INSTRUMENTS OF ASTRONOMY:

GLOBES, INSTRUMENTS AND BOOKS

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1. ADAMS, GEORGE

A Military Style Travelling Field Compass

c. 1760, 5 inch (125 mm), the Silvered Dial Signed G. Adams, London, Blue Steel Needle with Gilt 'N/S' and Retainer Arm on Pivot, Steeped Degree Ring, Glazed within Square Mahogany Case, hinged lid and brass hook, Fine condition.

£1,000

In 1734 Adams started his own business as a maker of mathematical instruments in Fleet Street, 'near the Castle Tavern', a few doors from Shoe Lane, adopting the sign of Tycho Brahe's Head. The business continued at various addresses in Fleet Street for eighty-three years. Adams became mathematical-instrument maker to His Majesty's Office of Ordnance, an appointment that provided an important source of income and resulted in hundreds if not thousands of commissions. In 1761, George III commissioned a large group of philosophical instruments from the London instrument-maker George Adams. The purchase sprang from a complex plan of moral education devised for Prince George in the late 1750s by the third Earl of Bute.

2. ADAMS, GEORGE

A FINE BRASS UNIVERSAL EQUINOCTIAL RING DIAL.

English, third quarter of the 18th century, signed "G Adams London," the meridian ring engraved with latitude scale 90-0-90 degrees, reverse with scale for determining solar altitude and zennith distance, equinocitial ring with obverse engraved with hour scale in Roman numerals, central bridge with pin-hole sliding over calendar and zodiac scales, 100 mm diam.

£3,000

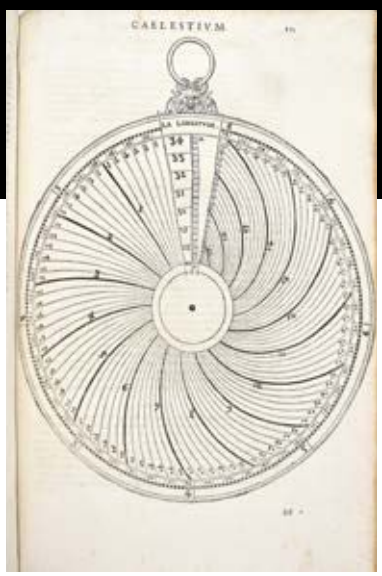
George Adams was apprenticed to James Parker in 1724 and turned over to Thomas Heath in 1726, he was freed as a member of the Grocer's company in 1733 and the following year he was working in Fleet Street, London. His appointments include: Royal appointment to the Prince of Wales and George III, mathematical instruments maker to the Office of Ordnance and supplier of instruments to Christ's Hospital. Two of his sons were also mathematical instrument makers.

3.BASSANTIN [BASSENDYNE], JAMES

Astronomia... Opus absolutissimum, in quo, qudquid unquam peritores mathematici in caelis observarunt, coordine, eamque; methodo traditur, ut cuius posthac facile innotescant quaecumque de astris ac planetis, necnon de eorum variis orbibus, motibus, passionibus, &c. dici possunt...


Astronomia
IBASSANTINI
SCOTI
APVD IOANN. TORNAESIVM
CIↃ IↃ XCIX


PRAXIS MOTVVM


CAELESTIVM

Geneva, Jean de Tournes, 1599

Folio (430 x 288 mm), pp [iv] 262 [2, blank], with woodcut printer's device on title and 175 woodcuts and woodcut diagrams, including 37 full-page woodcut astronomical figures of which 18 (one half-page and 17 full-page) have a total of 35 volvelles; a fine complete copy in contemporary calf, gilt fillets on covers, spine with gilt compartments.

£75,000

Splendid Copy of an Extremely Rare Astronomical work, dedicated to the Palatine Count Frederick IV.

Bassantin's beautifully produced work for calculating planetary positions, largely associated with Apianus' great Astronomicum Caesareum 1540. Many of the large woodcut diagrams and volvelles are very similar to that work, including the first volvelle, a full-page celestial planisphere of the northern hemisphere. 'The size of this volume and the extent of its illustration make this an unusually fine example of the attention given to the printing of scientific works at this period' (Mortimer).

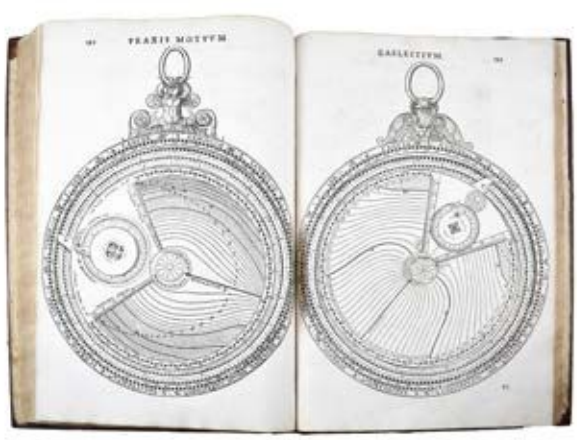
James Bassantin (d. 1568) was a Scots astronomer and astrologer, born in the reign of James IV. He studied at the University of Glasgow, devoting himself to science and mathematics. He continued his education on the Continent in several countries, before settling in France as a teacher of mathematics, first in Lyons and then in Paris.

Bassantin was knowledgeable of advances in German and Italian mathematics and astronomy. He produced a revised edition of Jacques Foucard's Paraphrase de l'astrolabe (Lyons 1555), which contained his 'Amplification de l'usage de l'astrolabe', reprinted several times. It demonstrates finding positions in ecliptic latitude of the moon, planets, and fixed stars, as well as the use of the shadow square.

In 1562 Bassantin returned to Scotland. On route, according to Sir James Melville (Memoirs of his own life p 203), he met Sir Robert Melville, Sir James's brother, and predicted to him that there would be 'at length captivity and utter wreck' for Mary, Queen of Scots, at the hands of Elizabeth, and also that the kingdom of England would eventually fall of right to the crown of Scotland, but at the cost of many bloody battles, in which the Spaniards would take part. Bassantin was a convinced Protestant and in politics a supporter of the regent Murray (based on the ODNB entry).

Provenance: inscription on title: 'Ex libris Caroli Parisot Sacri Regni Imperii Equitis empt. Parisiis 6R an. dmi. 1676'

Cartier De Tournes 704; cf Mortimer 47 and Horblit sale catalogue lot 89; OCLC lists UCLA, and the Smithsonian


PRAXIS MOTVVM
CAELESTIVM

4. BERINGER,DAVID

POLYHEDRAL SUNDIAL

An early 18th century German polyhedral sundial, with five printed and coloured enamelled paper card dials, one signed D. Beringer; the others decorated in the Neo-Classical manner with floral sprays and geometric borders, two characters of expectant lovers , on wood pillar with compass joint over the horizontal paper plate and compass, the blued-steel needle with brass cap, on four bun feet, 7 1/8 in (18.4 cm) high.

£2,000

The top face of the cube has an engraved paper dial printed with central garland and an hour scale in Roman numerals clockwise from IIII to XII and I to VIII. Each side, North, South, East, and West has a different hour scale in Roman numerals, and different graphic designs, including flowers and people. The North and South faces are labelled Nord and Sud, each with hour scales numbered in Roman numerals along with a central floral garland decoration. The North side is also labeled "D. Beringer." The West dial displays a diagonal hour scale flanked by a garland. The East dial has a similar design as the West.

Polyhedral dials are associated with Renaissance astronomy in the 16th and 17th centuries. They served as ingenious demonstration pieces showing the skill and knowledge of mathematicians and instrument makers who designed them. They were status objects for their owners to show their interest and appreciation of different aspects of math and science. They have been made with varying numbers of faces and shapes, ranging from regular polyhedral with all equal faces, to highly irregular shapes. Some had plumb bobs or inset compasses for orientation.

David Beringer was an instrument maker in Nuremburg, best known for producing polyhedral sundials, which became popular in South Germany in the latter half of the 18th century. According to the National Maritime Museum at Greenwich, Beringer was likely the first person to produce a polyhedral dial with a cube design. According to the Liverpool Museums, the Berringer cube polyhedral dial in their collection is used as follows:

To use this dial first ... adjust it for the latitude where it is being used. A small plumb-line ... is suspended from a pin near the top. The whole dial [is] tilted until the plumb line crossing the curved scale show[s] the correct latitude. When it is correctly set the straight edges of the gnomons are parallel to the Earth's axis. Next the dial is aligned using the compass in the base. The faces don't show the same hours. Nord (north) shows the hours of 4am-8am on the right and 4pm-8pm on the left. West only shows a shadow from 1pm-8pm. South shows the hour from 6am (on the left) until 6pm (on the right). The East face shows the hours 4am-11pm.

References:

"Cubic Sundial." National Museums Liverpool. http://www.liverpoolmuseums.org.uk/kids/games-quizzes/sun/sd3_moreinfo.html (9 April 2018).

"Polyhedral Dial." Matrix: Maths and Technology Revealed in Exhibition. http://www.counton.org/museum/floor2/gallery4/gal3p2.html (4 April 2018).

"Polyhedral Dial." Royal Museums Greenwich. http://collections.rmg.co.uk/collections/objects/10547.html (4 April 2018).

"Portable cube sundial." Metropolitan Museum of Art. 2000-2018.

