is retained:

‘As far as the building is concerned, the main legacy of the Victorian period is the observatory. The Astronomer Royal, George Biddell Airy (knighted in 1872) lectured there on 13th October 1858. In commemoration of this, and ‘with a view to promote the practical study of astronomy, a general subscription was set on foot for the purchase of an equatorial telescope, and to defray the expenses of fitting it in an appropriate place’.

The date of Airy’s address is given as October 13, but according to the newspaper report of his lecture it was on the evening of Tuesday, 1858 October 12.

The following brief statement appeared in a local news report in late 1859:¹⁸

‘The observatory was now in the course of being built, on the roof of the Athenæum’

Also, in the November local press¹⁹ we find the following announcement, further proof of Airy’s continuing interest in the project:

THE ATHENÆUM OBSERVATORY

The building of the Observatory is now making its appearance on the roof of the Athenæum, the situation after much counsel recommended by the Astronomer Royal as the most eligible which presented itself, and it is believed that any objections on the score of vibration have been met by the manner in which the structure is stayed by timbers of great strength between the front wall and a very solid chimney. The view of the horizon commanded by the glass is as clear as could be expected in the town. The appearance of the cupola in the centre of the rather [plain?] form of the Athenæum is a decided improvement; and we trust that the facilities which will be afforded for the study of the most sublime of the natural sciences, and the occasional observation of interesting phenomena in the heavens, will be taken advantage of by many. It will be seen by an advertisement that there is at present a rather large deficiency in the funds necessary for the cost of the telescope (already selected by the Astronomer Royal), and its receptacle; but we trust that it will not be long before the institution will be provided with the means of defraying the expense of an acquisition which has so long been denied by the town.

The accompanying advertisement in the same local newspaper listed the current status of the project:

ATHENÆUM TELESCOPE AND OBSERVATORY

In commemoration of the Astronomer Royal’s Lecture on the 13th October 1858 and with a view to promote the practical study of Astronomy, a general subscription was set on foot for the purchase of an equatorial telescope, and to defray the expenses of fixing it in an appropriate place. It was thought that all who heard the Astronomer Royal’s lecture would be glad to show their appreciation of it by contributing to an object by which alone the benefit of his lecture could be made permanent. In answer to this appeal, sums have been already subscribed to the amount of £102 15s 6d, but as the price of the Telescope itself will be £100, and the estimated expense of erecting an Observatory, now in the course of being built, on the roof of the Athenæum, together with the cost of mounting the Instrument, will be some £60 more, further contributions will be required, and therefore, those members and friends of the Institution who have not already subscribed are respectfully urged to add their donations, however small, towards the accomplishment of so desirable an object to the town and neighbourhood as the establishment of an Observatory, an advantage which no wealthy and respectable town as Bury ought to be without. The following are the donations already promised, many of which have been paid; and it is respectfully requested that the outstanding ones be also paid either at the Bank of Messrs Oakes, Bevan and Co., or to the Treasurer, Mr. Spanton.

The Rev. Lord Arthur Hervey, President, £5

Beneath this appeal there was a list of donors and a further reminder of who could receive the donations, namely, Mr Spanton, the secretaries, or the Hon. Sec. of the Observatory, Mr C. W. Jones. Even a cursory glance down the list of 75 donors (a further three were added in the next week’s paper) reveals a substantial set of donations from the Hervey/House of Bristol family. In addition to the donation of £10 from the estate of the late Marquess of Bristol, who had died that year, there was £5 from his eldest son and £5 from Lord Arthur Hervey himself. Lesser Hervey family donations were a guinea each from the M. P. Lord Alfred Hervey and Lady Arthur Hervey, and half a guinea from Miss Sarah and Miss Eliza Hervey, a total Hervey family donation of £23-3s. Other donors contributing £5 to the Observatory project were Sir

H. Bunbury, Lady Cullum, Mr W. E. Image Esq., Lord Marmers and The Earl Spencer. The smallest donation was two shillings and sixpence from Mr R. Dalton Esq.

