

JOHN BEVIS'S 18th-CENTURY URANOGRAPHIA BRITANNICA AND THE ATLAS CELESTE: OFT-OVERLOOKED TREASURES

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ABSTRACT: One of the most beautiful star atlases of all time was prepared by John Bevis, who had earlier discovered the Crab Nebula, but was never formally published because of the bankruptcy of his printer. Several of the printed pages were bound in 1750 while further copies were released in 1786. We discuss these unpublished atlases, especially the copy in the library of Manchester Astronomical Society and a newly discovered atlas in the library of the Duke of Devonshire. We maintain a list of the approximately 30 copies of the atlases, both 1750 and 1786, which are now known.

In November 1997, Mike Oates and Tony Cross and one of the present authors [KJK], members of Manchester Astronomical Society c/o the Godlee observatory, University of Manchester, discovered, with the help of Peter Hingley, librarian at the Royal Astronomical Society, that an old star atlas that had been in their library for over fifty years was an original, bound set of star charts from Dr. John Bevis's unpublished atlas, [*Uranographia*], ca. 1750.¹ William B. Ashworth Jr., then Assistant Professor of History, University of Missouri, Kanas City, first described the strange history of this atlas in 1981.² Then only twelve copies were known; others had come to light; the Manchester atlas was the sixteenth to be identified.

This discovery started a long quest to learn more about this rare atlas and to compare and rank known copies with that at Manchester.³ In 2003, by which time 23 atlases had been identified and in collaboration with Prof. Jay M. Pasachoff, who had bought a Bevis atlas the previous year, and Prof. Owen Gingerich, who had also researched its history, a paper was published in the *Journal for the History of Astronomy*.⁴ Our aim was to bring the story of the atlas up to date, to bring it to the attention of astronomy historians and, we hoped, to locate other copies.

To put the atlas into context, we need to understand what Bevis's intentions were and what *Uranographia* and *Atlas Celeste* actually are:

The first mention of *Uranographia Britannica* is in a newspaper advertisement placed by Thomas Yeoman in the *Northampton Mercury* of 11 April 1748.⁵

¹ This is the technically correct description.

² Ashworth William B., 1981. *John Bevis and his Uranographia (ca. 1750)*. Proc. American Philosophical Society. Vol. 125 No 1, February 1981.

³ The definitive list of all known copies of Bevis's atlas can be found on the Manchester Astronomical Society website <http://www.manastro.org/>

⁴ Kilburn Kevin J., Pasachoff Jay M., Gingerich Owen J., 2003. *The Forgotten Star Atlas: John Bevis's Uranographia Britannica*. JHA, xxiv (2003). Science History Publications Ltd.

⁵ The Scots Magazine noted the intended publication of *Uranographia Britannica* by Mr Neale, Friday 1 April 1748. This is, of course, following the Old Style Julian Calendar.

URANOGRAPHIA BRITANNICA BEING an exact Survey of the Heavens, on fifty large Copper-Plates; wherein are represented, in their Places to the present Time, all the fix'd Stars, which have hitherto been observed in any Part of the World, with their proper Asterisms or Images, each accompanied by an explanatory Index, containing both the ancient and modern Catalogue, and curious Remarks pertinent thereto. At the End will be added two Hemispheres, with Ptolemy's Stars; and to the Whole will be prefix'd an Introduction, containing an Historical account of the Asterisms, and the whole Astronomy of the Fix'd Stars from the earliest Antiquity to the present Time. This will be followed by a general Alphabetical Index of all the Stars on the whole Uranographia.

Proposals, and the Plan at large, may be had gratis at Mr. Professor Bliss's in Oxford, the Rev. Dr. Hoopers's at Trinity College in Cambridge, Mr. Thomas Yeoman's in Northampton, and at the Undertaker's own House in Leadenhall street, London; at all which Places most of the Copper-Plate Prints may be inspected.

