

**THE FORGOTTEN STAR ATLAS:
JOHN BEVIS'S *URANOGRAPHIA BRITANNICA***

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Uranographia Britannica

Dr John Bevis, FRS (31 October 1695 – 6 November 1771), a physician trained in Oxford but living and practising in London, entered the history of astronomy in 1731 when he discovered the nebulosity now known as the Crab Nebula. The French comet hunter Charles Messier independently discovered the object in 1758 and listed it as M1 in 1770, but was informed by Bevis that it was already known.¹ Bevis's second important observation was (and still is) the only recorded observation of the occultation of one planet by another: that of Venus eclipsing Mercury in the late evening of 28 May 1737 (OS). In 1749 he edited Edmond Halley's posthumous astronomical tables.² Because of these accomplishments, and despite his failure to be elected Astronomer Royal following the death of Nathaniel Bliss in 1764, John Bevis deserves to be better remembered in the annals of astronomical history.

Early in 1738, Bevis began work on an ambitious project, the compilation of a grand star atlas to rival and surpass those of Bayer and Flamsteed, on which it was to be based.³ After moving to Stoke Newington and setting up an observatory, he observed and timed the transits of up to 160 stars a night between 6 March 1738 and 6 March 1739. These new observations, which included stars down to eighth magnitude, were added to those already catalogued by John Flamsteed and those derived from Edmond Halley's observations of the southern hemisphere. Bevis recalculated the star positions for the epoch of 1746 and used them to construct positional tables for what he intended to be the best-ever atlas, the great British star atlas, *Uranographia Britannica*.

William B. Ashworth first described the extraordinary history of this atlas in 1981.⁴ Then only twelve copies were known to exist. Further copies have since been discovered, and it is now possible to shed more light on this important star atlas.

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

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.

Thomas Yeoman was an engineer, instrument maker and subsequently president of Northampton Philosophical Society.⁶ His is currently the earliest known description of the intended *Uranographia Britannica*, yet there is no mention of John Bevis. The said "Undertaker" and would-be publisher was John Neale, of whom Yeoman was possibly a business associate and a family friend.⁷

The first proposal to publish *Uranographia* is now in the Bodlean Library, Oxford.⁸ It was intended to raise funds by subscription with which to finance the costly engraving of the elaborate star chart plates. Undated, but from around the same time (c. 1748) and now preserved in the Hunterian Library at the University of Glasgow, are two copies of a later advertisement for the atlas entitled "Proposals for publishing by subscription, *Uranographia Britannica*", in which the names of 181 subscribers were collected. Yet again, Bevis's name was not mentioned in the proposal. John Neale is once again clearly identified as the "undertaker" of the work. However, also in 1748, it was John Bevis who sent a letter to the Abbé Lacaille promising to send him a copy of the new atlas as a present.⁹ This suggests that Bevis not only was associated with the work but was probably its author.

This curious state of affairs implies that the project was a joint collaboration between Neale and Bevis, with Neale financing the work and Bevis being responsible for the scientific content. This idea tallies with later events. Although not a publisher in the modern sense, Neale, an instrument maker of Leadenhall Street in London, is variously described as a "watchmaker" or "toy maker".¹⁰ It is also known that he taught the use of celestial globes and had close contacts within the scientific instrument-making fraternity in London.¹¹ This group included John Cuff and James Short who along with four others, John Bennet, Thomas Heath, Jeremiah Sisson and Francis Watkins, were empowered to take subscription money on behalf of Neale for the project.

No expense was spared in the interest of accuracy and artistic quality. The plates of *Uranographia Britannica* were beautifully engraved and each bears a dedication to the particular individual, or learned society in Britain or mainland Europe, who had subscribed to the work. These dedications date the engravings to between 1747 and

1749. It has been suggested that they may have been contracted to Dutch craftsmen, then recognized as being the best.¹² The artwork was superb, far better than in Johannes Bayer's *Uranometria* (Augsburg, 1603) on which the plates were based (see Figure 1). Indeed, Bevis's new British star atlas was, deliberately, an almost exact copy of Bayer's but each plate also delineated the peripheral constellations, including new constellations introduced by Hevelius in his own *Uranographia* of 1690.

To the 48 Ptolemaic constellations, Bevis added the southern constellations, plus ten from Hevelius and five others contemporary to the seventeenth century, making a total of seventy-nine. His atlas also shows stars to eighth magnitude and six hundred more stars than are depicted in John Flamsteed's *Atlas coelestis* (London, 1729). In total, the atlas contains over 3550 stars.

Bevis's brightest stars are identified with Bayer's Greek letters but are depicted smaller in size to those in the Bayer atlas to give a more realistic appearance (Figure 2). Even the size of the *Uranographia* star charts, measuring 375mm by 275mm, is better suited for use at the telescope than Flamsteed's unwieldy atlas. Bevis's star positions are also more accurate than Bayer's and brought up to date for the epoch 1746.

Unlike any other atlas before it, *Uranographia* depicted the positions of nine objects designated *Nebula*, including what we now call the Crab Nebula, which Bevis had discovered (Figure 2). In addition to Praesepe, the Pleiades, and the Andromeda Nebula, M 11, M 13, M 22 and M 35 were shown on the Bevis charts for the first time in any star atlas. Two non-Messier objects, Omega Centauri and the open star cluster we know as NGC 6231, were also depicted. Bevis did not allocate a name or designation to any of these nebulosities but simply showed them as non-stellar objects on his star charts.

Two other classes of object are also depicted on the *Uranographia* star charts and are defined in the table of star magnitudes and objects on Plate I of the atlas (see Figure 3). *Nebulose* objects, including the Orion Nebula and a small group of stars in Scorpius embedded in NGC 6231, were obviously difficult for Bevis to categorize. Others are identifiable as close pairs or small clusters of faint stars that may have appeared unresolved and indistinct in his telescope.

