

The BAA observatories and the origins of the instrument collection

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Within a few months of the founding of the Association in 1890 October, the membership numbered several hundred amateur and professional astronomers in Britain and around the world. International recognition was also marked by a number of eminent speakers at meetings, including the instrument maker John A. Brashear, of Allegheny, Pennsylvania. In 1888 Brashear had toured the British Isles and Europe, visiting observatories and meeting many eminent astronomers. He seems to have been impressed with everyone he met – particularly British amateurs – and during his second visit to England in 1892 he spoke at the Association's meeting on April 27. In 1890 December he presented to the Association a speculum-metal diffraction grating which had been prepared at his own works and ruled on Henry Rowland's engine at Johns Hopkins University, Baltimore.

The proposed observatory

In 1895 a second instrument was acquired when G. E. Niblett placed a 4-inch photographic refractor at the disposal of members, but there was no direct effort to form an instrument collection, although thoughts on the subject were occasionally expressed. It was considered, however, that at some time an observatory should be built and equipped, and a favourable opportunity arose in 1897 March when the Royal Botanical Society offered a site at a peppercorn rent in the grounds of its gardens in Regent's Park. The offer had first been extended to the University of London and to the Royal Astronomical Society, but both had declined, and the Council of the Association immediately decided to secure what was then considered a prime location. The site was visited by E. W. Maunder and J. G. Petrie, and subsequent to their report a committee was appointed to carry out negotiations.

The provision of instruments proved not to be an obstacle, as Nathaniel E. Green (then President) immediately presented his 18-inch reflector; shortly afterwards Tyson Crawford (senior partner at Dol-

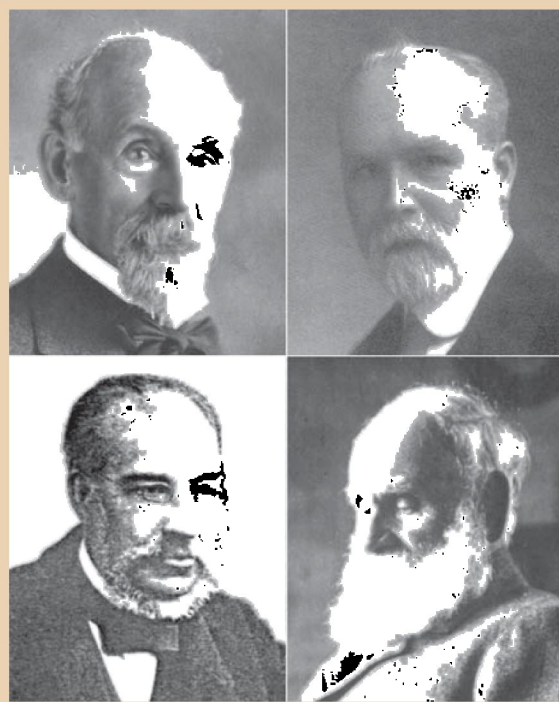


Figure 2. (Top) John A. Brashear, E. Walter Maunder; (bottom) Nathaniel E. Green; George Calver.

lond) promised a 2-inch transit instrument, and George Calver offered to provide an instrument of any size required (although his offer was not taken up). There then remained only the problem of funding the observatory building, estimated to be in the region of £300–400 – which, it was hoped, would be raised by donations from members. A promising start was made when Elizabeth Brown donated £50 (the equivalent of 95 years' subscription), but no other comparable sums were offered, and over the following few months the Observatory Fund received only a trickle of guinea and half-guinea contributions, so that by the end of the year the total stood at £72 5s 6d. (The annual subscription was then half a guinea, the respectable but now antiquated guinea being £1 1s: £1.05.)

At the same time the Royal Botanical Society was pressing for the scheme to proceed – although the offer was to be held open for some time – and at the Association's meetings various members suggested ways in which the requisite funds could be obtained. One suggestion was that all 1,100 members should double their subscriptions for that year – a proposal which, not surprisingly, met with little response.

In 1898 December the Observatory Fund contained about £145, considerably less than half of the amount required, and there were suggestions that the project should be dropped. However, W. H. Maw (by then President and at the same time Treasurer) said that Council did not anticipate any

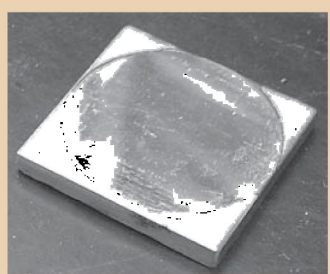


Figure 1. Instrument no. 1: speculum-metal diffraction grating presented by J. A. Brashear in 1890.