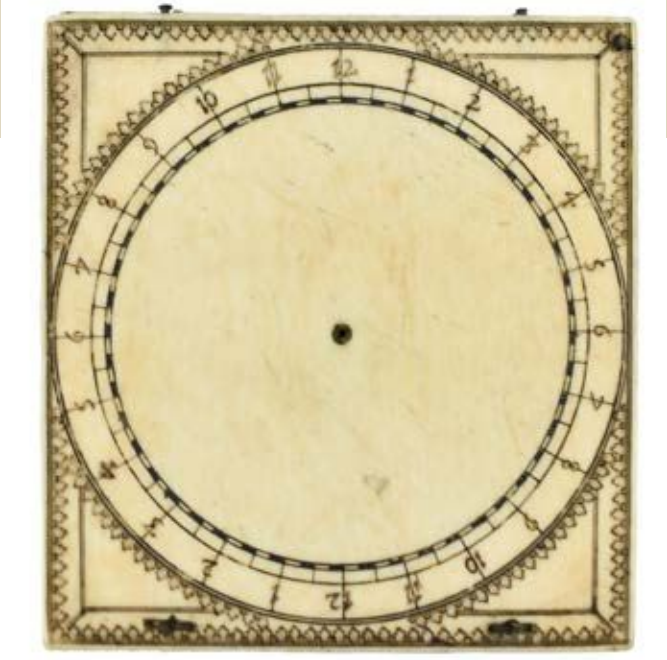
5. BLOUD,CHARLES

A late 17th-Century Dieppe ivory diptych compass sundial.

Ivory diptych sundial, Charles Bloud. Dieppe, c. 1660/1670.
signed on the silvered-brass calendar volvelle Fait par Charles Bloud Dieppe, the upper face of the lid with pin gnomon dial the quarters decorated with scrolls, the inner face of the lid similarly decorated, with white-metal calendar volvelle, latitude scale and string gnomon, the horizontal face with pierced azimuth ellipse with hour scale engraved with Roman numerals, the engraved paper compass dial with latitudes of continental cities (needle and glass missing), with folding latitude arm, the underside with the signed calendar volvelle, further decoration and hand and finger pointer, with two hooks and eyes, the pin gnomon and hook keep missing -- 31/8in. (7.9cm.) long
£6,000

Rectangular ivory diptych sundial with two leaves engraved, in black on each face, with a double-lined frame with typical Dieppe ornamentation along edges and various dials.
The upper face of the lid has two dials, an equinoctial dial and a polar dial. The circulair hour scale of the equinoctial dial, for use in spring and summer months, is numbered 1-12 twice. The polar dial has two hour scales numbered 8-12-4 and a central brass rivet with hole for the missing pig-gnomon (brass clasp on the left side of the base plate to hold gnomon rod)

The underside of the lid has a pewter lunar volvelle with several scales, numbered 1-30 (inner), 1-12 twice (middle) and 10-20-30 for each month (outer) from “janvier” through “decembr”. The small rotating disc in the centre has an index and a circular window showing the lunar phases. A latitude scale along right side from 0 to 80 degrees to set the right angle for the dials of the upper face of the lid.
The upper face of the base-plate is a horizontal dial with a green string gnomon and a single hour-scale for approximate latitude of 48, numbered 5-12-7. Inside the hour-circle, a magnetic azimuth dial (analenmatic with a pewter elliptical scale, numbered V-XII-VII) associated with the compass(printed paper rose wind with 32 directions). A slot in the centre allows the adjustment of the analemme according to the date (showed by a disc on the other side). A blued-irom needle with brass pivot and a glass over all.
The underside of the base-plate has a pewter volvelle with perpetual calendar scale to set the date for the magnetic azimuth elliptical hour-scale inside. It is engraved with inscription “Fait et inventic par Charles Bloud á Dieppe”. An index in the form of a hand is engraved. Brass hooks and comes with a case.
This diptych is described in the Catalogue of Cadrans Solaires / Sundials by Dominique & Eric Delalande.
Reference: Cadrans Solaires / Sundials by Dominique & Eric Delalande



6. BRASS DIVIDERS

A Fine Set of 17th Century Brass and Steel Dividers

English, Unsigned, 9 inch (230mm), Bulbous Brass Head.
These are most likely Naval Dividers for use at sea, Chart Surveys etc.
£500

7. A SILVER BUTTERFIELD DIAL

BUTTERFIELD, MICHAEL (1635-1724)
A FINE SILVER BUTTERFIELD DIAL

late 17th Century
Signed Butterfield AParis with four hour scales for 52°, 49°, 46°, 43°, the outer divided 8-12-4, foliage motif, folding bird pointer gnomon, 32-point compass rose, the reverse with latitudes for 31 cities, in original fishskin case with green felt lining.
3 ½in. (8.5cm.) long in case
£5,000
A FINE SILVER BUTTERFIELD DIAL
The main plate for four chapter rings, signed by finely engraved folding bird gnomon Butterfield a Paris, blued steel needle and reverse engraved with latitudes for various European cities, contained within original plush-lined leather box of issue with silver hooks and securing catch -- 3½in. (9cm.) wide
Solid Silver Pocket Sundial & Compass Made by Michael Butterfield
This solid silver horizontal pocket sundial was made in France by Michael Butterfield (1635 – 1724) and signed 'Butterfield AParis'. This is a sophisticated sundial Instrument consisting of an octagonal plate on which the shadow is cast through an adjustable quadrant , carried on a folding hinged gnomon and supported by a form of a small bird. The dial chapter includes four sets of engraved scales alternating in Roman and Arabic numeral made for latitudes of 43, 46, 49 and 52. The dial incorporates a recessed compass with glass cover and a fine blued steel compass hand. Engraved on the reverse side are the names and latitudes of 26 European cities.

8. CARY, J & W

CARY'S NEW CELESTIAL GLOBE ON WHICH are carefully laid down, the whole of the STAR AND NEBULE, contained in the Catalogues of Wallaston, Herschel, Bole, Piazzi, Zach & Co. calculated to the Year 1820, Made and Sold by J & W Cary, No.181 Strand, London 1818. A Fine 38cm (15inch) Celestial Table Globe.

The sphere with twelve gores printed with the constellation figures, cartouche with printed title
A very attractive globe, mounted within brass meridian, on contemporary ebonised wood stand with horizon ring with printed calendar and zodiac scales 22in (56cm) high.

£6,000

The Cary family firm was regarded as England's leading globe publishers from the early 1790s to its closure in 1850. It was run by brothers John and William Cary. John Cary (c. 1754-1835) was the engraver and businessman, while William Cary (c. 1760-1825) specialized in making mathematical instruments. The celebrated Cary family of cartographers and globe makers produced some of the greatest late Georgian globes, and are often considered the best 19th century British globe maker. The firm was started in the late 18th century by John Cary, who often worked in partnership with his brother William Cary, a scientific instrument maker (selling as J. & W. Cary).
The Cary brothers moved their business to 86 St. James's Street in about 1820, leaving the premises at 181 Strand to John Cary's sons George (c. 1788-1859) and John Jr. (1791-1852). While most J. & W. Cary globes were produced from 1791 to 1816, in the 1820s some Cary globes were still issued under that name. Meanwhile, the family also produced a variety of globes under the name G. & J. Cary from the 1820s to about 1850. In 1850, George Frederick Cruchley, a map seller, took over a portion of the Cary business and produced maps and globes from 1850 to about 1876.

9. CASATI, PAOLO

Fabrica, Et Uso Del Compasso Di Proportione, Dove Insegna À Gli Artefici Il Modo Di Fare In Esso Le Necessarie Divisioni, E Con Vari Problemi Usuali Mostra L'utilità De Questo Stromento

First edition.

Bologna, Giovanni Battista Ferroni, 1664, 4to, title with woodcut device, woodcut diagrams, initials, head- and tail-pieces, 4 folding engraved plates, 2ff. errata at end, title with small paper overslip changing "Del Molto" to "Il Molto",

£1,250

Born in Piacenza to a Milanese family, he joined the Jesuits in 1634.

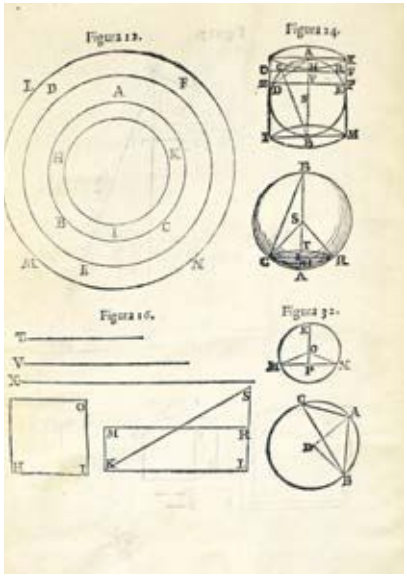
Casati was professor of mathematics at the Jesuit Collegio Romano and then at the university of Parma. This work, one of many that he wrote, is a consolidation of Galileo's work on the compass; it was reprinted three times before the end of the seventeenth century.

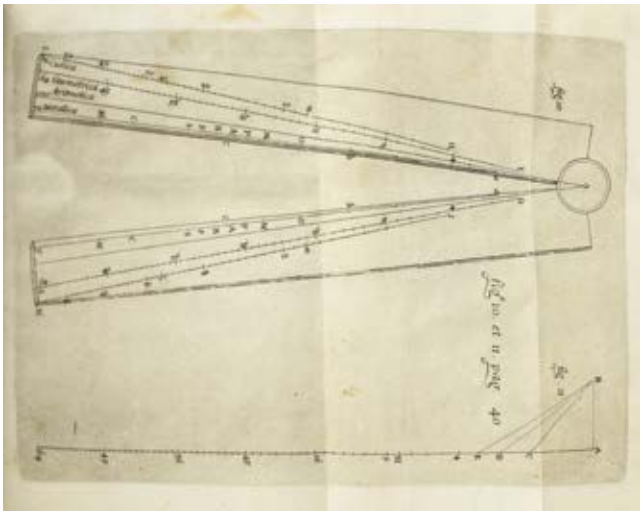
"...It not only contains good descriptions of usage, complete with many examples, but also discusses the manufacture of the device with two major foldout diagrams that could be used as patterns for the scales. Unlike many such works that state the method of usage but then give very simple problems involving triangles (for example), Casati provides the reader with realistic problems involving regular shapes" (Tomash & Williams, p.259).