Three *Extinct* stars are shown. One of them can be identified with the nova of 1670, in the constellation of the Fox (Vulpecula).¹³ Another is clearly M 29 in the Swan (Cygnus), although perhaps this should have been depicted as a 'nebulose' object (see Figure 4). The third 'extinct' star is not identifiable on any modern atlas yet it is clearly depicted on two separate charts;¹⁴ it lies in the constellation of the Little Bear (Ursa Minor), at approximately RA 16^h10^m, Dec +82° [Epoch 2000] (see again Figure 3).

Bevis also shows two supernovae, Tycho's Nova of 1572 (Figure 5) and Kepler's Star of 1604. Although depicted as very large star symbols, they of course were not visible when the atlas was compiled. Perhaps Bevis thought that they might return to the heavens, although it is more likely that he was recording them for historical interest.

A sixth magnitude star that was visible in the late seventeenth century, recorded

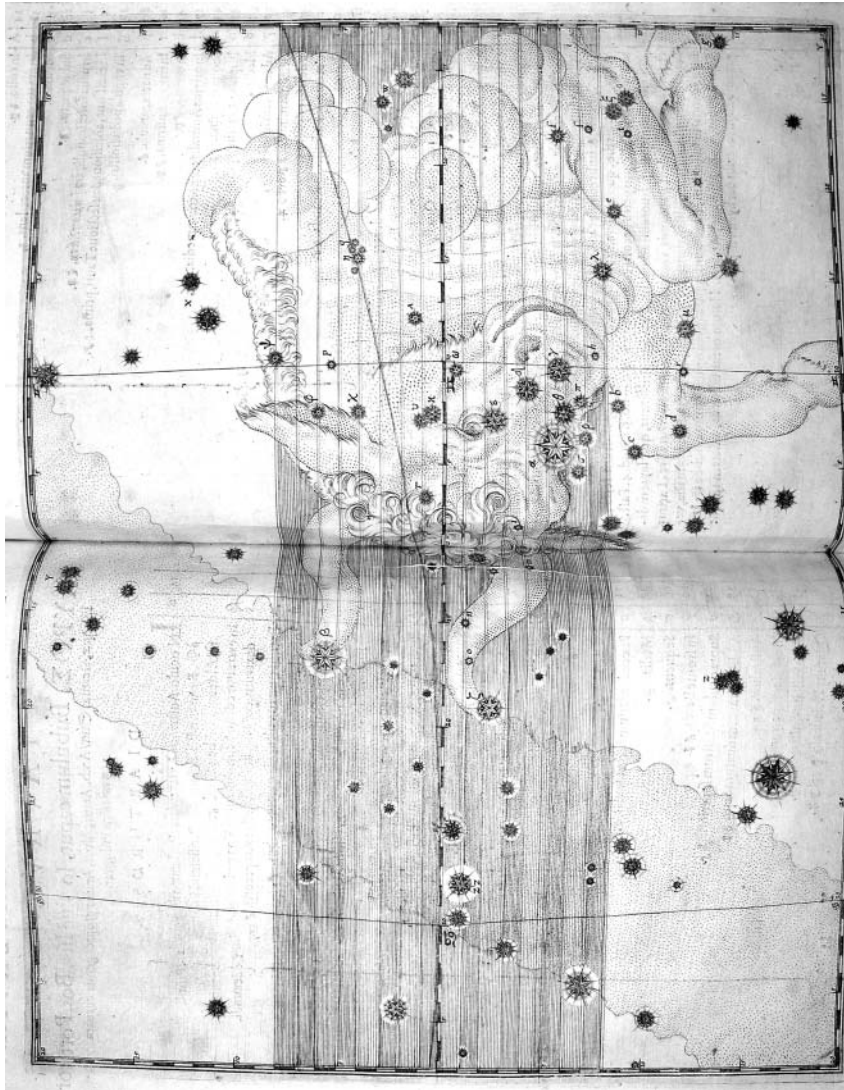


FIG. 1. The Taurus chart from Bayer's *Uranometria* (Augsburg, 1603). Note the large star images and the use of ecliptic coordinates. Jay M. Pasachoff collection.

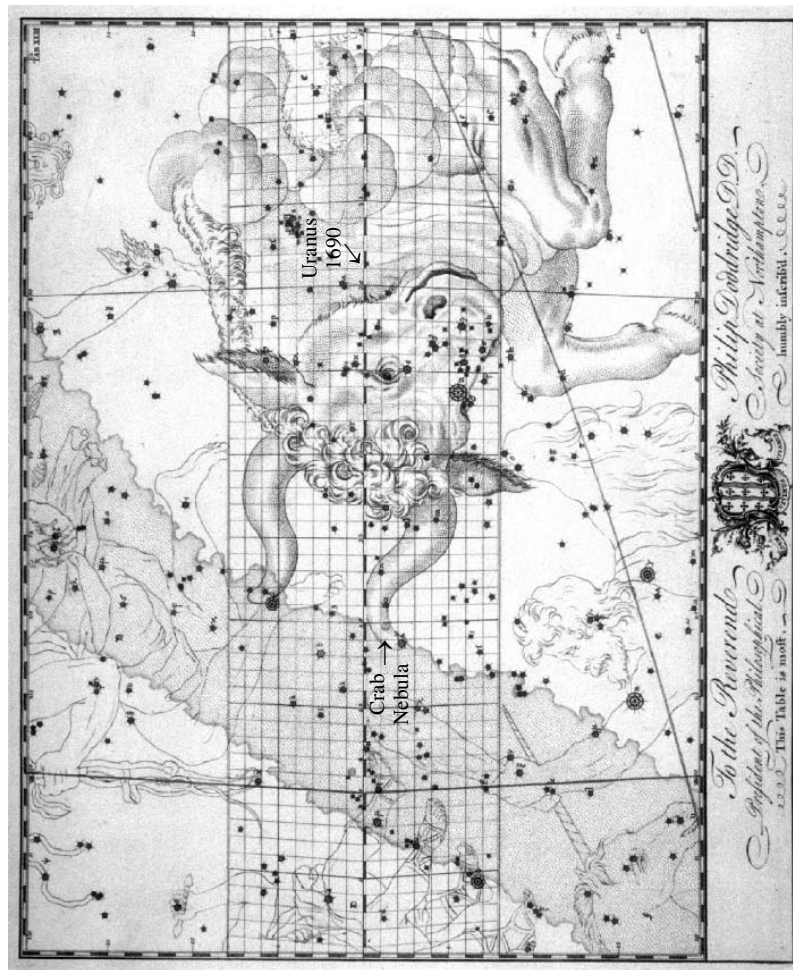


FIG. 2. The Taurus chart from Bevis's atlas. It shows more stars than the corresponding Bayer chart, and the star images are more realistically proportioned. The Crab Nebula appears for the first time in any atlas, and (unknown to Bevis) so does the planet Uranus, observed as a 'star' by Flamsteed in December 1690. All images from Bevis's atlas are taken from the Manchester Astronomical Society copy.