Just over two months later,²⁰ a report appeared in the local news columns hinting that the observatory and telescope was now ready for use: 'On 17th January 1860, W. W. Boreham Esq. delivered a lecture on 'The Telescope and How to Use it' with reference to the 'excellent telescope recently erected.' W. W. Boreham was certainly a good choice to speak about the usage of an equatorially mounted refractor. His full name was William Wakeling Boreham FRAS (1804–1886) of Haverhill in Suffolk. Boreham was born at Saffron Walden and went on to make his fortune in the brewing industry in London and Manchester. He retired to Haverhill and built a private observatory equipped with a fine 6" refractor (probably one of Cooke's). Boreham made many contributions to the RAS *Monthly Notices* and his main fields of observation were comets and minor planets.

In early March, six weeks after Boreham's talk and seventeen months after Airy's talk both local newspapers carried the following notice:²¹

THE OBSERVATORY:-

As will be seen in our advertising columns, a special appeal is made on behalf of this desirable object by the Rev. Lord Arthur Hervey, President of the Athenæum. The total cost of the Observatory has been £172 11s 3d, whilst the subscriptions received and promised amount to £155 18s 6d, being a deficit of £16 12s 9d. We sincerely trust that this appeal of his Lordship may meet with adequate response, and that the deficiency may soon be made up, for it is no small advantage to our town and neighbourhood to possess a telescope of the undoubted quality of the one placed in the Athenæum Observatory.

In an era when a working wage was often much less than one pound per week, i.e. hundreds of times below 2004 levels, £172 11s 3d was a lot of money for an observatory.

In a rare surviving page from the 1861 Athenæum accounts for 1861²² (the year in which Queen Victoria's beloved Prince Albert died), the Honourable E. Skepper, who seems to have played a significant part in decisions regarding the observatory, made the following entry, indicating that other accessories had been acquired for the new observatory:

Since our last meeting as then proposed, I have solicited contributions towards a clock and other apparatus that was much needed; the subscriptions raised amounted to £7 11s, which (excepting a remaining balance of £7) has been expended in the manner stated at the end of the list accompanying this report, and we may consider the Observatory amply furnished for all ordinary observations. I soon abandoned the idea of getting a regular observatory clock, as I found it would cost about £30 and that we must wait a long time for it, and I did so the more readily as I found Mr Collis had a good, though an old regulator, which I knew by repeated comparisons with transits of fixed stars would answer our purpose – and which he offered at £10; this, therefore, is the time-keeper now fixed in the Observatory. During the last 12 months, about 500 people have availed themselves of our telescopic eye, and although for some weeks past indifferent health has prevented my taking my wonted share in the proceedings, my friend Mr Paul has usually been able to supply my place, and thus, I believe, none desirous to see the performance of the instrument, have been disappointed.

Mobberley & Goward: The Bury St Edmunds Athenæum Observatory

In the 1867 Athenæum minutes the following comment is recorded: 'A capital Observatory has been built on the roof, and an excellent telescope mounted therein, for the accommodation of such members as delight in the study of the heavenly bodies.'

The telescope and the dome

The telescope installed in the Athenæum dome is a four inch (10cm) OG refractor. On the first recent visit by the authors, KJG could detect no visible maker's plate. However, on 2004 May 6, MPM visited the observatory and after a search beneath a century of grime on the declination circle, the manufacturer's name was confirmed: 'Troughton & Simms, London.' This discovery was made before the authors found the letter from Simms in the Bodleian library. This choice of manufacturer should not have been surprising where Airy was involved, as he installed Troughton & Simms equipment at Greenwich and at Cambridge.

The Athenæum dome is 11 feet (3.35 metres) in diameter and 8 feet four inches (2.5 metres) high internally. The dome shutter is 20" (51cm) wide. The telescope is clock driven with manual slow motion controls and the mounting is of German Equatorial design. The head sits atop a tapering cast iron pillar, which is bolted, via a stubby cast iron tripod (not shown in Simms' sketch), to a major wooden beam supporting the observatory floor. Even as a schoolboy,



Figure 9. The Troughton & Simms 4-inch f/13 refractor viewed from the north as seen from the trap door into the observatory.