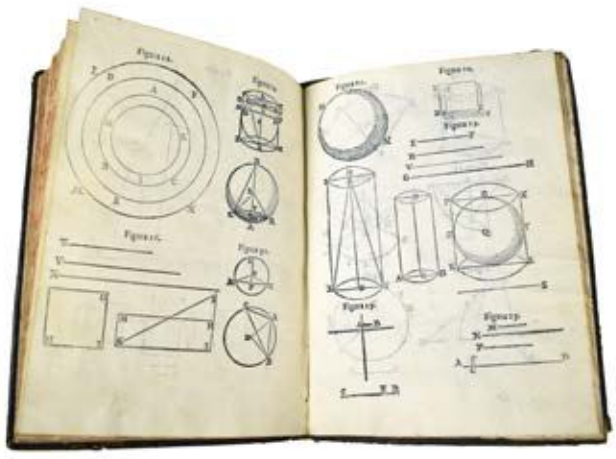
Riccardi i, 271; Tomash & Williams C32],

Provenance: Grigorius Vivvarellus (early ink signature to title).


FABRICA, ET VSO
Del Compasso di Proportione,
Dove insegna à gli Artefici il modo di fare in esso le necessarie divisioni,
E con vary Problemi vsuali mostra l'vtilità di questo Stromento,
DEL MOLTO REV. P. PAOLO CASATI della Compagnia di GIESV',
Dando le ragioni, & apportando le dimostrationi di tutte le operationi nella Fabrica, e nell'Vso.
OPERA VTILE







10. CLAVIUS (CHRISTOPH)

In Sphaeram Ioannis de Sacro Bosco. Commentarius Nune quinto ab ipso Auctore hoc anno 1606, recognitus, & perilsq. in locis loculpletatus. Accessit Geometrica, atque, Vbetruna de Crepusculia Tractatio.

Rome, Zanetti for Joannes Paulus Gellius, 1607, 4to, Contemporary limp vellum, manuscript title on spine, printed title in red and black and with large woodcut of an armillary sphere, woodcut diagrams and illustrations in text, woodcut tail-pieces and decorative initials, contemporary ink marginalia throughout and notes to endpapers, occasional discolouration to text but overall a very attractive copy.
£6,000

Clavius (1538-1612), a member of the Jesuit order, was one of the most respected astronomers in Europe. He was the main architect of the Gregorian calendar (which we use today), and his astronomical textbooks were widely used for over fifty years. His commentary on the "Sphaera" of Sacrobosco, demonstrates his adherence to the geocentric model of the universe.

An Extraordinary Copy with six pages of contemporary notes to the endpapers by the Jesuit Astronomer Orazio Grazzi, mostly relating to the Supernova of 1604, known as **'Kepler's Supernova'**; discussions with the Austrian Jesuit Roman astronomer Christoph Grienberger about his observations of the same Supernova; and the writer's correspondence with Clavius. Numerous annotations throughout the text. References to other Astronomers such as Archimedes; Albumasar, one the most renowned astronomers of the middle-ages and others.
It is fairly certain that the author of the notes was the Jesuit Astronomer Orazio Grazzi of the Collegio Romano, who also had a long running dispute with Galileo.


CHRISTOPHORI
CLAVII BAMBERGENSIS
EX SOCIETATE IESV,
IN SPHÆRAM IOANNIS
DE SACRO BOSCO,
COMMENTARIVS.


IOANN. DE SACRO BOSCO.

The Supernova 1604 has long been referred to as "Kepler's Supernova," after astronomer Johannes Kepler, who was one of the first to observe it. "Brighter than all other stars and planets at its peak, it was observed by the German astronomer, who thought he was looking at a new star. What Kepler saw was actually an exploding star. This supernova posed a challenge to seventeenth-century astronomers, who found themselves observing something that contradicted all conventional wisdom about the cosmos.
The 1604 supernova was the last one recorded in the Milky Way to date.

SN 1604, also known as Kepler's Supernova, Kepler's Nova or Kepler's Star, was a Type la Supernova that occurred in the Milky Way, in the constellation Ophiuchus. Appearing in 1604, it is the most recent supernova in our galaxy to have been unquestionably observed by the naked eye, occurring no farther than 6 kiloparsecs (20,000 light-years) from Earth. Prior to the adoption of the current naming system for supernovae, it was named for Johannes Kepler, the German astronomer who described it in De Stella Nova.
Visible to the naked eye, Kepler's Star was brighter at its peak than any other star in the night sky, with an apparent magnitude of −2.5. It was visible during the day for over three weeks. Records of its sighting exist in European, Chinese, Korean and Arabic sources.

Johannes Kepler's original drawing from De Stella Nova (1606) depicting the location of the stella nova, marked with an N (8 grid squares down, 4 over from the left).
It was the second supernova to be observed in a generation (after SN 1572 seen by Tycho Brahe in Cassiopeia). No further supernovae have since been observed with certainty in the Milky Way, though many others outside our galaxy have been seen since S Andromedae in 1885. SN 1987A in

the Large Magellanic Cloud was visible to the naked eye.
Evidence exists for two Milky Way supernovae whose signals would have reached Earth c. 1680 and 1870 – Cassiopeia A, and G1.9+0.3 respectively. There is no historical record of either having been detected in those years probably as absorption by interstellar dust made them fainter.
The remnant of Kepler's supernova is considered to be one of the prototypical objects of its kind and is still an object of much study in astronomy.
Astronomers of the time (including Kepler) were concerned with observing the conjunction of Mars and Jupiter, which they saw in terms of an auspicious conjunction, linked in their minds to the Star of Bethlehem. However, cloudy weather prevented Kepler from making any celestial observations. Nevertheless, his fellow astronomers Wilhelm Fabry, Michael Maestlin and Helisaeus Roeslin were able to make observations on 9 October, but did not record the supernova. The first recorded observation in Europe was by Lodovico delle Colombe in northern Italy on 9 October 1604. Kepler was only able to begin his observations on 17 October while working at the imperial court in Prague for Emperor Rudolf II. The supernova was subsequently named after him, even though he was not its first observer, as his observations tracked the object for an entire year. These observations weredescribed in his book De Stella nova in pede Serpentarii ("On the new star in Ophiuchus's foot", Prague 1606).In Kepler's De Stella Nova (1606), he criticised Roeslin concerning this supernova. Kepler argued that in his astrological prognostications, Roeslin had picked out just the two comets, the Great Comet of 1556 and 1580. Roeslin responded in 1609 that this was indeed what he had done. When Kepler replied later that year, he simply observed that by including a broader range of data Roeslin could have made a better argument.

11. BRONZE SUN-DIAL - CUFF, JOHN

A Fine Twelve Inch Bronze Horizontal Pedestal Sun-Dial By John Cuff

Signed: J. Cuff London: Lat. 50- 30 degrees. c. 1750.
£1,800
A Fine Engraved Bronze Dial with sixteen point compass rose, hour scale IIII-XII-VIII, minute scale divided to two minute, solid gnomon, with an attractive coat of arms. John Cuff (1708-72) Optician, Master of the Spectaclemaker's Company in 1748-49, was one of the leading scientific instrument makers in eighteenth century London. A painting by the artist Johann Zoffany of John Cuff and his Assistant, 1772 hangs in the Royal Collection. George III commissioned Zoffany to depict John Cuff, the Fleet Street optician from whom he obtained microscopes. The painting displays the telescopes, dials, microscopes and spectacles in Cuff's workshop. The optician is grinding a lens with a lathe operated by a treadle. This dial is a fine example of a master craftsman.

12. H.R.H. KING WILLIAM IV'S SAILING TELESCOPE

A VERY FINE DOLLOND TELESCOPE, PRESENTED BY KING GEORGE IV TO SIR CHARLES PAGET

1821, with 2in. objective lens, silver plated fittings and interchangeable draw tubes signed Dollond London, each further engraved Commodore the Honble. Sir Charles Paget K.C.H. from his esteemed & beloved Sovereign George 4th, On Board the Royal George Yacht, Cowes Roads, Augst. 4th, 1821,
Contained within fitted mahogany box of issue - 40 1/4 in. (102cm.) diameter.
The tapering mahogany main tube with 2in. objective lens and single draw signed J&W Watkins/Charing Crofs/LONDON and further inscribed This glafs belonged to/His Majesty William the 4th/when he was at Sea/was given by him/to Lord Adolphus Fitz Clarence/who gave it to/Berkeley Paget/1831, the eyepiece with dust-slide (missing lens cap) -- 25¼ in. (64cm.)
£20,000

Sir Charles Paget (1778-1839) entered the navy in 1790 under the patronage of Sir Andrew Snape Douglas. He enjoyed rapid promotion and on 30th March 1803 he commissioned the large frigate Endymion, and commanded her for the next two years, cruising in the channel, the Bay of Biscay, and on the coast of Spain or Portugal.
In 1804 he captured four Spanish treasure ships from South America, gaining £26,000 prize money, much of which he spent on a country seat and a wife. Afterwards he commanded various frigates or ships of the line in the channel, and from 1812 to 1814 the Superb (74 guns), in the Bay of Biscay and on the coast of North America. Between 1817 and 1819 he was in command of the Royal Yacht George in attendance on the Prince Regent and was made a KCH on 19th October 1819. He continued his rise through the ranks until 10th January 1837 when he was made vice-admiral and commanded on the North America and West Indies station until his death from yellow fever at St Thomas, Jamaica, on 27th January 1839.
Jeremiah and Walter Watkins only worked between 1794 and 1798 from 5 Charing Cross, London, the partnership ending with Walter's death. Stocking a full range of optical and philosophical instruments of high quality, they were telescope makers by Royal Appointment to the Duke and Duchess of York and the Duke of Clarence, later William IV. The lot offered here bears a striking resemblance to the instrument held by the Duke whilst wearing his full dress naval uniform in the famous portrait painted by Sir Martin Archer Shee, circa 1800.