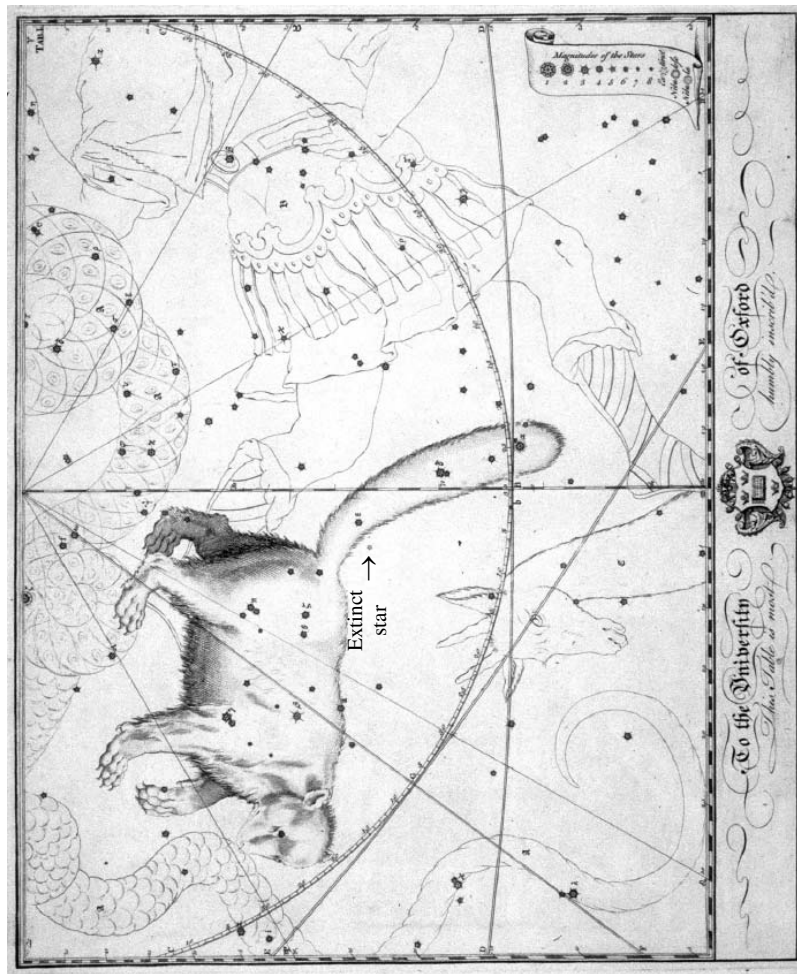


FIG. 3. Because Bevis uses ecliptic coordinates in his atlas, the pole of the sky does not coincide with Polaris. This chart, of Ursa Minor, shows his magnitude scale and the types of three non-stellar objects he recorded for the first time. Extinct stars are peculiar to his atlas; that shown to the lower left of ϵ UMi remains to be identified.

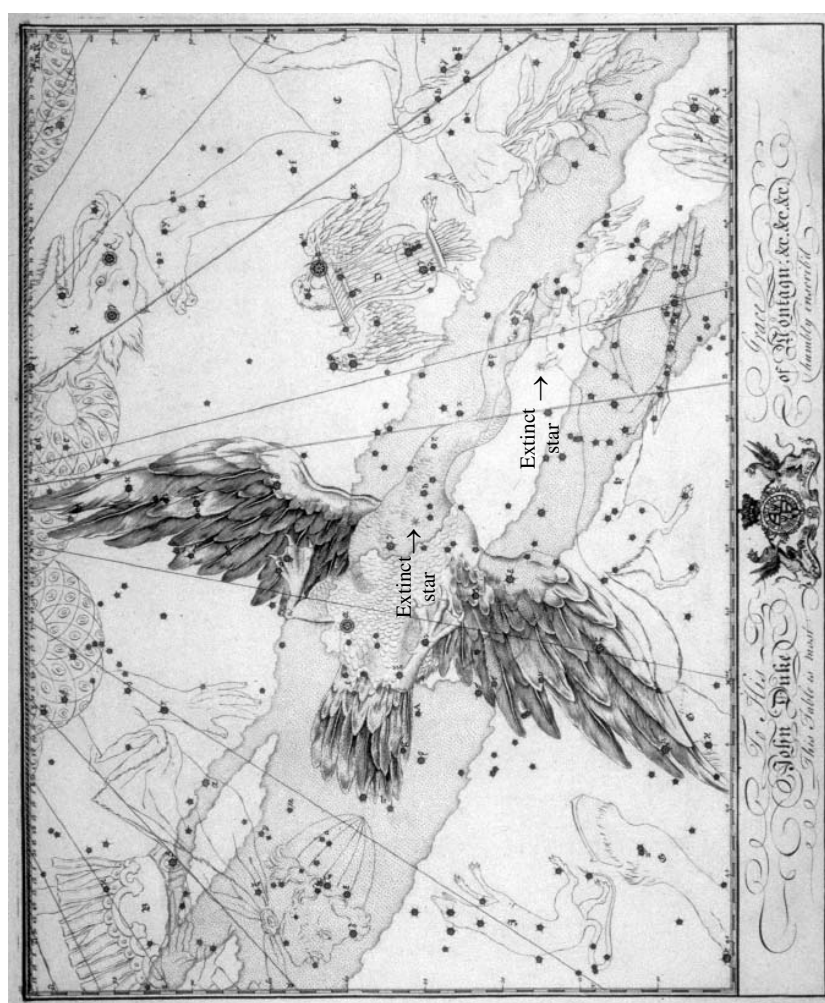


FIG. 4. Bevis's chart of Cygnus ranks among the best classical depictions of this constellation. Two extinct stars are shown, one clearly a mis-identification of M 29, the other the 1670 nova in Vulpecula.



