

INVESTIGATION OF A JOHN BIRD SUNDIAL

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The first part of this article is based on a talk given at the 2016 BSS Newbury Meeting.

On my recent dialling travels, an interesting sundial was located in the churchyard of St Nicholas Church at Haxey in Lincolnshire (Fig. 1).

Haxey is a small town on the Isle of Axholme, at the extreme NW of the county. Although Haxey itself is in a very rural and agricultural part of the country, the large industrial areas of the East Midlands are close-by to the west, and to the north there are major power stations in Yorkshire. As well as these, the Lincolnshire steelworks at Flixborough and Scunthorpe are just a few miles away to the east. Perhaps industrial atmospheric fall-out from these industrial sites in the past has contributed to the heavy corrosion now found on the dial (Figs 2 and 3).

Description of the Dial

This large horizontal dial is mounted on a pedestal which itself is set upon a five-stepped base.

It has a circular brass dial plate 13 inches in diameter with a quadrant-shaped edging. At the centre of the plate an eight-point compass rose is engraved, with a surrounding band showing the eight major directions. A narrow dividing band with a pointed-leaf motif then follows to separate it from the Equation of Time scale.

At the outer edge of the dial plate the hours are indicated in Roman numerals, these being viewed from the outside, and



Fig. 1. View of St Nicholas Church, Haxey.



Fig. 2. Dial by John Bird at Haxey.

each hour is sub-divided into 30-, 10- and 2-minute markings.

Although not measured accurately at the time of the visit, the gnomon angle lies between 53° and 54° degrees; the actual latitude of Haxey is 53.49° N.

The dial is heavily oxidised, but the markings of the EoT correction bands are visible, although none of the details are discernible for the minutes/days/months or clock faster/clock slower bands.



Fig. 3. General view of the heavily-corroded dial and gnomon.



Fig. 4. Maker's name, "J Bird", by the heel of the gnomon.



Fig. 6. Inscription and engraved name between the edge of the dial and the toe point of the gnomon.



Fig. 5. John Bird, precision instrument maker. Engraving by N. Green (1776).¹

By the heel of the gnomon, the maker's name, "J Bird London" (Fig. 4), can be detected. John Bird (c. 1709–1776) was an important mathematical instrument maker (Fig. 5), working in London from 1745 and renowned for providing instruments of the highest precision to the Royal Greenwich Observatory.²

Also discernible is the inscription, "Watch for ye know not the hour", and part of a name by the toe point of the gnomon (Fig. 6). This appears to read "William Calton" (or "Cotton") with, below that, the word "Vicar". A display board in the church with the names of the past vicars indicates that a Dr William Cotton was the vicar from 1754 to 1762 (Fig. 7); perhaps this is the same person as named on the sundial, the dial being a parting gift. William Cotton later became a canon at Lichfield Cathedral.³

Pre- or Post-1752?

Considering that John Bird would have been working over the period of the change from the Julian to the Gregorian calendar in 1752, my investigation focused on attempting to establish whether the EoT markings were applicable to the pre-1752 era, or to that following the change to the Gregorian calendar.

In the 'minutes of correction' band no numerals are identifiable, and only a few traces of lettering are visible in



Fig. 7. Display board within the church, showing names of past vicars with, inset, 1754 Dr William Cotton indicated.

the clock faster/clock slower band, so it was necessary to make inferences from the division markers.

Using current EoT correction values, a basic template for post-1752 was constructed, showing typical relationships for the clock faster/clock slower bands as found on similar dials, with division markers for month/date/minutes of correction that could be compared with those found on the Haxey dial.



Fig. 8. Close-up image of EoT markings.

Close-up images, moving in sequence around the dial-plate, had been taken and by examining the photographs showing the various dividing lines in detail visible on the bands of the dial (as, for example, in Fig. 8), and then highlighting them, it was possible to fit these markings against those typified on my EoT template for the post-1752 era.

Fig. 9 shows enhanced highlighting of dividing lines, with the months and numbered days shown around the 15 April 'cross-over point' of zero minutes of correction.