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difficulty in obtaining sufficient funds, that the matter had not been pressed strongly, and that if it were, the deficit could be raised within three months. But by the following March only another £15 had been received, and no more was heard of the BAA observatory. Opinions were perhaps represented by a member who in 1902 reclaimed his £10 donation, after which the Observatory Fund simply accrued interest until 1919, when it stood at £194 13s. It was then reduced by depreciation to £150, and in 1923 £100 was put aside to pay for Variable Star Section *Memoirs* whilst the remaining £50 was transferred to the General Fund.

Bessemer's observatory

In July 1898 – in the midst of the attempted fund-raising – another opportunity arose, this time to acquire a complete observatory. Sir Henry Bessemer, who died earlier that year, had stated in his will that his observatory should be placed at the disposal of a public body likely to make use of it. Unlike the fledgling BAA, Bessemer had considerable funds at his disposal. A versatile inventor, he had pioneered the large-scale manufacture of steel by decarburising iron, and by the mid-1860s Bessemer steel was in enormous demand worldwide, particularly for armaments and for the rapidly developing railway systems. This made him enormously wealthy, his total royalties, he claimed, being ‘1,057,748 of the little gold medals issued by Her Majesty’s Mint.’

In accordance with Bessemer’s will, his son offered the observatory to the Association. It stood on Denmark Hill (south of London), on land belonging to Dulwich College, and commanded a clear all-round horizon except for two or three distant trees to the north-west. It was equipped with a 40-inch reflector on an altazimuth mount, with two 6-inch

Cooke refractors as finders. (The original 50-inch mirror was made by Calver in 1884, using a method devised by Bessemer, but it was not a success and was never mounted.) The instrument was moved in altitude and azimuth by hydraulic power, the 36-foot diameter dome was connected hydraulically to the moveable floor and to the azimuth movement, and the observer therefore did not need to change position,

as everything moved together. Attached to the observatory building was a workshop which could, if necessary, be converted into a caretaker’s cottage. However, the administration costs were estimated to be in the region of £300 a year, and although the land was offered rent-free the lease was due to expire in 1915. The offer therefore had to be declined.



Figure 4. Sir Henry Bessemer. (Print by Spy.)

The instrument fund

When at the end of 1898 the prospect of an observatory seemed to be fading, Harold Whichello suggested the establishment of an Instrument Loan Fund, which, he said, should be carried out on thoroughly businesslike lines. He proposed that £1,000 could be borrowed from the Association’s wealthier members and used to purchase secondhand instruments. The borrower of each instrument would deposit half or a third of its value with the Association, and then pay 5% of the remaining value as an annual fee to prevent instruments being kept when not in use. This proposal met with no response whatsoever, and it was to be another ten years before a fund was established, albeit in a different form.

In the meantime, a 3-inch refractor was presented by G. T. Davis in 1898, and in 1899 Elizabeth Brown bequeathed a 3½-inch Wray refractor and its observatory, a grating spectroscope and an astronomical clock. The following year a 3½-inch Merz refractor was presented by E. Carr, and Capt William Noble (the first President) presented a quadrant by J. & E. Troughton – an instrument made for Sir George Shuckburgh–Evelyn around 1790, and presented to Noble by Shuckburgh’s granddaughter, Lady Katherine Harcourt. With eleven instruments in the collection, Council adopted Regulations for the Loan of Instruments on 1901 March 27.¹ Of these eleven (see Table 1), only



Figure 3. Instrument no. 3: 18-inch mirror by George H. With, presented by N. E. Green in 1897. Here it is set up in a wooden mount in the rectory glebe of the Rev T. E. R. Phillips at Headley, Surrey. The photograph was taken around 1930, during one of Phillips’ Annual Visitations. (RAS MS Phillips 5B; copyright Parish of Headley.)