Lord Adolphus FitzClarence (1802-1856) was the seventh child (fourth son) of the happy-but-illegitimate family of five sons and five daughters created by the Duke of Clarence (later William IV) and the comic actress Dorothea Jordan at Bushy Park, Middlesex. Adolphus was sent to sea at the age of eleven, receiving his commission in 1821. In December 1826 he was made captain and had several commands before his father's coronation and thereafter he commanded the Royal Yacht until 1853 when he was promoted to flag rank. He died unmarried on 17th May 1856 at Newburgh Priory, Yorkshire.
The Hon Berkeley Paget (1780-1842), a politician, was the younger brother of Henry Paget (Marquis of Anglesey); Sir Arthur Paget; General Sir Edward Paget; and Sir Charles Paget, another naval officer who commanded the Royal Yacht prior to William and was given a fine telescope by George IV (please refer to sale 004 lot 109, 21 Oct 2009 in these rooms). It is presumed that Berkeley made the acquaintance of Lord Adolphus through his elder brother although in his own right he was a successful politician serving as MP for Anglesey from 1807 and later Milborne Port in 1820, and was a Lord of the Treasury between 1810-1826. Marrying well, he was well-connected in society and between this and his other illustrious brothers, was no doubt well acquainted with the Royal Family.

12. DOPPELMAYR

Globus Coelestis Novus Stellarum fixarum Loca secundum celeberimmi Astronomi Dantiscani IOHANNIS HEVELII, Catalogum ad anum Chr. 1730.. IOH GABR< DOPPELMAIERI.

Celestial Globe, Nuremberg, 1728, 32 cm, two sets of 12 gores from ecliptic to the poles. The axis runs through the celestial poles.

£25,000

This celestial globe by Johann Gabriel Doppelmayr was accurate for the epoch 1730 and drew on the star catalogue of Johannes Hevelius of 1690. Also depicted are the paths of several comets observed by Hevelius, Johann Kepler, Giovanni Cassini and John Flamsteed.

There were other German globe-makers in the early 1700s but Doppelmayr's globes dominated the German market until the end of the 18th century. They were revised in the 1750s and finally in 1792 by Wolfgang Paul Jenig (d. 1805), 42 years after Doppelmayr's death.

Long before he published his first celestial globe in 1728, Doppelmayr had taken a keen interest in astronomy, and he spent some time studying the subject in Leiden, one of the leading universities of the time.

After his studies he returned to his native town of Nuremberg, and, as a teacher, was very active in promoting new scientific ideas. In the early 1700s he had compiled several celestial maps, which had been published in various atlases by his friend Johann Baptist Homann. These maps were later collected and published in 1742 as the Atlas Novus Coelestis, for which Doppelmayr became well known.

He also translated several scientific works into German, including Nicolas Bion's L'usage des globes célestes et terrestres (1699) and John Wilkins's Discovery of a World in the Moone (1638), which advanced the relatively new theories of Copernicus and Galileo.

13. DUJARDIN, PIERRE

A very fine Painted Wood and Gilt Brass Diptych Dial

Paris, c. 1630, 3in. (7.5cm.) long
£18,000
unsigned and undated, leaf 1b with gilt painted floral decoration, gilt brass lunar volvelle with the hours alternatively polished and matt, painted red and blue lunar phase calendar, leaf 2a with gilt brass horizontal dial for 48° with hours alternatively polished and matt, four punched stars 16-point painted compass rose and blue needle, outer leaves with incised square decoration with gilt painted grooves to edges.
Some sundials from this workshop are signed Pierre Dujardin, one in the Adler Planetarium, Chicago, and another at the Museé national de la Renaissance (dated 1627). Others are occasionally found with a punched mark RF (such as at the Museum of the History of Science, Oxford Inv. 67063). The present dial shares the decorations and style of this workshop, and the punched stars may represent a maker's mark.

14. GELLATLY,J.

A Rare J Gellatly presentation 12-inch terrestrial table globe.

£3,000
Scottish, published 1856.
Cartouche printed "Gellatlys New Terrestrial Globe showing all the latest Discoveries Constructed and Engraved by J Gellatly Edinburgh 1856", the sphere mounted in a brass meridian, in horizon ring applied with printed calendar and degree scale, mounted, with silver plaque engraved Presented Through The Angus Club by J. Gellatly The Publisher to Jane Home Dux Highest Geography Class Forfar Academy 1856-7, raised on four turned mahogany legs with stretcher 19in (49cm) high.

15. A GILT BRASS EQUINOCTIAL RING DIAL

GERMAN LATE 17TH CENTURY

The instrument is finely engraved with decorative motifs, one quadrant graduated 0-90°, chapter ring I-XII-I-XII marked for every half-hour, the bridge with sliding pinhole gnomon on calendrical and

zodiac scales,
2in. (5cm.) diameter
£6,000

16. A FINE EXAMPLE OF GREUTER'S GREAT TERRESTRIAL GLOBE

GREUTER, Mattaeus. [Terrestrial globe]. In ista quam exhibemus Terreni Globi descriptione omnium regionum juxta et insularum ...

[Rome], Mattaeus Greuter, 1632. Large engraved terrestrial globe (49 cm diameter) on a brass spindle and ebony-stained wooden base, with 2 sets of 12 half-gores running from 80&730;N to 80&730;S and 2 polar callottes over a plaster-covered papier mâché sphere, unstained wooden horizon and meridian rings, both covered with manuscript paper rings. There are 4 cartouches with arms, figures and navigational instruments (and a depiction of the globe itself); 4 compass roses; two mythological figures and a sea monster; and numerous ships. Partly coloured in outline by a contemporary hand.
£85,000

One of the largest and most accurate terrestrial globes produced before 1650, serving to launch Greuter's short career as Italy's leading globe maker. Though mostly based on Blaeu's largest globe (state 1c of c.1618 or state 2 of 1622), it is more than just a copy. Greuter gives a much more detailed and more accurate depiction of Tierra del Fuego and also reflects the 1624 establishment of a Dutch colony in the present-day New England by labelling it "Nieu Nederland." Not intending his globe as a navigational instrument, he also omitted Blaeu's rhumb lines. Lake Ontario is depicted fairly well, but the other Great Lakes are merged into one enormous body. The Solomon Islands and The Solomon Islands and northern coast of New Guinea, explored by Jacob Le Maire and Willem Schouten in 1616, are depicted (as is "Willem Schouten Eylandt"). Like Blaeu's globe, it indicates the hypothetical coast of the still elusive Antarctica (the ephemeral Dutch sightings of Australia were not to solidify for another decade, but Antarctica shows a northward extension approximately in its place).

In the Pacific, a sea god riding on a spouting whale plays a lyre, while a nearby mermaid blows a shell trumpet. The cartouche around the note to the reader (the text used as the "title" in the present description) is flanked by a man with a spade and woman with a whip, together holding an armillary sphere. That around the note on the determination of longitude is flanked by two Ottomans, one with a quadrant and the other with a cross-staff. They both look up at an image of the globe itself, in its four-legged stand. These two cartouches are mirror image copies of Blaeu's, and the texts are based on Blaeu's (the former slightly revised and latter abbreviated in the middle). The scrollwork cartouches around the note on discoveries and around Greuter's new dedication (to Count Jacobo Boncompagni of Aquino) are new, the former with garlands of fruit and the latter topped by the dedicatee's arms. The text of the former is partly based on Blaeu's, but rearranged and with additions and omissions (Greuter's reference to "Cathaiæ et China" is new; both note Henry Hudson's discoveries). The paper on the horizon ring is drawn and lettered in manuscript, as usual. Although smaller than Blaeu's globe (68 cm), Greuter's is nearly as large as Van Langren's (1589) and Hondius's (1613), and larger than any other globe produced in the Netherlands at the time.

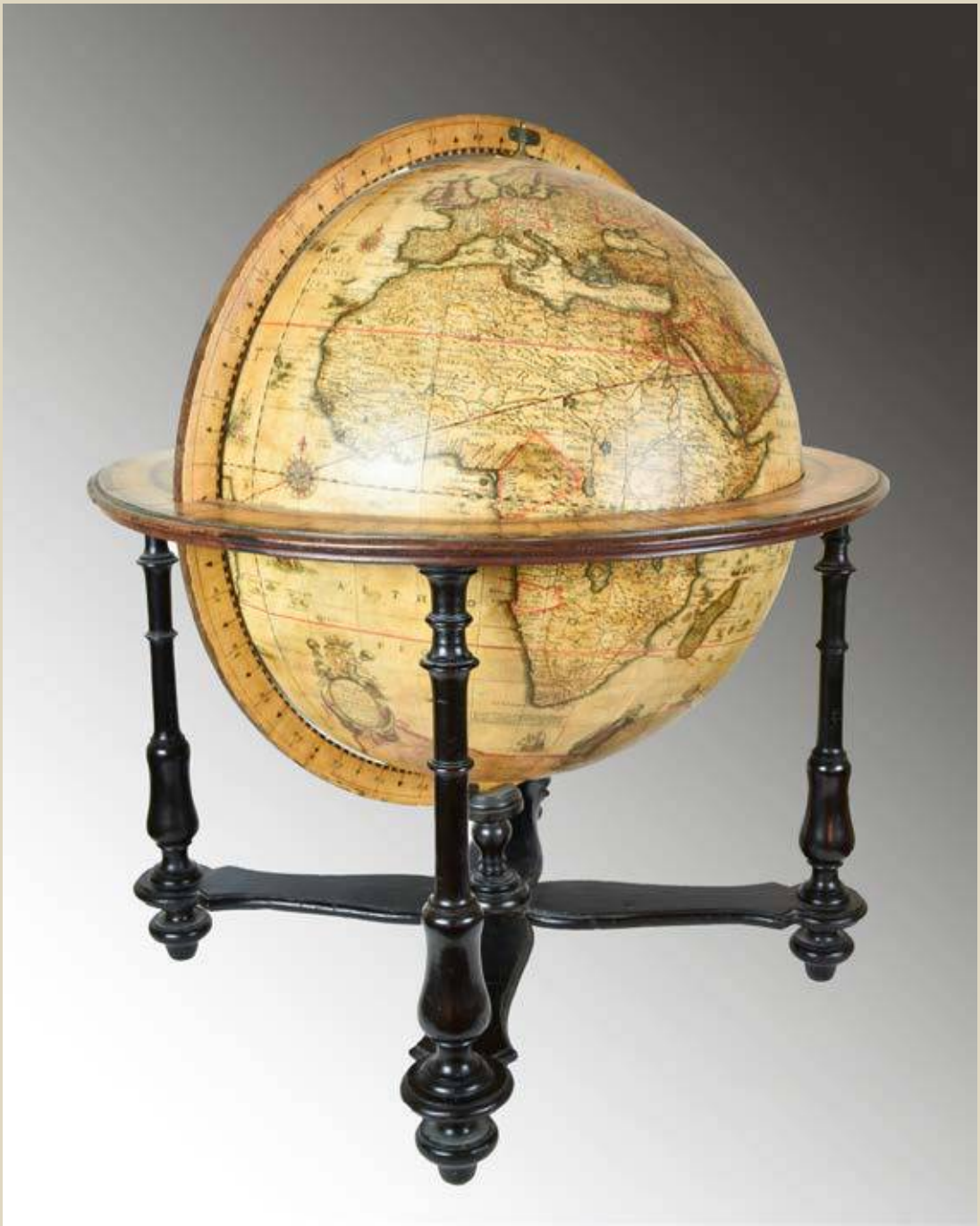
Blaeu produced his globe in 1617, but revised it soon after to include Le Maire's new discoveries in Tierra del Fuego and New Guinea. He rendered Tierra del Fuego in three different forms, the last in the globes issued c.1618 and later. While Greuter clearly copied most of Blaeu's globe, he renders Tierra del Fuego more accurately than any of the three Blaeu versions. The closest possible model is Hondius's 1629 map (Koeman & V.d. Krogt II, p. 604, map 9950:2A.1, with a small illustration).