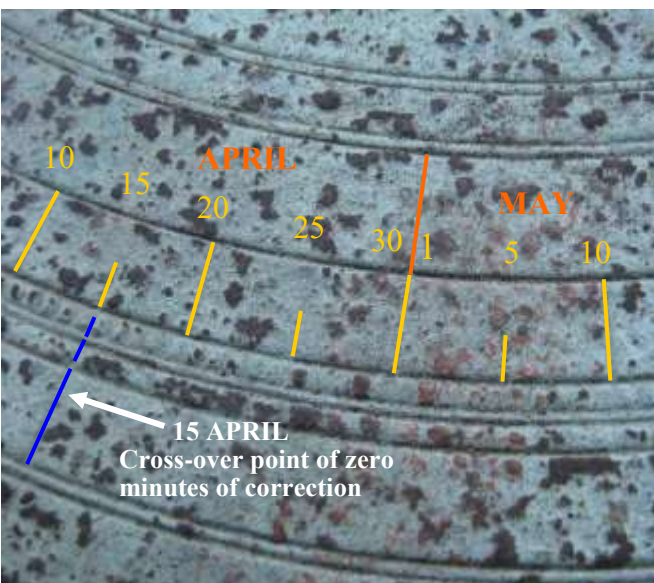


Fig. 9. Enhanced highlighting of dividing lines, with the 15 April cross-over point of zero correction indicated.

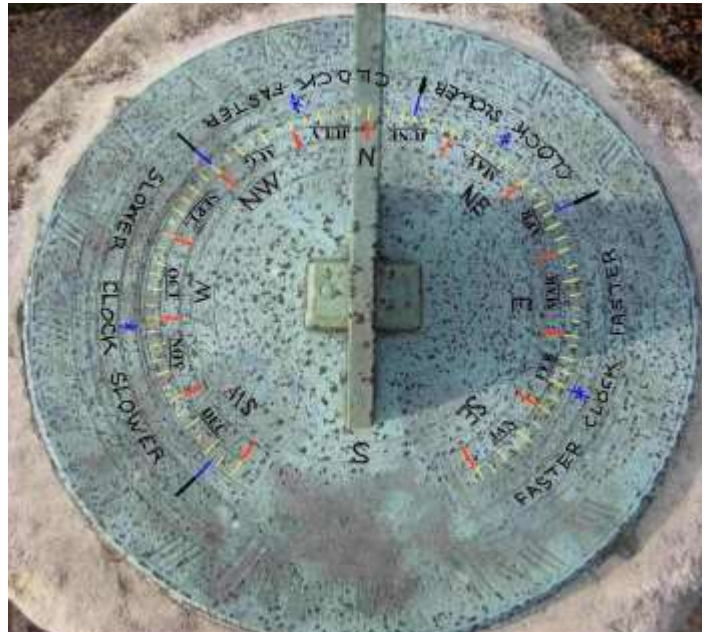


Fig. 10. The whole dial plate annotated with colour-coded EoT division lines. Yellow: days of each month. Red: month separators. Blue lines: 0 minutes "cross-over" division lines at 15 April, 12 June, 1 September and 24 December. Blue crosses: "maximum value points" at 10 February, 15 May, 26 July and 3 November.

Fig. 10 illustrates the whole dial with the division points highlighted and suggested possible lettering in the clock faster/clock slower band.



Fig. 11. John Bird sundial at Tapeley Park, Devon. Photo: John Foad.

To date, only one other sundial by John Bird has been recorded by the BSS, that being at Tapeley Park, Westleigh, Devon (SRN 0561, Fig. 11), and described in detail by Christopher Daniel.⁴ Another sundial by Bird is noted as being in Madrid.⁵



Figs 12 and 13. John Bird sundial, offered for sale by auction at Exeter. Photos courtesy of Bearnes, Hampton and Littlewood (Auctioneers), Exeter, Devon.

On the day following the Newbury presentation it was discovered via the Internet that a John Bird sundial was being offered for sale by auction at Exeter, Devon (Fig. 12). Its provenance was given by the auctioneers as King's Nympton Park, Devon; it was subsequently sold in October 2016 for £2300.

This dial, similar in general construction to the Haxey dial, also has a quadrant-shaped edging, but is slightly larger at 16 inches in diameter and rather more elaborate. It also bears striking similarities in the style of the markings, as there is an eight-point compass rose at the centre and there are EoT scale bands: some of the dial's markings are shown in detail in Fig. 13.