FIG. 5. The most prominent feature on the Cassiopeia chart is Tycho's Nova, the supernova of 1572. Bevis also depicts a sixth-magnitude star-like object that may be the progenitor star of the radio object Cas A.

by Flamsteed and therefore on Bevis's charts, is the supernova remnant Cassiopeia A (Figure 5).¹⁵ He also shows a star in Taurus that can be positively identified as a pre-discovery observation by Flamsteed of the planet Uranus, made in late December 1690 (OS) (see again Figure 2).

By mid-1749 some of the star charts had already been printed, and that at least one partial atlas was in existence is suggested by the wording in the Proposals for publishing the work: this states that each plate *is* accompanied with double nomenclature [star tables] but the introduction, index and star catalogue *will be* added.¹⁶ By late 1749 the star charts and at least some of the text were available. The atlas was nearing completion, the intention probably being to publish it late the following year. Early in 1750, John Bevis was elected to membership of the Berlin Academy of Sciences on the strength of his imminent contribution to astronomical cartography. But in the autumn, John Neale was declared bankrupt.¹⁷ The copper plates were sequestered by the London Courts of Chancery and the project that had cost such a great deal in time and money never saw the light of day.¹⁸ Bevis seems to have escaped the financial implications of the bankruptcy, thus supporting the idea that it was Neale as the "undertaker" of the project who owned the copper plates, but poor Bevis's great star atlas *Uranographia Britannica* was fated never to be published.

John Bevis continued with his astronomical work, including observing the transits of Venus on 6 June 1761 and 3 June 1769. He was a friend of James Bradley and contributed independent observations that confirmed Bradley's work on the aberration of starlight. He was elected a Fellow of the Royal Society in 1765, and was later to serve as its foreign secretary. But although described as a very outgoing and friendly man, he never again referred to his great atlas without showing a deep and bitter sense of loss. Bevis died on 6 November 1771, aged 78, apparently after falling from his telescope while taking a measurement of the Sun's meridian altitude.

A Book Stillborn

If *Uranographia* had been published in 1750, it might well have become one of the classic great star atlases of the seventeenth and eighteenth centuries, when celestial cartography was in its heyday. Reliable navigation was then so important to the English navy that King Charles II had founded the Royal Observatory at Greenwich for the sole purpose of accurately mapping the stars. If *Uranographia* had achieved publication, John Bevis's name would be more widely known today. But in one other respect, his *Uranographia* would have dated rapidly and may have quickly fallen out of use. By the mid-eighteenth century, astronomers were beginning to use the now familiar equatorial co-ordinate system for star positions. *Uranographia*, in contrast, was the last great atlas to depict stars with respect to their zodiacal positions, measured from the ecliptic plane. There were practical reasons for this. Although well educated and with a scientific leaning, Bevis was not a mathematician. To recalculate all of Flamsteed's star positions to the new epoch of 1744 would have been a monumental task if equatorial coordinates had been used. Instead, he 'precessed' Flamsteed's



FIG. 6. The frontispiece to Bevis's atlas depicts the Prince of Wales being presented with a star atlas. The Royal Observatory is in the background.

positions by subtracting the appropriate offset from their original ecliptic coordinates, to reflect the changing position of the First Point of Aries.

However, although Bevis's *Uranographia* was never published in the normal sense, before Neale went bankrupt in 1750 a number of impressions had been taken from the plates even though printing of the accompanying star catalogue and star tables had not been finished. Whether or not these plates were still in the proof stage, we do not know. There are some early first impressions of proof star chart plates (but different from the final versions and without dedications) in the British Library in London that may have been printed prior to 1749. There is also evidence to show that at least some pages of the catalogue and tables had been printed. Two part-sets still exist.¹⁹ Bevis certainly intended to include an introduction to the *Uranographia* and a general index, but either these were never completed or they have not survived. He tells us this at the foot of the star tables and in the remarks accompanying Plate I, the Little Bear, in which he states that, "for a continuation of these Remarks, consult the General Index which follows the Introduction".²⁰

Bevis's estate subsequently passed into the hands of his executor, James Horsfall, a fellow member of the Royal Society. After Horsfall's death, his wife auctioned his library, including books and manuscripts that had belonged to Bevis. The auction took place in December 1785. According to the one surviving copy of the auction catalogue, now in the Whipple Museum of the History of Science, at Cambridge, three near-finished atlases and a number of sets of prints of the star charts were sold along with various other documents and proof sheets. The three pre-1750 atlases, which included tables and catalogues, were sold at the auction for a little over two guineas apiece. Two of the three near-finished atlases may have survived and may be those in the possession of the American Philosophical Society (APS) and at St John's College, Cambridge. The argument for this is that only two sets of the star catalogue, intended to be bound into the back of the atlas, and the explanatory tables, bound opposite their corresponding constellation charts, are known to exist. One set is in the APS atlas in Philadelphia and another is in an atlas at St John's.

The following year, 1786, bound sets²¹ of Bevis's star charts, with an explanatory sheet describing the circumstances of the offer but without the star catalogue or star tables, came on the market as the *Atlas celeste*. It may be inferred that these atlases were compiled from an *ad hoc* assortment of star charts by the anonymous purchaser of a 'job lot' at the 1785 auction, bound and offered for sale as a quick way of making money, at a knock-down price of one and a half guineas each, still a very considerable sum in 1786.