Table 1. The first eleven BAA instruments

1	Diffraction grating by Brashear	Presented by J. A. Brashear, 1890	Untraced, 1968; recovered, 2004
2	4-inch f/8.5 photographic refractor	Presented by G. E. Niblett, 1895	Destroyed during the Blitz, 1941
3	18-inch reflector, optics by With	Presented by N. E. Green, 1897	Still in the collection
4	2-inch transit instrument by Dollond	Presented by Tyson Crawford, 1898	Sold at Christie's, 1982
5	3-inch refractor	Presented by G. T. Davis, 1899	Sold at Sotheby's, 1987
6	3½-inch refractor by Wray	Bequeathed by Miss E. Brown, 1899	Untraced, 1977; recovered, 1993
7	Observatory	Bequeathed by Miss E. Brown, 1899	Sold, 1905
8	Grating spectroscope	Bequeathed by Miss E. Brown, 1899	Stolen, 1968
9	Astronomical clock	Bequeathed by Miss E. Brown, 1899	Written off as useless, 1905
10	3½-inch refractor, OG by Merz	Presented by E. Carr, 1900	Sold at Sotheby's, 1987
11	Quadrant by J. & E. Troughton	Presented by Capt W. Noble, 1900	Presented to the Science Museum, 1933

three – nos. 1, 3 and 6 – remain in the collection. Even so, no. 1 was untraced in 1968 and recovered in 2004, and no. 6 was untraced in 1977 and recovered in 1993. No. 3, the 18-inch With mirror (with a variety of tubes and mounts), is therefore the only instrument that has remained unscathed by the rigours of loan, its most notable users being T. E. R. Phillips (1917–'42) and D. G. Buczynski (1986–'97).

The suggestion for putting aside funds for the purchase of instruments was raised again in 1908 October, when in his Presidential Address F. W. Levander mentioned that the Association had no micrometer. (By this time the collection numbered twenty-five instruments.) At the following meeting the new President, H. P. Hollis, announced that H. W. Smithers had donated £25 for the purchase of such an instrument, and it was decided – with Smithers' consent – that this sum should form the nucleus of an Instrument Fund. This was immediately doubled by a donation of £25 from G. J. Newbegin, but no further contributions were ever received. The money was held in trust without added interest and remained at £50 until 1934, after which it was eroded by small amounts spent on repairs to instruments, until the final

£12 10s 9d was secreted into the accounts and the Instrument Fund closed in 1949 – by which time the collection had grown, by presents or bequests, to 163 instruments, although 33 of these had already been sold, given away, lost or destroyed. The only instrument to be purchased during the Association's first half-century was an 8½-inch reflector by Calver (no. 33, in 1918), but this was paid for from the General Fund. No micrometer has ever been purchased, although several have been received as presents or bequests.

The Wilfred Hall bequest

In 1952 Dr Wilfred Hall, of Hepple Woodside, Morpeth, Northumberland, bequeathed a 15-inch Grubb refractor and 15-inch astrographic telescope, with all fittings and apparatus, including a Hilger stellar spectrograph, an Evershed solar spectroscope, 5-inch and 6-inch refractors, a sidereal clock and other equipment, plus a collection of glass lantern slides. He also directed that the expense of removing the telescope and re-erecting it – up to £500 – be borne by his estate. This bequest was no doubt a surprise. Hall had joined the Association in 1913, but he usually engaged in private research, and very few members knew him. He was, moreover, of the 'old school' – following the tradition of investing an enormous sum of money in a large observatory and employing an 'assistant' (and often taking the credit for the observations). However, his bequest indicated that he appreciated the importance of the work of the Association.²

A condition of the bequest was that the telescope should not be sold, but should be used where it could be 'of service to scientific research.' It was evident that acceptance would involve the Association in 'considerable moral and financial responsibility', and Council therefore appointed a committee to examine the feasibility and possible consequences, while ideas and suggestions were invited. The affair was considered so important that a questionnaire was issued to all members. Of the 501 replies received, 318 members said that they would not use the telescope at all, and a further 53 said that they would not use it at Ascot (the proposed most convenient site) but would use it at Preston or elsewhere. Of the 130 who *would* use it at Ascot, only 14 were considered to be 'serious observers' – but seven of these already had telescopes of at least 8 inches aperture, and the committee considered that anyone with such a telescope would not continue to travel an appreci-