Figure 10. *Left:* The hidden staircase on the first floor Athenæum landing. *Centre:* The final curve of steps leading into the observatory dome. *Right:* The stairs viewed from inside the dome through the trap door.

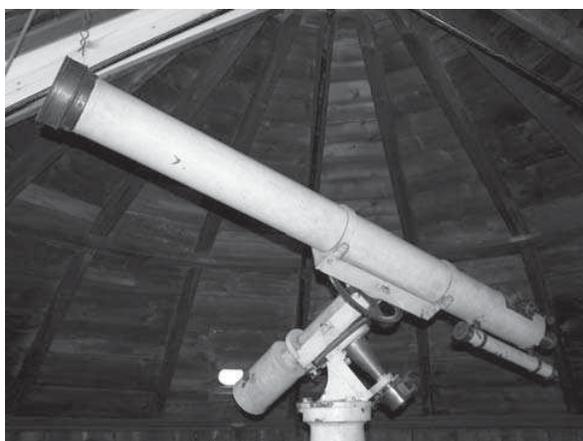


Figure 11. The refractor viewed from the west with the telescope looking northwest.

MPM was aware that the movement of other observers in the dome caused the view through the telescope to vibrate. The equatorial mounting sits 56" (1.42m) above floor level. The dome is copper clad and constructed in pine planking. Entry is gained via a trap door (0.7×1.4m across) in the observatory floor. The telescope tube is 51" (130cm) long with virtually no dew cap, suggesting that the f-ratio is close to 13. The manual slow-motion RA worm wheel and setting circle are 7½" in diameter (19cm) and the Dec wheel/circle is slightly larger, at 9" diameter (23cm). The telescope features a finder telescope with an OG 1½" (38mm) in diameter and 14" (356mm) in length. All six original eyepieces survive and are 1¼" (31.7mm) diameter. They sit in what appears to be the original six hole eyepiece box (Figure 15). The eyepieces are inscribed on the front, near to the eye lens, with their magnifications: from ×33 to ×306. A brass filter holder incorporating tiny coloured filters also survives.

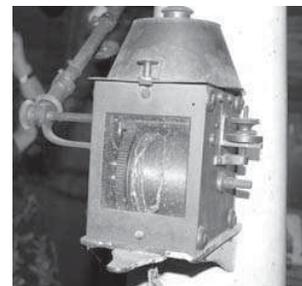
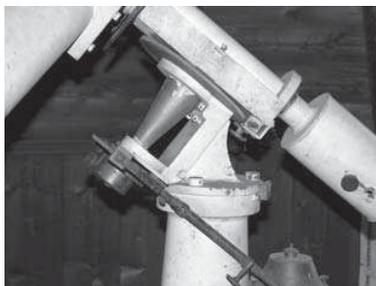


Figure 14. *Left:* The unusual tripod supporting the telescope pillar. *Centre:* Close up of the equatorial head. *Right:* The clock drive mounted just below the equatorial head on the north face of the pillar.



Figure 12. One of the authors (MPM) positioned at the eyepiece.

Access to the observatory is gained by ascending the normal staircase to the Athenæum's first floor. A number of locked, black wooden doorways open onto this landing, the one on the east side opening directly onto the steep wooden observatory steps. The first set of fourteen steps takes the observer level with the Athenæum roof-space and the timbers above the first



Figure 13. The 4-inch diameter object glass.