N.B. The newest and most curious Experiments in ELECTRICITY will be exhibited, during the present Week, at Mr. Yeoman's Experiment Room in Gold Street, Northampton.

In about 1745, Dr. John Bevis F.R.S., a London doctor and amateur astronomer, had proposed to compile a modern British star atlas, *Uranographia Britannica*.⁶ He enlisted the help of John Neale, variously described as an instrument maker or toy maker of Leadenhall Street, as the undertaker of the project, to finance the work with advanced subscriptions from those wealthy enough to afford a new, expensive, star atlas.⁷ Other collaborators, mainly London scientific instrument makers, helped publicise it.

Uranographia was based on Flamsteed's star positions. His star catalogue, *Historia Coelestis Britannica*, was published posthumously in 1725, edited by his widow, Margaret. This contained a catalogue of 2,935 stars to much greater accuracy than any other previous work. Halley's contemporary observations of the southern hemisphere, together with additional stars from Bevis's own transit observations made between 1738 and 1739 from Stoke Newington, helped to expand the catalogue for Bevis's new atlas.

In 1731, Bevis had been the first to notice what we now call the Crab Nebula, something acknowledged by Messier in a second version (1780) of his still-widely-used list of non-stellar objects in 1771 when he had listed it as his first; it is still known as Messier's M1.⁸ Bevis's atlas was to be the first of the 'classical' star atlases based on Bayer's *Uranometria*, Augsburg 1603 and Flamsteed's *Atlas Coelestis*, 1729, to include non-stellar objects.⁹

⁶ Kilburn Kevin J., 2007. *Bevis [Bevans] John*. Biographical Encyclopedia of Astronomers. Vol 1. p.118-119. Editor-in-Chief, T. Hockey. Springer Reference, ISBN 13:978-0-387-31022-0

⁷ The 1746 list of subscribers is held at Glasgow University Library. Sp Coll. f465

⁸ Pasachoff Jay M., 2014, *Messier, Copernicus, Flamsteed: The SAF Rare-Book Collection in Paris*. Historical Astronomy Division, 223rd American Astronomical Society Meeting, National Harbor, MD, 107.07.

⁹ About 125 examples of Bayer's atlas are still extant. Flamsteed's atlas is not so rare.