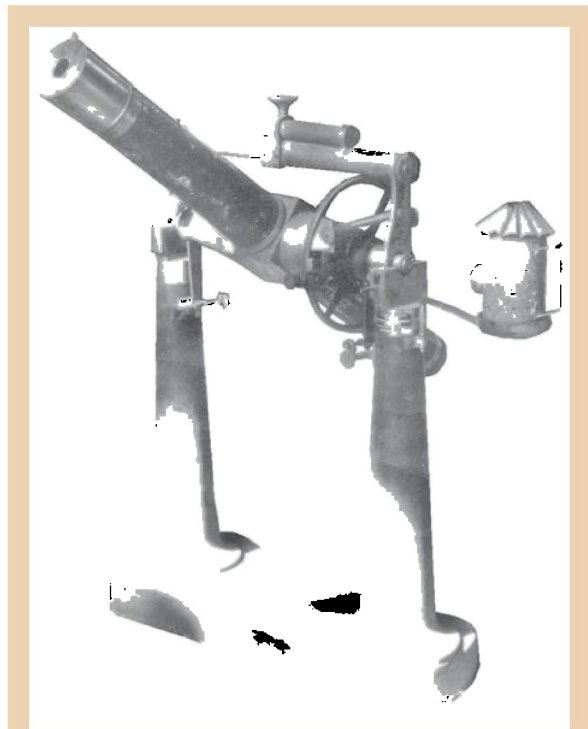


Figure 5. Instrument no. 4: 2-inch transit instrument by Dollond, presented by Tyson Crawford in 1898.

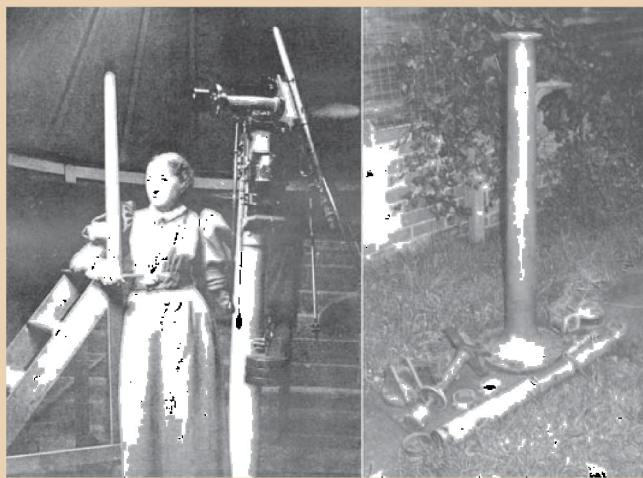


Figure 6. Elizabeth Brown with her 3½-inch Wray refractor, bequeathed to the Association in 1899 – instrument no. 6 – and its condition when recovered in 1993. Brown's observatory – instrument no. 7 – was sold in 1905, and the number later reassigned.

able distance, even to use a 15-inch. Those who would only occasionally use the telescope numbered 74, and 42 of these were classed as beginners, most of whom had never used a telescope. The opinion of those who said they would not use the telescope was equally divided, for and against acceptance of the bequest.

Council therefore decided that it was improbable that the telescope would be used sufficiently regularly, and could not justify spending a substantial part of the Association's capital that would be required to provide it with an observatory, set it up and maintain it. It was also felt that capital would be better spent in acquiring or constructing a number of smaller telescopes for loan to members, and another committee was formed – again with negative results.

Consequently, following the terms of Hall's bequest the instrument and all of its equipment passed to the Royal Astronomical Society. The Society placed it on long-term loan to the municipality of Preston, which already managed the Jeremiah Horrocks Observatory with its 8-inch Cooke refractor. In 1957 November the Wilfred Hall Observatory, Alston Hall, was officially opened by the Astronomer Royal, Richard van der Riet Woolley – those in attendance including Dr Alan Hunter, President of the Association.³ The Director of the observatory was Dr Vinicio Barocas, who also later served as BAA President (1970–'72).

Administration of the collection

After the introduction of the Regulations in 1901, applications for loan were made to one of the two Secretaries (occasionally referred to as the 'Curator'), the allocation of instruments was decided by Council, and instruments not on loan were usually placed in the care of an officer or nominated member of Council. Eventually, however, it was felt that the administration of the collection should be centralised, and that advice on in-

struments and various other services should be provided. Consequently, in 1916 November a committee was appointed to take charge of the collection and to deal with all other matters pertaining to instruments. The Instrument Committee, consisting of P. J. Melotte (one of the Secretaries), M. A. Ainslie and W. H. Steavenson, was given 'power to act, subject to the direction of Council, for the following purposes: 1. To give advice and assistance, if requested, to members in the use, maintenance, and adjustment of their own instruments, or of instruments lent to them by the Association; 2. For the preservation, repair, and improvement of instruments belonging to the Association; 3. For the use or loan of such instruments; 4. To consider applications by members, or the relatives of deceased members, for advice and assistance in the sale, or disposal, of their instruments; 5. To report to Council cases where the committee may think it desirable that instruments belonging to the Association should be sold or otherwise disposed of; or that instruments should be added to the property of the Association by purchase or otherwise; 6. For the study of improvements and of notable advances in instrumental theory and practice, and for the publication of reports thereon.'