We might also conjecture that the limited number of prints resulted in atlases with varying degree of completeness, judging by those now known to have survived. These offer no clue to the identity of the seller; they do not have a title page or any other explanatory text, nor have they any reference to either Bevis or Neale. They were simply offered for sale with the bald statement that although they cost a great deal to produce, they were never before in the hands of any publisher or bookseller.

I N D E X			
To the principal Figures in each Table, viz.			
TABLE.	TABLE.	TABLE.	
1 Ursa Minor,	22 Aries,	Pavo,*	A*
2 Ursa Major,	23 Taurus,	47 Corona Australis,	B*
3 Leo Minor,*	24 Gemini,	48 Pictis Australis,	C*
4 Draco,	25 Cancer,	49 Grus,	D*
5 Cepheus,	26 Leo,	Phoenix,	E*
6 Bootes,	27 Virgo,	Pavo,	F*
7 Coma Berenices,*	28 Libra,	Apus Indicus,	G*
8 Corona Septentrionalis,	29 Scorpio,	Musca,	H*
9 Hercules,	30 Sagittarius,	Chamaeleon,	I*
10 Lyra,	31 Capricornus,	Triangulum Australe,	K*
11 Cygnus,	32 Aquarius,	Pictis Volans,	L*
12 Cassiopeia,	33 Pices,	Xiphias,	M*
13 Perseus,	34 Octus,	Lupus,	P*
14 Musca,	35 Orion,	Hydrus,	R*
15 Auriga,	36 Eridanus Fluvius,	Indus,	S*
16 Lepus,	37 Lepus,	Argo Navis,	T*
17 Scorpionarius,	38 Canis Major,	Toucan,	U*
18 Serpens,	39 Canicula,	Ara,	V*
19 Sagitta,	40 Unicornis,	Corona Australis,	W*
20 Aquila,	41 Argo Navis,*	Pictis Australis,	X*
21 Antinous,*	42 Robur Caroli,*	Crux,	Y*
22 Scuta Sobieski,*	43 Centaurus,	50 The Constellations North	Z*
23 Delphinus,	44 Crater,	of the Ecliptic delineated	
24 Equiculus,	45 Corvus,	according to <i>Phalangy</i> ,	
25 Pegusus,	46 Hydra,	51 The Constellations South	
26 Andromeda,	47 Lupus,	of the Ecliptic delineated	
27 Triangulum,	48 Ara,	according to <i>Phalangy</i> .	

Fig. 7. The Index to *Atlas celeste*, of which only eight copies survive.

Atlas celeste

A complete *Atlas celeste* (c. 1786) comprises an elaborately engraved ‘frontispiece’ (Figure 6) or pictorial dedication depicting in the background the Royal Observatory, Greenwich, with the goddess Urania presenting a copy of the atlas to a royal patron, probably Frederick Louis, Prince of Wales, the estranged son of George II (three feathers of the Prince of Wales are shown on the back of the throne in which he is seated and the Virgo chart is dedicated to the Princess of Wales). Frederick died in 1751 and so the depiction fits in well with the intended publication date of *Uranographia Britannica*. Britannia with the Union flag and the goddess Feronia holding her symbol, the liberty cap, stand in witness (see Figure 6).²² There are forty-eight constellation charts, together with one chart of the southern constellations based on Halley’s observations and two planispheres showing the northern and southern ecliptic hemispheres (partial coverage).

Eight of the 1786 atlases include an index to the fifty-one star charts (see Figure 7). Even rarer than the sets themselves is an ‘advertising broadsheet’ explaining the reason for the reduced price, one and a half guineas instead of five (see Figure 8). It is this broadsheet that refers to the book as “Atlas Celeste”. Because these atlases vary widely in their degrees of completeness, they may best be described as individual ‘sets’. Although an index was originally intended for inclusion in the *Uranographia*, it is not clear if the index to *Atlas celeste* was printed at the same time as the charts.²³ The ‘advertisement’ was obviously printed at a much later date, yet both advertisement and index are printed with the same font and style and are quite different from the engraved star chart dedications. The paper on which they are printed is also similar, and bears the same watermarks as the heavy, high cloth-content paper used by John Neale. In the Manchester Astronomical Society’s *Uranographia*, two distinctly different papers, bearing different watermarks, are used for the star charts. One of these papers is used in printing the index and advertisement. Perhaps the buyer at the 1785 auction also acquired plain paper that he employed for the later inclusions. Unfortunately these watermarks cannot be used to pin down the date of the printing, as both were in common use in the mid-eighteenth century.²⁴

Until 1981, very little research had been published into the mystery surrounding Bevis’s *Uranographia*, and the atlas had been largely forgotten. The very comprehensive paper by Ashworth remedied this. It is based on the copy formerly owned by Sir George Shuckburgh-Evelyn (1751–1804) and auctioned at the Sotheby & Wilkinson’s sale of 21 January 1856. What makes this so-called APS atlas so unusual is that Bevis’s star tables and explanatory notes, comparing his positional observations with those of Flamsteed, Ptolemy and Bayer, are bound into the book opposite some, but not all, of the star charts. This copy also includes a fourteen-page star catalogue. An interesting observation, by Ashworth, refers to the numbering of faint stars within each constellation. Although referred to as Flamsteed numbers, the first use of this numbering system has in recent years been credited to Joseph Lalande in his 1783 *Ephémérides* (though Gingerich has not only found and written about a 1782 use²⁵