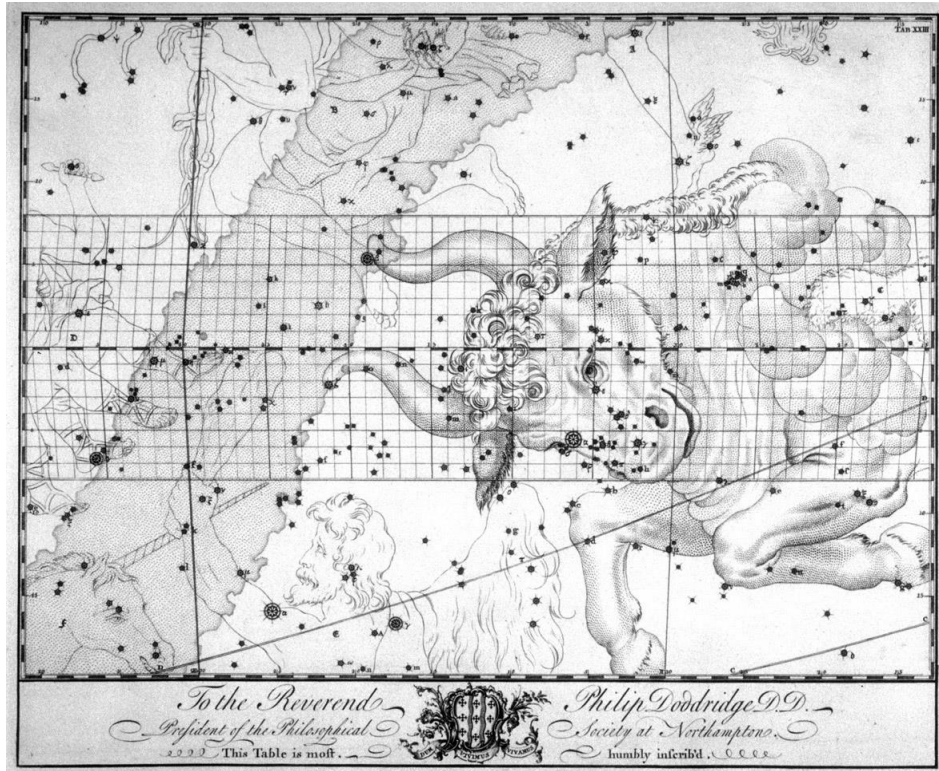


Fig.1. The Taurus plate XXIII showing the ecliptic and dedication to the Reverend Philip Doddridge.

In 1750, as the atlas was still in the process of being printed and compiled, disaster struck. Neale was declared bankrupt, the copper plates were sequestered by the London Courts of Chancery and the project was abruptly terminated. It was not until 1785, long after the death of Neale and of Bevis, that Bevis's library was auctioned by the widow of his executor, James Horsfall F.R.S. According to the auction catalogue, which still survives in the Whipple Museum, Cambridge, three near-complete atlases were sold together with an unknown number of pre-printed star charts. Ashworth lists the relevant part of the catalogue, lots 765-770 as followed:

- 765 *Dr. John Bevis's Uranographia Britannica, being an Exact survey of the Heavens, on Fifty-One large Copper-Plates with a double Nomenclature and tables of all the fixed Stars: A work never published. Some Sheets of the Nomenclature are wanting.*
- 766 *Another copy.*
- 767 *Another copy, interleaved.*
- 768 *Several duplicate impressions, and Sheets of the Nomenclature, and complete Catalogues of the fixed Stars.*
- 769 *Ditto*
- 770 *Drawings and Proof Sheets of several of the Plate.*

The surplus, finished, star charts were later compiled into an unknown number of atlases and offered for sale cheaply in 1786 as *Atlas Celeste* by an anonymous seller. It is this, *Atlas Celeste*, which forms the bulk of the currently identified Bevis atlases. A typical *Atlas Celeste* comprises an elaborate frontispiece showing the Muse, Urania, offering a star atlas to a seated man (Frederick, Prince of Wales), with Greenwich Observatory in the background and 51 star charts, Tab I to LI, each carrying a

dedication to institutions or individuals who subscribed to the project. A few atlases have a simple index thought [by KJK] to have been printed in 1786 together with an exceedingly rare title sheet advertising it as *Atlas Celeste*. Manchester's *Atlas Celeste* is still [2015] considered to be the most complete and original in its format.¹⁰