For a short time various notes on instruments, and notices concerning members' instruments for sale or exchange, were published in the *Journal*; but the aims of the Instrument Committee proved too diverse, and in 1917 S. Maxwell (the other Secretary) was nominated Instrument Secretary in charge of the loan collection, whilst Ainslie was appointed Director of the newly inaugurated Instruments Section. The following year the name was changed to Methods of Obser-



Figure 7. (Top) William H. Maw, Frederick W. Levander; (bottom) Henry P. Hollis; Philibert J. Melotte.



Figure 8. (Top) Maurice A. Ainslie, William H. Steavenson; (bottom) Clement O. Bartrum; Frank M. Holborn.

vation Section to prevent confusion, and since then has been modified several times⁴ – the current incarnation being the Instruments and Imaging Section.

In 1918 the term ‘Instrument Secretary’ was dropped, and Melotte took charge of the collection, although he resigned as Secretary in 1921. In 1922 he was elected a member of Council, and in the same year a short list of members with instruments on loan, signed ‘E. Martin, Curator’, was published in the *Journal*. Like Melotte, Martin was a member of staff at the Royal Observatory, Greenwich, but he was not a member of the BAA Council, and the title ‘Curator’ was unofficial. It appears that Melotte placed him in charge of the instruments, as following an offer by Sir Frank Dyson (the Astronomer Royal), those not on loan were being stored at Greenwich (as was the Association’s large collection of slides, the Curator of Lantern Slides being H. H. Furner, who also worked at Greenwich).

After his resignation as Secretary in 1921, Melotte served as an elected member of Council, and as Acting Secretary 1924–’25, until his reappointment as Secretary in 1926. In 1931 he was succeeded by C. O. Bartrum, who in 1935 was designated ‘Curator of Instruments’, although this post formed part of his duties as Secretary and was not included in the published list of Officers and Council until many years later. Bartrum died in 1939, and was succeeded as Secretary by F. M. Holborn, who took on the services of J. H. J. Burt – a member of Council – as ‘Deputy Curator’. In 1944 Burt was designated Curator of Instruments, although he was not a member of Council during the 1944–’45 session. In 1946 the post became a separately appointed office, and was thereafter included in the published list of Officers and Council. The following year the responsibility passed to K. F. Stonebridge as Acting Curator, and later, Curator.

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The separately appointed post of Curator of Instruments has therefore been held by J. H. J. Burt (1946–’48), K. F. Stonebridge (1948–’51), H. Wildey (1951–’76), S. J. Anderson (1977–’79) (with the assistance of H. G. Miles), C. J. Watkis (1979–’85), I. G. Ransom (1985–’87), A. P. Dowdell (1987–’91) and R. A. Marriott (since 1991 July).

Between 1899 and 1922, lists of the Association’s instruments were occasionally published in the *Journal*, but these often comprised only the numbers of the instruments available or on loan, without descriptions. Between 1922 and 1929 nothing at all was published, after which a list appeared annually until the late 1970s, although not always with details of availability, and excluding instruments no longer in the collection. The total number of instruments presented, bequeathed or purchased during the 117 years since the founding of the Association is 477, of which 181 remain. The current Curator of Instruments (the author) has compiled, and maintains, a large database containing the details and loan history of all of these instruments, and biographical notes on 889 makers, donors and borrowers, including numerous photographs. The collection, of course, continues to change.

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References

- 1 *J. Brit. Astron. Assoc.*, **11**(6), 254 (1901)
- 2 Details of the bequest, the ensuing procedure and the final result appear in *J. Brit. Astron. Assoc.*, **62**(7), 239 (1952); **62**(8), 270 (1952); **63**(4), 131 (1953); **63**(8), 358 (1953); and **68**(2), 48 (1957).
- 3 Soon afterwards, Woolley and Hunter were to become deeply involved in the establishment of the Anglo-Australian Observatory. The Anglo-Australian Telescope was produced at Grubb Parsons, the Chief Optician being David Sinden – a longstanding member of the Association.
- 4 The fortunes of this Section and its successors are described in two BAA *Memoirs*, *History of the British Astronomical Association* – by H. L. Kelly in Part I, *The First Fifty Years* (1948, reprinted 1989) and by E. J. Hysom in Part II, *The Second Fifty Years* (1990).

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