Greuter (1566?-1638), originally from Strasbourg, went via Lyon and Avignon to Rome, where he set up (c.1615?) as a cartographic engraver and, beginning with the present globe in 1632, as a globe maker. No other globe maker of his day successfully competed with the greatest masters of the Dutch Golden Age. He followed the present terrestrial globe with a celestial globe of the same size and a 26.5 cm pair, all in 1636. When he died in 1638, his plates went to the De Rossi family, who revised and reprinted the 49 cm globes in that year. They were still selling them, revised again, in 1695.

The stand has four turned legs supporting the horizon ring, with cross-pieces (without a base plate) connecting them and holding the turned central support for the meridian ring. The horizon ring is round. There is no hour ring or pointer. The manuscript paper ring covering the wooden horizon ring may be an eighteenth-century addition (the literature records copies with brass meridian rings and wooden ones, the latter both plain and with manuscript paper rings). Otherwise the globe and stand appear to be complete and original, though the manuscript horizon ring has an additional note dated 1712. The British Isles, the Holy Roman Empire, Antarctica and several regions in North and South America, Africa and Asia are coloured in outline in orange, also used for the tropics and polar circles and to highlight certain features in the colouring of the decoration.

With a few cracks unobtrusively repaired, but generally in fine condition. An earlier owner had painted over most of the sea and even parts the land in blue, which luckily preserved the surface of the globe remarkably well. This blue and the darkened varnish have now been removed, revealing the globe in its remarkably well-preserved original state. One of the greatest and most accurate globes of the first half of the seventeenth century.

Dekker, pp. 344-347; V.d. Krogt, Globi Neerlandici, pp. 211-213; V.d. Krogt, Old Globes, Gre 4 & 5; Stevenson II, pp. 54-62, 261-263; World in your Hands 4.13; Younge, Early Globes, pp. 30-31; cf. Welt in Händen VII/1 (1695 ed.); not in Fauser, Ältere Erd- und Himmelsgloben in Bayern.



17. AN IMPORTANT PAIR OF EARLY GLOBES

GREUTER, MATTAEUS & GIOVANNI BATTISTA ROSSI TERRESTRIAL GLOBE

Si Stampa da Gio:Batta de Rossi Milanese in Piazza Nauona Roma. Excudit Rome 1638 (at end of dedicatory cartouche).

26.5 cms table globe. Twelve copper-engraved full gores in original hand-colour clipped at 70 °. The two polar calottes are laid to the plaster-covered wooden sphere. The globe is mounted in a brass meridian ring, graduated in four quadrants. The wooden horizon ring has a paper ring in An early manuscript hand, with illustrations of the scales of degrees and the Zodiac, the signs of the Zodiac and eight compass points. The original mahogany furniture consists of four turned, tapered legs connected by two fretwork stretchers. The sphere is supported by a turned central column. Missing is the hour ring, commonly absent in globes of this age.

The engraving is clear and the general appearance and condition very good.

Published by Giovanni Battista de Rossi in Rome after 1638. 'Excudit Rome 1638'.

WITH

MATTAEUS GREUTER CELESTIAL GLOBE,

Rome, c. 1636, 26.5 cms. Table Globe, Stand is uniform with the Terrestrial Globe, made up of twelve copper-engraved paper gores, two polar calottes, reading in Italian, engraved brass meridian ring divided in four quadrants, horizon parchment plate with degree scales, and signs of the Zodiac, mounted to the quarter-sawn oak panel with delicate beaded outer edge.

On its triangular four-legged wooden stand the globe can be adjusted and rotated. The star map used for this globe is based on the new observations made by the Danish astronomer Tycho Brahe. The celestial globe is a three-dimensional model of the heavens on which the stars are plotted on the outside of a sphere.

The Cartouche on this globe displays the following text in Latin : "On this celestial globe, are mentioned the fixed stars. Their number is greater than before as greater was the amount of care and the method needed to carry out the work. The new constellations have been added with regard to the students. The constellations, in agreement with Astronomers' Prince, Tycho Brahé, and, in parallel with others' observations, have been laid out in conformity with the very degrees of latitude and longitude of the 1636 Anno Domini. Done in Rome by Matthaeus Greuter, 1636 "

£150,000

A FINE PAIR OF VERY SCARCE EARLY TABLE GLOBES

Only the second known example of Rossi's re-issue of Greuter's 1638 terrestrial globe.
One of the earliest printed cartographic depictions of the Great Lakes in more or less their correct form; the first naming of N.Amsterdam (New York) on a globe; the first time Lake Superior is given its current name on a globe.

Not a great deal is known about Matthaus Greuter. He published many religious and mythological scenes and is recognised for his elegant engraving style. Perhaps his most spectacular production was a large twelve-sheet map of Italy, considered one of the finest ever produced of the country. Stevenson (Terrestrial and Celestial Globes) notes that he was born in Strasbourg, but spent his earlier years working in Lyon and Avignon. He appears to have settled in Rome some time before 1632 (the date of his earliest globe) and the excellence of his engraving skills achieved him great recognition and standing amongst his fellow Italian artists. Greuter started globe making relatively late in his career and if we accept his date of birth as 1566, his first globe was published when he was 66 years old. This 50cm globe was of such high standard that Stevenson was prompted to write "So well did he perform his work that he is entitled to rank with the leading globe makers of the Netherlands". Certainly Greuter was strongly influenced by his Dutch counterparts, especially Willem Blaeu, whose globes Greuter copied. Stevenson notes that during the last six years of his life, Greuter went on to produce a 1636 celestial globe and a 1636 re-issue of his 1632 terrestrial globe. Then in 1638, Giovanni Battista Rossi released what Stevenson refers to as a "second edition of his globes of the years 1632 and 1636". Both globes were the same dimension as Greuter's earlier globes and both were dated 1636. Following Greuter's death in 1638, his globes were published firstly by Giovanni Battista de Rossi and later by another Rossi family member, Domenico de Rossi, a number of which are detailed in Elly Dekker's book Globes at Greenwich and Stephenson's Terrestrial and Celestial Globes.

Our example of Greuter's terrestrial globe was published in Rome by Giovanni Rossi following Greuter's death in 1638. Rossi's imprint appears on one cartouche while the date 1638 and Greuter's name are engraved in another. This example is significantly smaller than the other two Greuter globes produced by Rossi that year (noted above). Stevenson, unaware of our example, notes what he refers to as a "unique" example of this 1638 Rossi re-issue in the fine collection of the Hispanic Society of America, the only other known copy. The engraving style, geography and decoration of the Greuter / Rossi globe closely follow that of Blaeu's 60 cm 1622 terrestrial globe with a few significant differences, some of which were not noted by Stevenson.

Recent correspondence with Peter van der Krogt has established that another Rossi / Greuter globe the same size as our example and with the identical imprint, is held by the Maritime Museum of Rotterdam. This globe was first identified in van der Krogt's 1984 Old Globes in the Netherlands.

Our copy of the globe however differs significantly from both the Rotterdam example and the other larger Rossi / Greuter globes issued in 1638. Firstly Greuter (Rossi) names New York (N.Amsterdam), perhaps the earliest globe to do so and secondly 'L.Superior' is named for the first time on a printed globe. Perhaps the most significant difference however between the other Greuter globes and our example, is the latter's definitive depiction of all five Great Lakes, one of the first clearly recognisable depictions of these great American landmarks and the first on a globe. The other Greuter globes are geographically consistent with Greuter's 1632 globe and do not show the Great Lakes.

It seems highly improbable that Greuter himself issued any globes in 1638. This is evidenced by the fact that Rossi re-issued Greuter's 1632 and 1636 globes in 1638 as well as producing the Rotterdam edition in 1638 also. Indeed, it would seem from the 1638 date on Greuter's imprint, that the Rotterdam example was ready for publication when Greuter died. Rossi was left to release the globe for publication after Greuter's death, adding his own imprint. It would also seem that the Rotterdam example is in fact the first state of our globe and that some time after 1638 (probably after 1650 following the release of Sanson's 1650 map Amerique Septentrionale), Rossi updated the globe geographically to show the Great Lakes and 'N.Amsterdam' (our example).