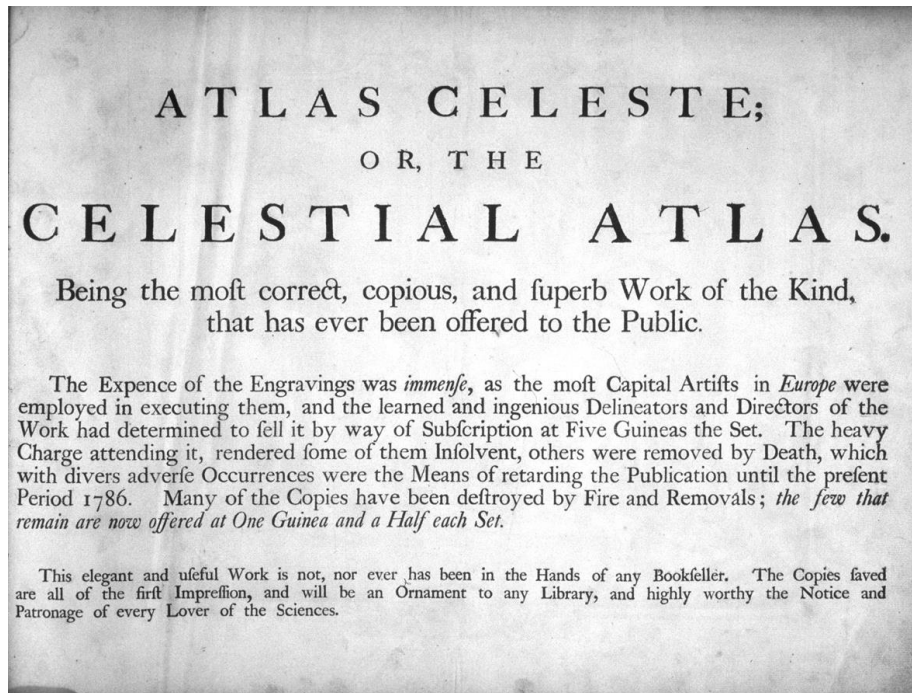


Fig.2. The title sheet in the atlas owned by Manchester Astronomical Society advertising *Atlas Celeste* in 1786

Of the three, nearly-finished, *Uranographia*, one of them was bought at the Sotheby & Wilkinson sale, London, 21 Jan 1856, by the American Philosophical Society, Philadelphia. It was formerly owned by Sir George Shuckburgh-Evelyn (1751-1804). This is the atlas on which Ashworth based his 1981 seminal description. Another, also identified by Ashworth, is at St. John's Library, Cambridge. In poor condition and dirty, it is not quite as complete as the APS atlas. The third atlas went unidentified, until November 2011.

As described in the 1785 auction catalogue, what sets these three *Uranographia* atlases apart from *Atlas Celeste* is that that Bevis intended to include descriptive tables opposite the star charts. The last two charts, unlike the majority that depicted specific constellations, show wide-field southern hemisphere regions or planispheres. The tables list Ptolemaic and Bayer's stars whose magnitudes and zodiacal positions, corrected to the epoch 1746, are shown together with additional explanatory notes. Bevis included a separate fourteen page catalogue of the main stars in each constellation and also intended a comprehensive index and additional notes. The American Philosophical Society (APS) *Uranographia* has fifty-one star charts, thirty-two tables (the nomenclature) and fourteen pages of star catalogue. The Cambridge *Uranographia* has forty-nine star charts, twenty-nine tables and fourteen pages of star catalogue. None of Bevis's surviving *Uranographia* atlases have the intended index or additional notes, which were probably never printed.

¹⁰ The *Atlas Celeste* in the British Library is folded. Their reference C.21.c.5.

In September 2011, a visit by Kilburn to an autumn country fair at Chatsworth, Derbyshire, brought to mind that the 18th C. scientist, Henry Cavendish F.R.S., had connections with the Chatsworth estate.¹¹ He was the son of Lord Charles Cavendish, the youngest son of William Cavendish, 2nd Duke of Devonshire, whose family seat was at Chatsworth. Henry Cavendish was an avid book collector and was contemporary with the auction of Bevis's library in 1785. His father, Lord Charles Cavendish, was a subscriber to the intended Bevis atlas but had died in 1783. Chatsworth soon confirmed that they indeed had a Bevis atlas in the Devonshire Collection.¹² It was subsequently identified as being the missing *Uranographia*, having the frontispiece, fifty-one star charts, twenty-nine pages of tables (the APS atlas has thirty-two pages of tables) and fourteen pages of star catalogue. An inked book stamp unambiguously identifies it as having belonged to 'H. Cavendish'.¹³