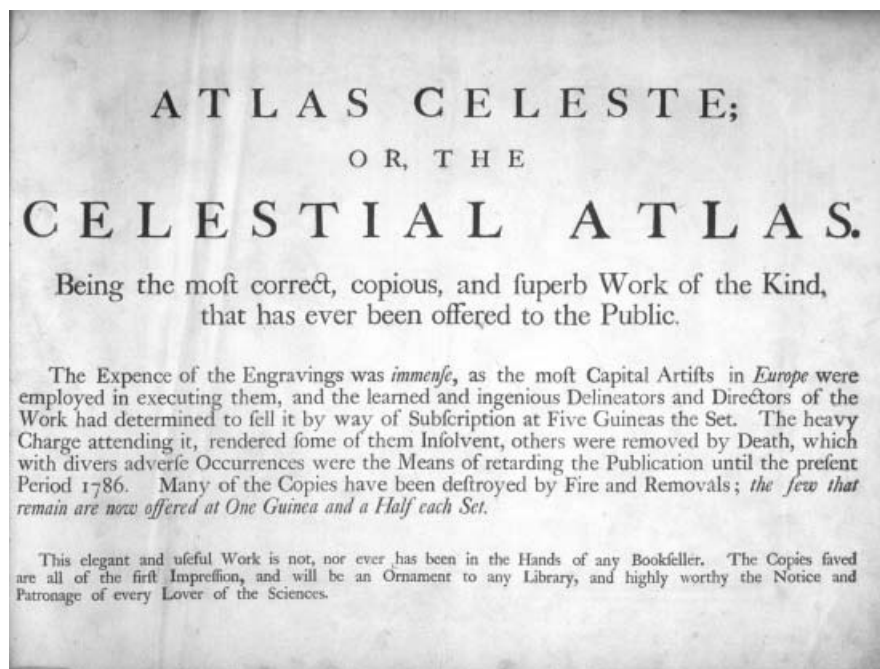


FIG. 8. The 1786 title page of the Manchester atlas, one of only two copies known.

but has also located a 1776 use of of such numbering and this he thinks the work of Bode²⁶). These numbers identify stars consecutively within each constellation as they cross the meridian. In the two very rare copies of the *Uranographia* star tables, in the APS copy and in that at St John's College, Cambridge, it is apparent that John Bevis's is the earliest known use of Flamsteed numbers.

Ashworth described surviving copies of Bevis's atlas as being extremely rare. Indeed, in 1981 only twelve were known, most being in university collections on both sides of the Atlantic and certain large public libraries in the United States, while a few were in private hands or with book dealers. They suggest that the anonymous buyer at the 1785 auction found himself in possession of a pile of charts from which very few complete atlases could be assembled, hence the initial low cost and the inconsistency between the presently known sets. There are now about twenty-three sets known to have survived, including three (not recorded by Ashworth) at St John's College, Cambridge.

The St John's sets form the largest collection of Bevis atlases and probably the most diverse in terms of completeness and variation in quality. Two comprise fifty-one charts and frontispiece, and one has a torn advertising sheet and index, while the other has neither. There is also a disbound set, of frontispiece and fifty-one charts, in very poor condition.

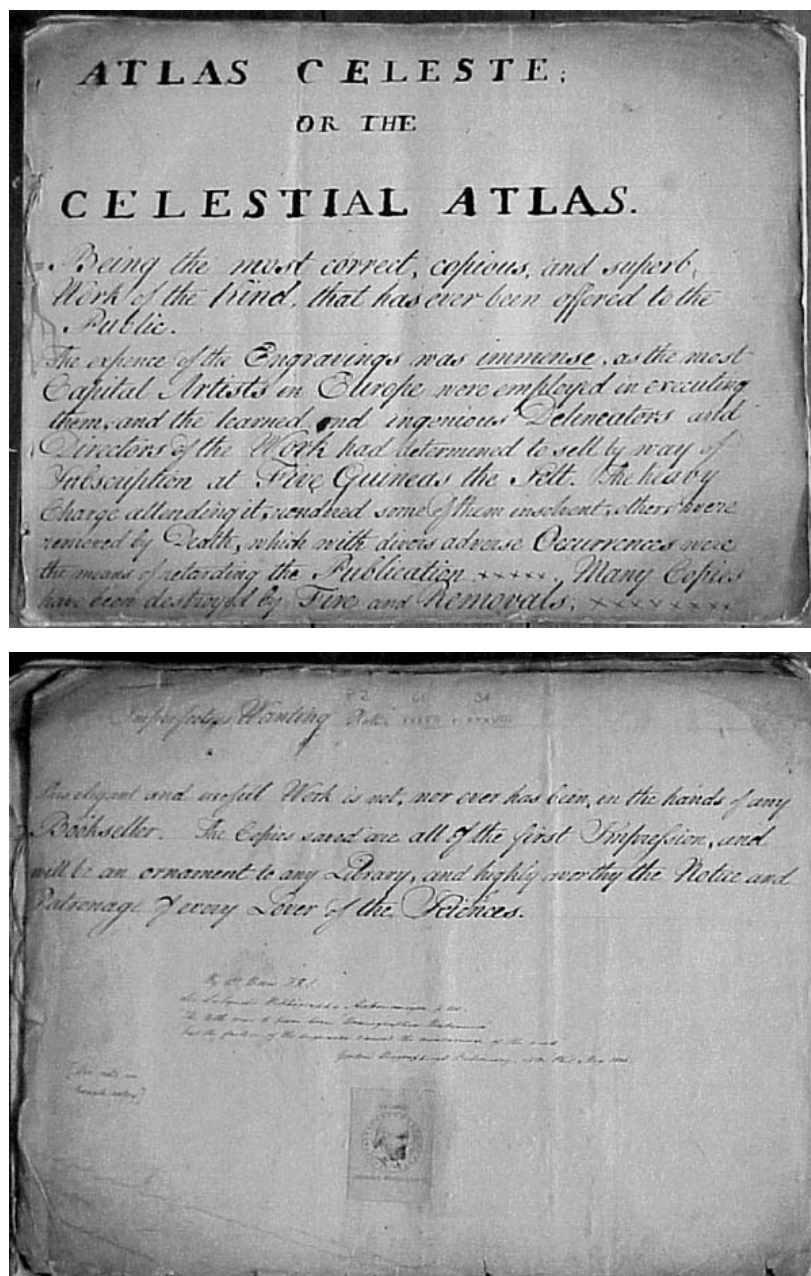


FIG. 9. A two-page description of the provenance of the *Atlas celeste* is to be found in one copy in St John's College, Cambridge. This may be the original hand-drafted version from which the 1786 printed title page (Figure 8) originated.

TABLE 1. Comparison list of identified 'sets' of Bevis's *Uranographia Britannica*. For further details, see www.manastro.co.uk.