Our globe maintains many of the features of Greuter's earlier globes, however the number of location names has been reduced. Furthermore, the dedication to Iacopo Boncompagni, which is present on the earlier globes, is missing here. The Boncompagni family was one of the better known and well-established families in Boulogne. Iacopo's great-grandfather was none other than Pope Gregory XIII, himself famous for his patronage of the Gregorian Calender.

According to Philip Burden in The Mapping of North America, the first map to depict Lake Superior was Samuel de Champlain's 1632 map 'Carte de la Nouvelle France' (Burden 237). Champlain (the founder of the colony of New France) notes three of the Great Lakes referring however to Lake Superior as 'Grand Lac'. Although Champlain himself never sighted Lake Superior, he most certainly obtained information about its existence from the Frenchman Etienne Brule. It is noted that Brule accompanied Champlain to Quebec in 1608 where he was to become one of the most significant young explorers of the region. He is best known for his extraordinary path finding and scouting skills, which he no doubt learned during his twenty or so years of living with the Huron Indians. Brule soon became an invaluable translator and mediator between the Huron and Champlain's French camp.

In 1621, Brule became the first reported European to discover Lake Superior, succinctly described in the writings of the 'Recollet (Fransiscan) missionary Gabriel Segard: "The interpreter Brusle [sic] with several Savages assured us that beyond the Freshwater Sea [Lake Huron] there was another very large lake which empties into it by a waterfall, which has been called 'Saut de Gaston' [Gaston Falls, i.e. Sault Ste. Marie]."
From its first discovery, the French referred to the lake as 'Lac Superior' or 'lake above', referring to its relative geographical location above Lake Huron. Incidentally, Brule failed to receive the early recognition he deserved. His years of living with the Huron attracted the intense disapproval of Christian Jesuits, who frowned on his immoral ways. Furthermore, his previous mentor Champlain accused him of siding with the British and leading them up the St Lawrence during their 1629 capture of Quebec. Ironically, Brule's life ended unceremoniously at the hands of his former friends, who not only murdered him, but tragically, also ate him!
Burden states that Sanson's 1650 map 'Amerique Septentrionale' '...is, perhaps, most important for being the first printed map to delineate the five Great Lakes in a recognisable form.' In the next paragraph Burden goes on to say that 'Sanson's map is the first to name Lakes Superior and Ontario...' The only challenge to Sanson's depiction of the Great Lakes comes from Jean Boisseau's map 'Description de la Nouvell France', 1643. Boisseau also depicts the Great Lakes, however Lakes Michigan and Eerie are not presented in a clearly recognisable form.
For his information, Sanson relied on the accounts (Relations...) that the Jesuits published annually and disseminated to France and Italy – particularly in this case those of Father James Ragueneau.
From 1632 until 1660, it was customary for the Jesuits in North America to send back to Europe yearly accounts of day to day life with the native Indians.
The representation of the Great Lakes and New York on the Greuter / Rossi globe are the first such representations on a printed globe.
We also see on Greuter's globe an early attempt to delineate the territorial divisions of 'Virginia', 'La Florida','Nuova Mexico', 'N.Amsterdam and 'N.Seutia'.
Another area of significance is Greuter's depiction of the lands north and east of Japan. In a marked deviation from similar maps of the period, Greuter shows 'Estreito de Ieso' between 'Anian Reg.' north of Japan and a large landmass to its east (presumably Nova Albion). This landmass is itself separated from North America by 'Stretto di Anian'. This feature is not found on earlier Grueter globes, each which depicts the Anian Strait separating Asia directly from North America. Greuter's depiction of the Strait of Iesso, precedes the first printed depiction of the Strait on a world map, namely that of Michele Baudrand's wall map of the world published in Rome 1658. Of significance is the fact that another Rossi family member Giovanni Giacomo Rossi was the publisher of Baudrand's map.
Another geographical feature that does appear on the 1638 globe as well on his 1632 globe, is the distinctive representation of the island of 'Yezo.r' (Yezo Region?) north of Japan (current day Hokkaido). Greuter's 1632 depiction of Iesso as a distinct single island comes three years before Martino Martini's 1635 map of China and Japan, noted by Lutz Walter as the first such printed depiction on a map (Walter fig.36; see also M.681). This is in contrast to Eluid Nicolai's 1617 world map depiction where 'Ieso' is shown as an island albeit in two distinct parts. The Italian connection regarding this unique Iesso representation is as undeniable as it is understandable, given that the first European to set foot on Ezo and to note its island status was an Italian

Jesuit Gerolamo de Angelis in 1618. After returning to the island in 1621, Angelis tabled a report where he provided a manuscript map showing Ezo as a large island (see Walter Fig.83). Walter goes on to note that the first printed map to include the name 'Yezo' was by Christophoros Blancus and based on the "work of Ignacio Moreira, the cartographer who accompanied Valignano." Ed Dahl Sphaerae Mundi notes that Greuter was most probably influenced by Blancus' map, however it should be noted that Blancus does not actually show Yezo as an island.

Of further note is the graphic portrayal of California as an island on the 1638 Rossi globe. This is a new feature for Greuter globes and quite possibly the earliest such representation on a globe.

In stark contrast to Greuter's up-to-date work in North America, his representation of Terra Australis Incognita is anachronistic. Ignored totally are the recent discoveries in Australia, discoveries that had already started emerging on maps by both Hendrik and Jodocus Hondius, Jan Cloppenburgh and Danckerts/ Tavernier.

New Guinea's northern coastline runs parallel with the coast of Terra Australis Incognita as it slopes to the southeast towards South America. Greuter shows it extending far beyond the Solomon Islands. The 1616 voyage by Schouten and Le Maire is noted in several locations from Cape Horn to New Guinea including a notation south of 'Terra del Foco' and the charting of 'Staten Land', while above New Guinea 'Willem (Schouten) Eyland' is noted.

Other features of Greuter's globe include a graphic depiction of the Great Wall of China and the proliferation of sea monsters and galleons.

Stevenson pp.61-62, fig.103 (Hispanic Society of America's example); Sotheby's Important Clocks, Watches, Scientific Instruments Sale L00724, 19 December 2000, lot 443; See other globes by Greuter : - Elly Decker Globes at Greenwich; Van der Krogt Globes of the Western World; Ed Dahl Sphaerae Mundi pp.125-130.

18. HARRIS, JOSEPH

The Description and Use of the Globes, and the Orrery, by which is prefixed By way of introduction, a brief account of the Solar System.

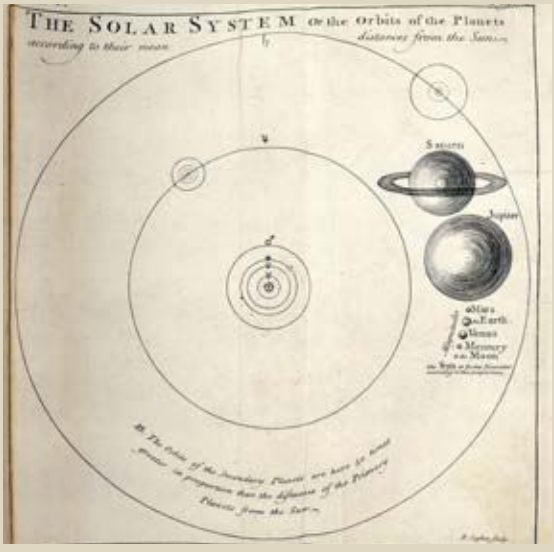
First edition.

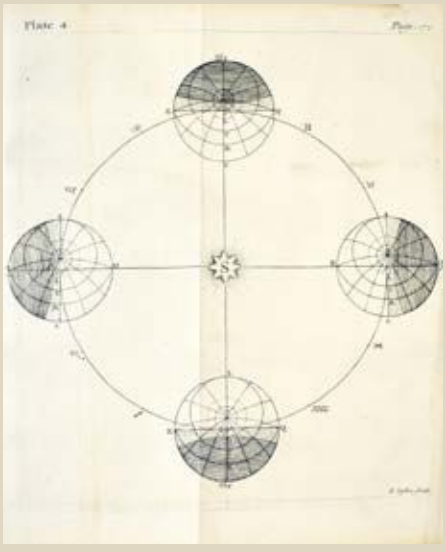
Thomas Wright and Richard Cushee, 1731,8vo, Contemporary panelled calf, with 7 folding engraved plates, woodcut decoration ,woodcut initials, head- and tail-pieces,

An expansion of Harris's 1703 work, including a lengthy description of the orrery.

£650

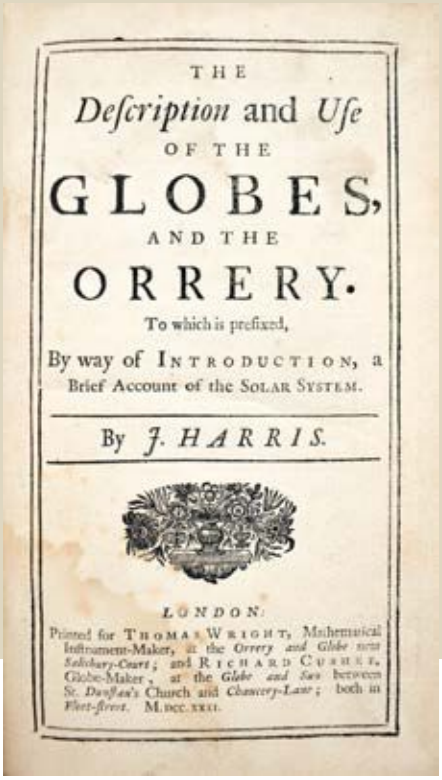
In about 1724 Harris moved in with John Senex (1678-1740), notable chart and map-maker. They co-operated to produce at least two star-maps, Stellarum Fixarum Hemisphaerium Australe and Boreale; in the plane of the equator; Harris name is writ large in the headline text, though the copyright remained in the hands of Senex, after his death his wife sold it. A copy of Harris's chart was in the library of Mme. Emilie du Chatelet, mistress and colleague of Voltaire, which may be the one now in the Bibliothèque Nationale de France and perhaps seized from her son's library when he was beheaded during the French Revolution. Although the pair of star maps in the plane of the equator are well represented in astronomy museums, there may also be a further pair in the plane of the ecliptic. It is likely that production of these charts was related to the premature, much contested and hotly resented publication by Halley and Newton of Flamsteed's long delayed observations of the stars. In the Australe chart Joseph commemorates Polish astronomer Hevelius and King Jan III Sobieski's defeat





of the invading Ottoman Turks in the 1683 Battle of Vienna, for the constellation Scutum is named Scutum Sobiescanum and illustrated with a glowing crucifix and the initials INRI. It is not easy to date the first publication of these charts, partly because the date 1690 too is large in the title and the facile tendency has been to take that as the publication date; but 1690 is before Harris was born and during the childhood of Senex. The most likely period for its creation is when Harris was working for John Senex, from January 1725 until he left on a voyage to Vera Cruz in June of that same year. When he returned from Vera Cruz in April 1728 Harris immediately started work on self-publishing his Treatise of Navigation and producing for Thomas Wright, instrument maker, his Description and Use of the Globe; and the Orrery. Wolfgang Steinicke in 'William Herschel, Flamsteed Numbers and Harris's Star Maps' says that these star-maps were still being relied on by William Herschel towards the end of the century.