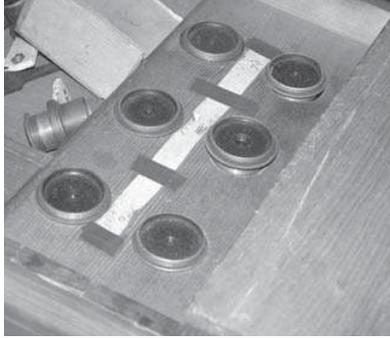


Figure 15. The eyepiece case with the six holes filled with six original eyepieces, marked with magnifications of $\times 33$, $\times 79$, $\times 92$, $\times 130$, $\times 190$ and $\times 306$.

floor ceiling. One then has to clamber across to another wooden staircase, whose fifteen steep steps curve with a radius to match the dome's diameter and, after ascending almost four metres, one is finally inside the dome. A trapdoor can be laid over the staircase hole, although whether it would bear the weight of a moderately obese 21st century man is debatable. There is no safety rail to prevent anyone, in the dark, walking into the trapdoor chasm and plunging four metres. The trapdoor opens on the northeastern side of the observatory floor. The Athenæum roof, by the stairs leading to the observatory, has been strengthened by a beam bearing the date 1888.

Because the observatory has been so rarely used in the last 140 years it is rather shabby, but also well preserved, *i.e.* it is in almost the same state as it would have appeared in the 1860s, except for rust, rot and dirt. One of the authors (MPM) recalls a magical feeling of travelling back in time to a different era when he first entered the dome as a twelve year old schoolboy, in late 1970, after suggesting to the Bury Grammar School physics teacher that the school needed an astronomy club. Little did he know what a treasure trove the physics teacher held the keys to.

The Rev Harold Buckton

Sadly, usage of the observatory appears to have declined at the end of the nineteenth century and into the twentieth, but in 1909, the Athenæum appointed an honorary astronomer to breathe new life into their asset, someone who would know how to find objects in the night sky and show them to the Athenæum subscribers. The new man was another 'Reverend', the Rev Harold Buckton (1864–1947) of the nearby parish of Fornham St Martin.²³ In 1906 a sub-committee was formed to oversee Observatory affairs, consisting of Mr W. E. Nunn, T. E. Vawser and A. T. Coleman. In 1909 Buckton replaced Vawser when he was appointed as the honorary astronomer.

Buckton was a graduate of University College Durham and had been appointed Canon at Bury St Edmunds, residing close to the Athenæum and to the Cathedral. He had met his wife Jane while on an entomology field trip to Madeira. Buckton was a keen



Figure 16. The Reverend Harold Buckton (1864–1947). (Courtesy David & Dr Christine Buckton).

Mobberley & Goward: The Bury St Edmunds Athenæum Observatory

photographer and made photographic observations of the Moon and photographed projected images of the Sun. Whole disk lunar photographs by Buckton, taken (it is assumed) by the Athenæum refractor, still survive with Buckton's grandson and at the Athenæum club. Two of these are dated 1912 January 29 and February 1, with exposures of 2–3 seconds for the waxing gibbous Moon and 1 second for the near-full Moon. There is also a surviving photograph taken from the dome on the Athenæum roof, by Buckton, of people awaiting a parade near to the Abbey gateway. The photograph is dated 1911 May 27.

Buckton was the archetypal well-educated gentleman of the cloth, blessed with the wherewithal to indulge in hobbies ranging from microscopy to entomology. He was elected to the BAA on 1924 November 27. Unfortunately, it would seem that members of the opposite sex featured within his 'hobby portfolio' – 'no young female servant was safe at the rectory' according to one of his descendants, and Buckton was removed, under a cloud, from Fornham in the early 1930s. At this point, according to his descendants, his wife Jane and sons Philip and Guy moved away (their first son, James, had died in infancy). Buckton appears to have been temporarily resident at St Deiniols Library, Hawarden, Flintshire and a photograph exists showing him outside the main entrance there with some Boy Scouts and a small refractor. As far as Buckton's marriage was concerned, there was a temporary reconciliation and the couple even had a further child (Philippa) but ultimately the marriage did end in divorce. Sadly, after Buckton's controversial departure from the area, the Athenæum observatory was again little used and almost forgotten.