At the outer edge of the dial plate the hours are indicated in Roman numerals, again being viewed from the outside, but in this case each hour is sub-divided into half- and quarter-hours, and there are also 10- and 1-minute markings.

Although there is some surface wear to the dial, it has a fine green patina and most of the markings are discernible from the images, enabling it to be placed in the post-1752 EoT era.

The maximum value points (in May, July and November) and the zero value 'cross-over' point at 15 April that can be seen on the image fully agree with those as found on the Haxey dial. The divisions on the King's Nympton dial are shown as "Clock before the Sun" and "Clock after the Sun". On this basis, perhaps the bands on the Haxey dial might also be inscribed similarly to indicate the clock faster/clock slower bands, as originally suggested.



Fig. 14. James Buller (1717-65), portrait by Sir Joshua Reynolds, collection of trustees of Antony House, Cornwall. Wikimedia Commons.

The dial is signed "John Bird London" and bears a coat of arms for the Buller family. James Buller (1717-65) was MP for East Looe, 1741-47 and for Cornwall, 1748-65 (Fig. 14). His first wife Elizabeth Gould (d. 1742) was the heiress of the estate of Downes near Crediton in Devon which became at some time the principal seat of the Buller family. In 1744 he married Lady Jane Bathurst (d. 1794). It appears she did not wish to live in the house of her husband's first wife, or else had a liking for the new Palladian fashion in architecture, as James built a new house for her at King's Nympton. He demolished the previous medieval manor house there and built in its place, between 1746 and 1749, the fine Palladian mansion which was then known as 'New Place' and which survives today as 'King's Nympton Park'.⁶

With its coat of arms, was this sundial then one of the most up-to-date 'must-have' prestige items by a London maker, required to further enhance the estate at the recently built 'New Place'?

ACKNOWLEDGEMENTS

My thanks go to John Davis for discovering and sharing details of the auction of the King's Nympton dial, and for his help in explaining the intricacies and interpretation when analysing the detailed values for EoT correction scales.

Images of the King's Nympton dial are supplied courtesy of Bearnese, Hampton and Littlewood (Auctioneers), Exeter, Devon.

REFERENCES

1. N. Green: Engraving of John Bird of London (1776). <http://www.dspace.cam.ac.uk/handle/1810/214810>.
2. Jill Wilson: *Biographical Index of British Sundial Makers* (BSS Monograph No. 2), 2nd ed. (2007).
3. <http://db.theclergydatabase.org.uk/>
4. Christopher Daniel: 'The Sundial Page' *Clocks Magazine* (November 1988, January 2000).
5. See Ref. 2.
6. [https://en.wikipedia.org/wiki/James_Buller_\(1717-1765\)](https://en.wikipedia.org/wiki/James_Buller_(1717-1765))

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NEW DIALS

Lynton, Devon

To celebrate the fortieth anniversary of the Lynton Art and Craft Group, a new sundial was unveiled in July 2015. It is in the garden of the Lyn Valley Arts and Crafts Centre¹ which is in a converted Methodist church in Lee Road, Lynton. It is called the Exmoor Sundial and Starclock because, most unusually, the armillary sundial also has a nocturnal mounted on its meridian ring. It is arranged so that it is parallel to the equatorial plane and the North Star, Polaris, can be sighted through its central hole. Having set the volvelle to the correct date, the arm is rotated to align with the two stars in the constellation of Ursa Major, the Great Bear: Merak (β UMa) and Dubhe (α UMa). The arm will then indicate the time.² Dubhe is engraved as Dubke on the nocturnal and these 'guide stars' are identified as members of the seven-star asterism known in the UK as The Plough. It is believed that the stainless steel sundial is a modified version of the 'Jupiter' armillary from John Close Sundials.³



Fig. 2. Nocturnal on the meridian ring. Photo courtesy of Edmund Knight.



Fig. 1. Exmoor Sundial and Starclock at Lynton. Photo courtesy of Edmund Knight.

REFERENCES

1. <http://www.lynvalleyartandcrafts.co.uk/>
2. M. Cowham: 'Telling the time at night' *BSS Bull.*, **14**(ii), 76-79 (June 2002).
3. http://www.johnclosesundials.co.uk/portfolio_page/handcrafted-sundial-commissions/

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