	1786 Title Page	Frontispiece	Star Charts	Index
Intended <i>Uranographia Britannica</i> (c. 1750; incomplete but probably sold at auction 1785; copies with catalogue)				
Philadelphia: American Philosophical Society ^a	N/A	Yes	51	No
Cambridge: St John's College, P2.61.34. ^b Title page dated 1786; possibly original draft of <i>Atlas celeste</i> title page.	Hand scripted	Yes	49	No
<i>Atlas celeste</i> (c. 1786; unpublished but offered for sale anonymously 1786)				
Manchester: Manchester Astronomical Society (in Chetham's Library)	Orig. print	Yes	51	Yes
London: British Library, C.21.e.5	Orig. print	Yes	51	Yes
Cambridge: St John's College, P2.61.35 ^b	Top half only	Yes	51	Yes
Cambridge: Cambridge University Library, Adams 1.81.1 (ex Woollgar, 1818) ^b	No	Yes	51	Yes
Private collection of J. M. Pasachoff, on deposit in Chapin Library of Williams College	No	Yes	51	Yes
London: Royal Astronomical Society (ex Woollgar, 1824) ^c	No	Yes	51	Yes
Oxford: Museum of the History of Science (University Observatory Collection, 1982-132) ^d	No	Yes	51	No
Greenwich: Royal Greenwich Observatory, National Maritime Museum ^e	No	Yes	51	No
Kansas City: Linda Hall Library ^a	No	Yes	51	No
Cambridge: St John's College, P2.61.36 ^b	No	Yes	51	No
Cambridge: St John's College (disbound set) ^b	No	Yes	51	No
Cambridge, Mass.: Houghton Library, Harvard University ^f	No	Yes	51	No
Detroit: Detroit Public Library, Burton Historical Collection (unbound) ^g	No	Yes	51	No
Lund: Lund Observatory, deposited at Lund University Library ^h	No	Yes	51	No
Urbana-Champaign, Ill.: University of Illinois Library, Rare Book & Special Collections, XFr523.8903 B468U	No	Yes	51	No
Stanford, Calif.: Stanford University, Barchas Collection 1999, copy 2 (imperfect: plates only) ⁱ	No	Yes	49	No
Stanford, Calif.: Stanford University, Barchas Collection 1999, copy 1 (unbound in box) ^j	Top half only	Yes	38	Yes
London: British Library, proof charts, C.21.e.8	N/A	N/A	34	No
Private collection, Washington, D.C.	No	?	?	?
Private collection of R. A. Gregory, c. 1906, now missing ^g	Orig. print(?)	Yes	50	Yes
Private collection(?), offered for sale for £2600 by J. A. L. Franks, London, c. 1981 ^j	Orig. print	Yes	51	No
Private collection(?), John Booth, Westbury, Wilts, c. 1981 ^h	No	Yes	51	No
Private collections, set broken by Map House, London ^f	N/A	Yes	N/A	N/A

Descriptions: a, William B. Ashworth (1981 article); b, Nicholas Smith, Cambridge University Library, and Jonathan Harrison, St John's College; c, Peter Hingley, Librarian, Royal Astronomical Society; d, Shona Marran, Museum of the History of Science Library, Oxford; e, Emily Winterburn, Curator of Astronomy, Royal Observatory, Greenwich; f, Owen Gingerich; g, Janet Whitson, Detroit Public Library; h, William B. Ashworth, personal comm., 2002; i, John E. Mustain, Special Collections, Stanford University; j, price list of J. A. L. Franks, c. 1981.

There is also the extraordinary atlas, mentioned by Ashworth, that has a ‘manuscript’ copy of the *Atlas celeste* title page, executed in black ink on two pages (Figure 9). Notes, in a dissimilar hand,²⁷ on the second page of this document cite Bevis as the author of the atlas with reference to Lalande’s *Bibliographie astronomique*. This atlas comprises an incomplete set of star charts but more importantly, includes seven leaves of the *Uranographia* star catalogue, together with twenty-nine leaves of the tables. This item is possibly one of the two surviving pre-1750 atlases sold at the 1785 auction, the other being the APS copy. It is suggested (by Kilburn) that the hand-written title page may be the original version from which the printed ‘Atlas Celeste’ advertisement page was derived. John Couch Adams once owned these Cambridge atlases, as his book plate is inside the covers.

Elsewhere in the UK, sets of the Bevis *Uranographia Britannica* (*Atlas celeste*) are found in the libraries of the Royal Astronomical Society; the Royal Greenwich Observatory, now at the Maritime Museum, Greenwich; the Museum of the History of Science Library, Oxford; and, as already mentioned, at St John’s College and the University Library, Cambridge, and in the British Library map collection. The most recent find, and one of the most complete, is that belonging to the Manchester Astronomical Society and now kept at Chetham’s Library, Manchester. It not only has a full set of fifty-one original star charts and frontispiece *c.* 1750 but also has the advertising broadsheet and index.

With the exception of the advertising broadsheet and possibly the index, all the charts, tables and catalogues still in existence are first impressions from the original plates and date to about 1749 or 1750.

The atlas at the University Library, Cambridge is often referred to as an 1818 ‘edition’ but this is not the case. In 1818, J. W. Woollgar, librarian at Cambridge, had drawn a finely executed title page entitled “*Uranographia Britannica* or, an exact View of the Heavens”. Woollgar attributed the work to Bevis, and stated that it was based on the catalogues of Hevelius, Halley, and Flamsteed, with additions. Woollgar also included notes from Lalande and Hutton citing the provenance of *Uranographia Britannica* (see Figure 10).

One suggested explanation for the rarity of the 1786 title page is that when *Atlas celeste* was offered for sale, even for one and a half guineas, this expensive atlas would likely be rebound to match the library of the purchaser. The 1786 ‘title’ page, variously described as an ‘advertisement broadsheet’, would have been torn out. Hence so few complete examples exist.