[Tomash & Williams H22],



THE

Description and *Use*

OF THE

GLOBES,

AND THE

ORRERY.

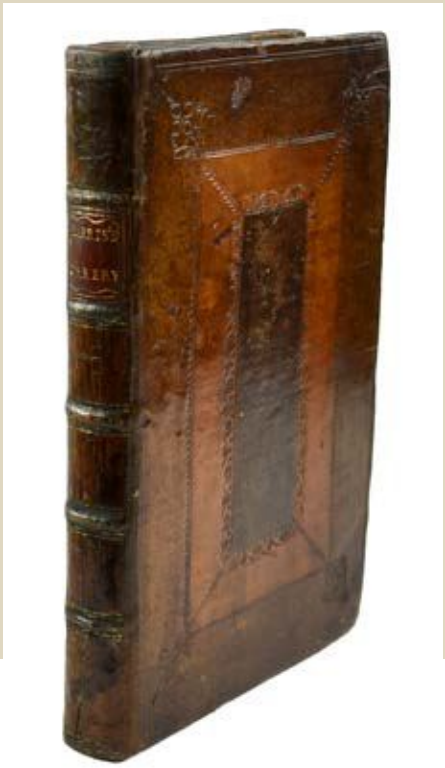
To which is prefixed,

By way of INTRODUCTION, a Brief Account of the SOLAR SYSTEM.

By *J. HARRIS.*

LONDON:

Printed for THOMAS WRIGHT, Mathematical Instrument-Maker, at the *Orrery and Globe* near *Salisbury-Court*; and RICHARD CUMBER, Globe-Maker, at the *Globe and Sun* between St. *Dunstan's* Church and *Chancery-Lane*; both in *Fleet-street*. M.DCC.XXXI.



19. HATTON, EDWARD

A mathematical manual or delightful associate containing a description of the celestial globe . . . terrestrial globe, ... all kinds of maps etc.,

A MATHEMATICAL

MANUAL:

OR,

Delightful Associate.

CONTAINING,

I. A Description and Use of the CELESTIAL GLOBE: How to know the Stars in each Constellation, and their Magnitude; also their Latitude, Longitude, Right Ascension, Declination, Semi-diurnal Ark, Rising, Southing, Setting, Altitude, Azimuth, Distances, &c. The Sun's Place, his Rising and Setting, Length of the Day and Night, &c. Also Dialling by this Globe.

II. Twelve Problems relating chiefly to the MOON: And a truer Way than has been given to find EASTER, &c. The Hour of the Night by the Moon shining on a Sun-Dial, &c.

III. A Description and Use of the TERRESTRIAL GLOBE, as to Climates, Zones, Shadows, Inhabitants, Latitude and Longitude of Places: And a large TABLE, shewing where all the most remarkable Places in the World may be placed on Dials, and the Bearing and Distance of each Places from *London*.

IV. A full Description and Use of all Kinds of MAPS: With a copious TABLE of the Latitude, Longitude, and Situation of the chief Cities on Earth: And many other curious Matters.

V. The Original of the Lines in a SECTOR described, with the full Use of that Instrument in Trigonometry, &c. in an Easy Natural Method.

VI. How to make a Line of NUMBERS, or LOGARITHMS, to any Length, and the full Use in all Parts of Arithmetic.

VII. MYSTERIOUS CURIOSITIES in Numbers: Or, Numerical NOVELTIES. In Twenty-five PROPOSITIONS, mostly New, and very Easy and Delightful.

VIII. How to take Heights, Depths, and Distances, great or small, by several Ways and Instruments. In Twelve PROPOSITIONS.

The Whole very USEFUL and PLEASANT.

Published for the Contemplation and Diversion of GENTLEMEN, and Others, who are *Mathematically* inclined.

By *E. HATTON*, Gent.

LONDON. Printed for S. ILLIDGE, under *Lord's* Gate, *Llandel's-Inn New-Square*. M.DCC.XXVIII.

First edition

S. Illidge, London, 1728, woodcut initials, head- and tail-pieces and diagrams, Contemporary panelled calf, preserved in custom box.

£750

An interesting work from an author who is known for his early survey of London. The Mathematical Manual includes: The description and use of the celestial globe; Astronomical problems, relating to the moon chiefly; containing rules for computing time; The description and use of the terrestrial globe; A description and use of maps; A description and use of the sector; The making, description, and use of the line of numbers, or logarithms, commonly called Gunter's-line; Mysterious curiosities in numbers; or, Numerical novelties; Instructions how to take heights, depths, and distances, several ways, great or small.

Provenance: John Rolle, 1st Baron Rolle (1750-1842, MP and subject of the satirical Rolliad); John Leigh Smeathman Hatton (1865-1933, mathematician and Principal of East London College) (bookplates)

[Tomash & Williams H77]

20. HILL, NATHANIEL. FL. 1746-1768. POCKET GLOBE

A New Terrestrial Globe.

[London: At the Sign of the Globe and the Sun], 1754.
A 3 inch (6.8 cm) diameter Nathaniel Hill pocket globe in fishskin covered wood case with two brass hook-and-eye clasps. 12 copper-engraved hand-coloured gores over papier-maché and plaster sphere, case lined with celestial maps of the northern and southern skies. Excellent condition.
£6500
The Terrestrial Globe shows New Holland, Dimens Land, New Zealand partly delineated, California as a peninsula, and the Northwest Coast of America as "unknown parts." The track of Admiral Anson (1740) is drawn, and the tradewinds are indicated by red arrows,
"Nathaniel Hill (fl. 1746-1768) had impeccable credentials. He was apprenticed to Richard Cushee who at that time was carrying out survey work for John Senex's map of Surrey. Hill, too,was initially a surveyor, working in Yorkshire, the Fens, and around London. There obviously is a strong link between surveying, making maps and globes, and engraving. Hill was involved in all three. Remarkably few globes by Hill have survived" (Globes and the Mechanical Universe p 57).
Dekker Globes from the Western World fig 56; Van Der Krogt Old Globes in the Netherlands Hill 1.

21. HOOD, THOMAS. 1556-1620

The Use of the Celestial Globe in plano, set foorth in two hemispheres: wherein are placed all the most notable Starres of heaven

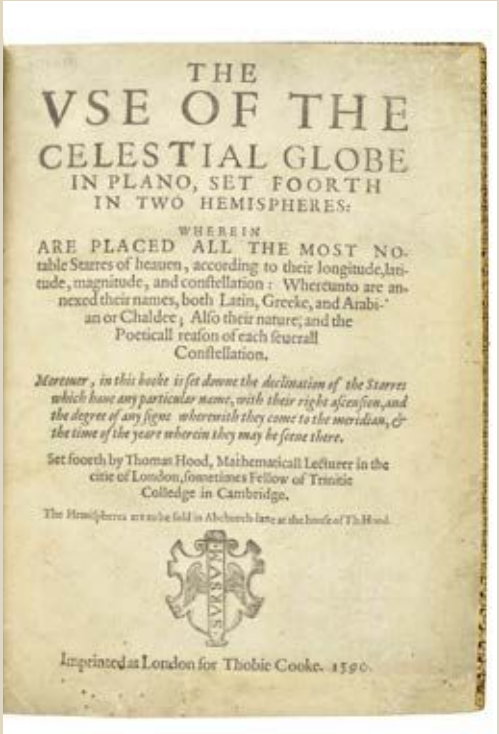
London: [by John Windet] for Thobie Cooke, 1590.
4to (185 x 133 mm). Letterpress title incorporating woodcut printers device, without the two folding star charts (only one set known). Title slightly soiled and lower margin carefully restored not affecting letters, Very light occasional spotting to early leaves. Red levant morocco, gilt, by Sangorski and Sutcliffe, covers with two line gilt ruled border, spine gilt in 6 compartments, gilt inner dentelles, g.e.

£4,850

A finely bound copy of one of Hood's rarest works, with just 4 examples appearing at auction in the last 80 years, and all of these copies were without the two folding celestial plates. Thomas Hood was an English mathematician and physician and the first lecturer in mathematics to be appointed in England in 1588. In later life he lived in London and practiced as a physician, selling copies of his celestial charts to add to his living. From 1597 he is known to have made a number of astrological instruments.