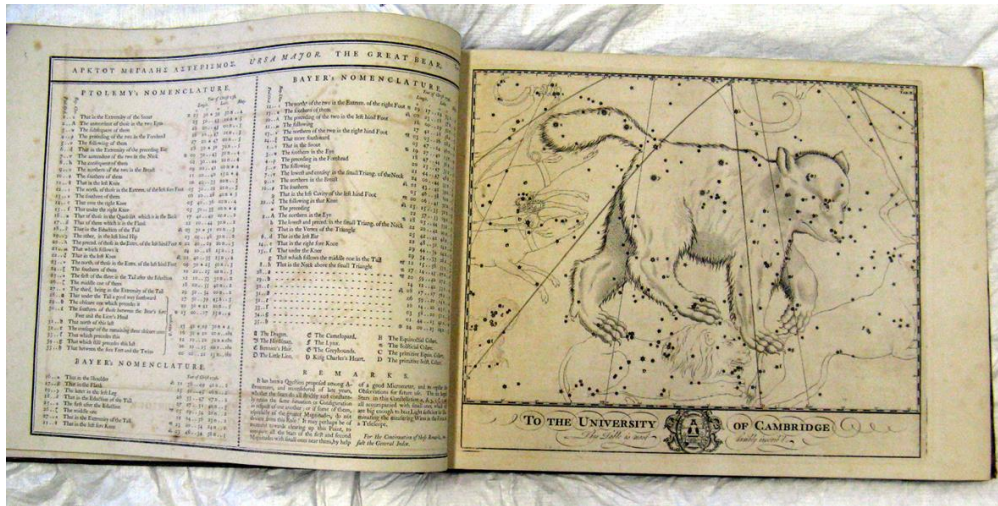


Fig.3. The Chatsworth *Uranographia Britannica*, one of only three copies offered for sale by auction in 1785. Photograph by permission of Chatsworth Settlement Trustees

All three copies of Bevis's intended *Uranographia* have now been identified. We also know the whereabouts [2015] of twenty-seven of the twenty-nine described copies of *Atlas Celeste*, most are in the UK or USA; two are missing, presumed to be in private collections. Other than that at Lund University library, Sweden, none has yet been identified elsewhere in continental Europe. There is one copy in Australia.¹⁴ There may be others in libraries, university collections or in private ownership elsewhere that we would like to know about.

In July 2013, the present authors were invited to examine a bound set of star charts owned by the Science Museum, London, and thought to be from Bevis's atlas. This document was subsequently examined [by KJK] at their Wroughton collection near Swindon and found to be an incomplete set of proof prints from Bevis's *Uranographia* taken before the copper plates were finished and probably dating to 1747-48. This set comprises 36 proof sheets of constellation figures, many of them lacking

¹¹ Henry Cavendish is noted for the discovery of hydrogen or what he called "inflammable air". His experiment to measure the density of the Earth has come to be known as the Cavendish experiment.
¹² The Devonshire Collection may be accessed by prior arrangement with the Archivist Librarian. Details can be found on the Chatsworth website <http://www.chatsworth.org/>
¹³ Kilburn Kevin J., 2012. *The Chatsworth Uranographia*, A&G, Royal Astronomical Society, Vol.53, Issue 1, p.22-23.
¹⁴ The Astronomical Society of Victoria owns an *Atlas Celeste* lacking the frontispiece. Old Melbourne Observatory, Melbourne, Victoria, Australia.

the dedication to individual subscribers and in some cases missing quite large areas of stars and the ecliptic grid lines that are present in the finished versions. In addition is one extremely rare example of a single sheet of the nomenclature, *THE LITTLE BEAR*, which would have faced the appropriate star chart.

This collection may be Lot 770, or a part thereof, from the 1785 auction that was salvaged and bound, post-1786 and later mis-identified in the Science Museum catalogue and on the binding as being 'Flamstead's ^(sic) Celestial Atlas'.¹⁵ It was also incorrectly described in their catalogue as being John Flamsteed's *Atlas Coelestis*, 1729.

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¹⁵ Item reference (Wroughton) OB FLA FF Flamstead ^(sic). The Science Museum's proof set of Bevis's plates was bought ca.1925. Its provenance is as yet unknown.