We have sought to update Ashworth’s 1981 paper and Gingerich’s introduction to the 1987 facsimile atlas. At present, all but one of the atlases known to exist are in the UK or the USA. Other atlases, or individual plates, no doubt survive and we would be glad to learn of them. They may shed light on questions as yet unanswered, such as the identity of the anonymous buyer at the 1785 auction (could it have been John Neale’s son?) and the reason why Woollgar had access to so many of the atlases.

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REFERENCES

1. Messier added a note in the margin of *Connaissance des temps* for 1784: "Seen by Dr Bevis in about 1731 according to his letter to me of 10th June 1771", Kenneth Glyn Jones, *Messier's nebulae and star clusters*, 2nd edn (Cambridge, 1991), 53.
2. *Edmundi Halleii Astronomi dum viveret Regii tabulae astronomicae accedunt de usu tabularum praecepta* (London, 1749; English translation, 1752).
3. Johann Bayer, *Uranometria* (Augsburg, 1603); John Flamsteed, *Atlas coelestis* (London, 1729).
4. William B. Ashworth, "John Bevis and his Uranographia (ca. 1750)", *Proceedings of the American Philosophical Society*, cxxv (1981), 52–73. Our knowledge of *Uranographia Britannica* is based almost entirely on Ashworth's heavily annotated work, without which much of the detail in our paper could not have been interpreted. His is still accepted as the standard description, interpretation and critique of the atlas. Owen Gingerich edited with an Introduction a facsimile edition of *Uranographia Britannica* in 1987 and this was published by Archive Facsimiles Ltd in conjunction with the British Library. This edition, made basically from a British Library copy, also contains the proof pages that differ from the final version, and the text pages from the APS copy. Some other copies, such as that at St John's College, Cambridge, also have proof pages.
5. *Northampton Mercury*, 11 April 1748, p. 7, col. 2. "Proposals for publishing Uranographia Britannica. From Mr Thomas Yeoman's in Northampton and the Undertaker's [i.e., Neale's] own house in Leadenhall Street, London."
6. David L. Bates, "Naturae accedere partes: The Northampton Philosophical Society revisited", *Northamptonshire past & present*, no. 53 (2000), 19–30.
7. John Neale was the son of John Neale, a pinmaker of Abington Street, Northampton. He was apprenticed for seven years, from 6 Oct 1730 to 2 May 1738, to Jonath Houlliere, citizen and skinner, of Broad Street, London, watchmaker and member of the Skinners' Company (Apprenticeship & Freedoms, 1723–1764, MS 30719/4, p. 9; Skinners' Company Records, Public Records Office). James Yeoman, son of Thomas Yeoman of Northampton, clockmaker Apprentice to John Neale, citizen and skinner [*sic.* clockmaker?] of London for seven years, 7 Nov 1752 – 5 Feb 1760, Leadenhall Street (*ibid.*, 46).
8. R. Wallis, "John Bevis, MD, FRS (1695–1771), astronomer loyal", *Notes and records of the Royal Society of London*, xxxvi (1982), 211–25.

9. S. P. Rigaud, *Miscellaneous works of Bradley* (Oxford, 1841), 456.
10. G. Clifton, *Directory of British scientific instrument makers 1550–1851* (London, 1995), 197, states that Neale was a watchmaker and globe-maker in Leadenhall Street and includes among his apprentices, James Yeoman, 1752.
11. R. V. Wallis and P. J. Wallis, *Biobibliography of British mathematics and its applications*, Part II: 1701–1760 (Newcastle upon Tyne, 1986), 308, describe Neale as a clockmaker, globe-maker, and scientific lecturer and list a number of publications including the proposal for *Uranographia Britannica*.
12. Allan Chapman, personal communication.
13. The names of the constellations in Bevis's star catalogues are all Anglicized.
14. Plates I and IV.
15. William B. Ashworth, Jr, "A probable Flamsteed observation of the Cassiopeia A supernova", *Journal for the history of astronomy*, xi (1980), 1–9, p. 5. One of us (KJK) independently noticed this, and also the presence of Uranus on the Taurus chart.
16. J. Neale, "Proposals for publishing by Subscription, *Uranographia Britannica*" (c. 1749), copy in the Hunterian Library, Glasgow.
17. *The gentleman's magazine*, October 1750, 477; *The London magazine*, November 1750, 525.
18. In 1999 the Manchester Astronomical Society were advised by *Encyclopaedia Britannica* that the MAS contravened the use of the word 'Britannica' in selling its CD-ROM version of the atlas as "*Uranographia Britannica*". Their argument was that although Bevis's atlas predated the first *Encyclopaedia Britannica*, Bevis's work was never published and therefore did not lay historical claim to the use of the title!
19. American Philosophical Society (APS copy), Philadelphia: 14 pages of the catalogue, 32 pages of star tables; St Johns College, Cambridge, P2.61.34: 7 pages of the catalogue, 29 pages of star tables.
20. *Atlas Celeste*, opp. Tab. I, facsimile edition (ref. 4).
21. W. H. Wesley, then Assistant Secretary of the Royal Astronomical Society, first used the term 'sets' in 1907 to describe the very few *Atlas celeste* copies then known. His comment is in hand-written notes that accompany the atlas in the Museum of the History of Science Library, Oxford.
22. This is the interpretation of Gingerich, *op. cit.* (ref. 4). Allan Chapman suggests that they might instead be the Muses of geometry and music.
23. Of the twenty-three atlases known to date, only eight have an index. This suggests that this simple index was printed c. 1750 and not in 1786.
24. Allan Chapman, personal communication.
25. E. S. Jeurat in *Connaissance des temps* for 1785, published in 1782 (Owen Gingerich, "A unique copy of Flamsteed's *Historia coelestis* (1712)", in Frances Willmoth (ed.), *Flamsteed's stars* (Woodbridge, 1997), 189–97, p. 197).
26. Anonymous, *Sammlung astronomischer Tafeln* (Berlin, 1776).
27. These notes on the second page of the St John's atlas suggest that William Woolgar was their author. His reference to Lalande's recognition that Bevis was the author of the atlas is entirely consistent with that on the 1818 title page that he commissioned in the atlas in University Library Cambridge.