The 1930s and 1950s

The Athenæum Club sold the Athenæum premises to the Bury St Edmunds Town Council in 1935 and the modern Athenæum club, with the Council's permission, still meets at the Athenæum for tea, but little else. Having said that,

they do retain an interest in the decoration, fabric and use of the building and some members have disputed the Council's claim to own the Observatory. Sixteen years after the Bury Council bought the Athenæum premises, *i.e.* in 1951, Mr D. J. Fulcher, Honorary Secretary of the Ipswich and District Astronomical Society wrote to the Bury Town Clerk²⁴ asking for details of the Athenæum Observatory for a survey that was being carried out into the history of astronomy in Suffolk. His eventual intention was to write a book detailing Suffolk's astronomical heritage, but nothing seems to have come of his plan and Fulcher's

original notebook detailing his research has now been archived.²⁵ Three years later in 1954 the surviving remnants of the Athenæum's Natural History Society, the Bury St Edmunds and District 'Naturalists Society', briefly revived interest in the Observatory and its telescope, when the Council allowed them access to the equipment. The local press reported²⁶ that 'an expert was being invited from Ipswich to introduce members to the Observatory and its equipment.' It seems very likely that the expert was either Mr Fulcher himself or another Ipswich AS member. Interestingly, Ipswich and District AS was disbanded in 1957 and one of the main reasons for its demise was that many of the younger and more active members were on National Service. (This, according to discussions between KJG and ex-IDAS member John Barbrook). It would be another ten years before Ipswich's current astronomical society (Orwell) was formed.

The 1960s and 1970s

When one of the current authors (MPM) formed the Bury St Edmunds King Edward VI Grammar School Astronomy Club in 1970, at the age of twelve, it transpired that the school physics teacher, a Mr Don Woodhouse, had full access to the observatory and its four inch refractor, and had shown many pupils the view through the telescope during the 1960s. MPM recalls seeing whole disk lunar photographs taken by sixth form pupils at that time. Undoubtedly the enthusiasm of Don Woodhouse for astronomy was a factor here, although the purchase of the Grammar School's own 3" equatorially mounted Swift refractor may have reduced the usage of the Athenæum instrument. On many occasions during the later *Apollo* missions era (1970–1972), MPM met up with the physics teacher, and with several other schoolmates ascended the Athenæum staircase and the rickety 'secret staircase', opened the trapdoor and was then in wonderland. Those first good views of Saturn's rings and of the craters of the Moon have stayed with this author for the past three decades and undoubtedly played a major part in further inspiring a young BAA Lunar Section member at an impressionable age.

During the 1990s the Athenæum dome was briefly viewed by millions of television viewers when, in an episode about the lovable antiques rogue *Lovejoy*, the actor Ian McShane was seen scrambling over the west side of the Athenæum roof and holding onto the green dome. Also, in 2002, the Queen and the Duke of Edinburgh were shown on local television visiting the Athenæum during the Golden Jubilee Tour.

The observatory today

The observatory's relative inaccessibility from the main building, via a locked door and a perilous secret stairway, was probably the vital factor ensuring its undisturbed survival

to the present day. Entry to the observatory is considered dangerous and a waiver form has to be signed accepting that the foolhardy risk of entering the roof space is the owner's and not the Athenæum's. Complete with all its original fittings and accessories, the observatory is indeed a fantastic 'Victorian astronomy time capsule'. The dome slit can still be opened even if the dome itself is virtually jammed, facing due north, allowing views of the flagpole and the Angel Hill car park, but little else.

The future of the observatory and its contents are uncertain. The fabric of the roof space around is very dilapidated although there is no imminent danger of collapse.

Plans to refurbish the entire Athenæum building and restore the observatory into a safe, working condition fell through²⁷ in 2003 when Heritage lottery funding of £850,000 was not granted, despite the local Council's guaranteeing £350,000 towards the project. A reduced Heritage lottery funding application for £496,000 was also rejected in March 2004 leaving the whole future of the Athenæum's refurbishment in limbo.

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