VERY RARE, only early edition of this work on the use of celestial globes. The text is in the form of a dialogue between a Scholar and Master and was intended to aid the student astronomer, cosmographer & navigator to recognize the stars and their constellations. It contains a table of stars listing their longitude, latitude, magnitude and constellation. There is also a description of the nova that appeared in Cassiopeia in 1572-4. This event was witnessed across Europe and attracted the attention of the best astronomers of the day, among them Tycho Brahe, who published his account in 1575. This new star initially reached the brightness of Venus. Hood recounts the various theories regarding this phenomenon (that it was one of the stars of Cassiopeia or a comet) with much of the argument centring on whether this new light moved or not. By showing that it remained fixed, Brahe proved that it was not an atmospheric disturbance, such as a comet, but a new star. While Brahe himself was not a supporter of Copernicus' theory, that the sun not the earth is at rest at the centre of the universe, his discoveries in relation to the nova made this theory easier to accept.

Hood (fl. 1582-1598), a graduate of Cambridge, held the first English lectureship in mathematics and was one of the first popularisers of the 'new learning'. This appointment was initiated and financed in 1582 by Thomas Smith, to whom this work is dedicated, and the lectures were given in the city of London. Smith was the first Governor of the East India Company, Governor of the Muscovy Company and Treasurer of the Virginia Company and a patron of science, trade and exploration. Hood's publications, which ranged from an English translation of Ramus' 'Elements of Geometrie' to a guide for mariners, as well as his inventions of mathematical instruments, show the wide scope of mathematics as a discipline in the late C16. He also lectured on geography and navigation. He is credited with popularising astronomy and the Copernican theory in England. This is the first of his two works on the celestial globe; the second was published in 1592 ('The use of both the Globes Celestial and Terestrial', London). In 1589 Hood was, with Hakluyt, one of the subscribers to Raleigh's Virigina Company; he invented a sector, ancestor of the slide rule and the calculating machine in 1598, the same year as Galileo.


THE
VSE OF THE
CELESTIAL GLOBE
IN PLANO, SET FOORTH
IN TWO HEMISPHERES:
WHEREIN
ARE PLACED ALL THE MOST NOtable Starres of heauen, according to their longitude, latitude, magnitude, and conſtellation: Whereunto are annexed their names, both Latin, Greeke, and Arabian or Chaldee; Alſo their nature; and the Poeticall reaſon of each ſeuerall Conſtellation.
Moreouer, in this booke is ſet downe the declination of the Starres which haue any particular name, with their right aſcenſion, and the degree of any ſigne wherewith they come to the meridian, & the time of the yeare wherein they may be ſeene there.
Set foorth by Thomas Hood, Mathematicall Lecturer in the citie of London, ſometimes Fellow of Trinitie Colledge in Cambridge.
The Hemiſpheres are to be ſold in Abchurch lane at the houſe of Th. Hood.
Imprinted at London for Thobie Cooke. 1590.

According to the title, one could also buy from Mr Hood himself at his house in Abchurch Lane 'two hemispheres' (22 inch square) to use with the present text. They illustrate the various constellations and stars by human and animal figures. Regrettably, however they were very rarely united with the book and where they have survived, they have generally done so separately. 'There is a copy in the British Museum, the text (without the plates) being in the Library, and coloured impressions of the two planispheres in the Map Department. This is the only copy noted in the STC. Bishop adds three further copies in America, i.e. Washington, New York Public Library and Charlotesville, of these Charlottesville alone has any plate, and then only the South Polar Region' (Hind I, p.142).

STC 13697 (4 libs. + Kraus in US) 'Tp has advt. for the sale of the hemispheres at the author's house in Abchurch Lane. They are eng. by A. Ryther and lacking in most copies'. ESTC s118875. Hind I, p.139. Houzeau and Lancaster 2785. Taylor 'Late Stuart and Early Tudor Geography', 346. Not in Honeyman.

22. ITALIAN ARMILLARY SPHERE

An Elegant Italian Armillary Sphere.

Italian brass armillary sphere, late 18th Century, Height 560 x Diameter 280mm. Unsigned. Horizon

ring labelled “CIRCVLVS PARALLELVS” and engraved with the names of the winds at the points of the directions “LEVANTE”, “SCIRROCO”, “MEZZOGIORNIO”, “LIBECCIO”, “PONENTE”, “MAESTRO”, “TRAMONTANO”, “GRECO”.
Ecliptic ring with the names and signs of the Zodiac; Meridian ring labelled “CIRCVLVS MERIDIANVS” and divided every ten degrees; Arctic Circle labelled “CIRCVLVS ARTICVS”, Antarctic Circle, colures, and tropic rings unlabelled.,
£15,000

A Very Fine Armillary Sphere in the style of the workshop of Domenico Lusuerg (1650- 1720). In 1677 he established a workshop near the Collegio Romano and had strong links with the Jesuits.

The Greek Astronomer Hipparchus (c. 190 – c. 120 BC) credited Eratosthenes (276 – 194 BC) as the inventor of the armillary sphere. The name of this device comes ultimately from the Latin armilla (circle, bracelet), since it has a skeleton made of graduated metal circles linking the poles and representing the equator, the ecliptic, meridians and parrallels. Usually a ball representing the Earth or, later, the Sun is placed in its centre. It is used to demonstrate the motion of the stars around the Earth. Before the advent of the European telescope in the 17th century, the armillary sphere was the prime instrument of all astronomers in determining celestial positions.
In its simplest form, consisting of a ring fixed in the plane of the equator, the armilla is one of the most ancient of astronomical instruments. Slightly developed, it was crossed by another ring fixed in the plane of the meridian. The first was an equinoctial, the second a solstitial armilla. Shadows were used as indices of the sun’s positions, in combinations with angular divisions. When several rings or circles were combined representing the great circles of the heavens, the instrument became an armillary sphere.
Armillary spheres were developed by the Hellenistic Greeks and were used as teaching tools already in the 3rd century BC. In larger and more precise forms they were also used as observational instruments. However, the fully developed armillary sphere with nine circles perhaps did not exist until the mid-2nd century AD, during the Roman Empire, Eratosthenes most probably used a solstitial armilla for measuring the obliquity of the ecliptic. Hipparchus probably used an armillary sphere of four rings. The Greco-Roman geographer and astronomer Ptolemy (c. 100–170 AD) described his instrument, the astrolabon, in his Almagest. It consisted of at least three rings, with a graduated circle inside of which another could slide, carrying two small tubes positioned opposite each other and supported by a vertical plumb-line.

23. KIRKWOOD, JAMES

A Kirkwood's 12-inch terrestrial table globe

Scottish, early 19th century, printed KIRKWOODS NEW TERRESTRIAL GLOBE WITH THE VERY LATEST discoveries, the hand coloured gores applied to the sphere and mounted within a brass meridian and horizon ring with printed calendar and zodiac scales, raised on four turned mahogany legs with stretcher 18in (46cm) high.

£3,500

A very scarce attractive Terrestrial Globe.

James Kirkwood is recorded as having made a limited number of globes in Edinburgh between 1804 and 1824.

This interesting globe brings up to date discoveries in the early nineteenth century, particularly in the Polar Regions and the Search for the North West Passage.

24. ROBERT MORDEN AND WILLIAM BERRY

A New TERRESTRIAL GLOBE. Made and sold by Robert Morden. and William Berry. at the Atlas neer the Royal Exchange in Cornhill and at the Globe between York House and the New Exchange in the Strand

London. [circa 1673]

A VERY SCARCE SURVIVAL OF AN EARLY ENGLISH GLOBE

The 14" globe is 21in. (53cm.) high and comprises twelve hand-coloured engraved gores and two polar calottes, supported in graduated brass meridian ring, fitting in horizon ring with engraved calendrical scales, the stand with four turned supports and bun feet.

£95,000

The cartouche with a second dedication to the Reader cartouche, graduated equator, ecliptic and meridian through the Azores, the continents decorated with animals and natives, the seas with ships, fabulous beasts, sea monsters and rhumb lines; no Antarctic continent, Australia partially delineated to West and North, some of van Diemen's land given, California as an Island, no Western nor Northern coasts to Canada, Southern Greenland as a series of Islands, China with rivers and major cities to the East of the Great Wall, peninsula of Korea, the tracks of the voyages of Drake and Cavendish are shown.

Although globes were of little practical use on board ships by the 17th century, they were nonetheless symbols of navigation, representing the world that sailors were attempting to explore. Reflecting this nautical theme, Morden & Berry have included navigational illustrations on their globe, such as ships, compass points and rhumb lines . More unusually, the globe also features the routes taken by two famous English explorers, Sir Francis Drake and Thomas Cavendish, during their voyages around the world. Successful explorers such as these were often celebrated as national heroes because the income of many European countries at this time was dependent on overseas trade, which necessarily required navigational skill. By including the tracks of Drake and Cavendish, this globe would have been part of the celebration of great English navigators, both recognising their achievements and encouraging other citizens to follow in their footsteps for the glory of the country.

Despite the celebratory function of this globe, the discoveries made by explorers presented something of a dilemma for globe makers. The authority for geographical knowledge of the world had previously been ancient texts, but incoming reports by sailors often contradicted the traditional views. Globe makers then faced a difficult decision about which information to trust. An inscription on this globe stresses the "late discoveries" and "celestiall observations of modern authors" used as sources of geographical information, suggesting that the makers preferred modern evidence to texts from antiquity. In this respect, the globe makers were perhaps influenced by the general intellectual trend in 17th century England to value experience and observation over ancient sources. This was a characteristic of the Royal Society, a prominent English scientific society founded in the 17th century, the work of which was certainly known to our globe makers.

Dunn, R. & Wallis, H. British globes up to 1850 (London, 1999).
Stephenson, E.L. Terrestrial and Celestial Globes (Yale, 1921).
The World in Your Hands: an Exhibition of Globes and Planetaria (London, 1994).
Not in Van Der Krogt. Old Globes in the Netherlands

25. PERPETUAL CALENDAR

A Brass, Silver and Ivory Perpetual Calendar and Aide-Memoire

Unsigned, German, circa 1700.
The six ivory plates with brass guards well engraved with acanthus scrolls and heraldic motif of three boar's heads, each side mounted with silver volvelle with apertures, 2¾ by 1⅞in (7 by 4.8cm)
£4,000

26. SHONER, JOHANNES

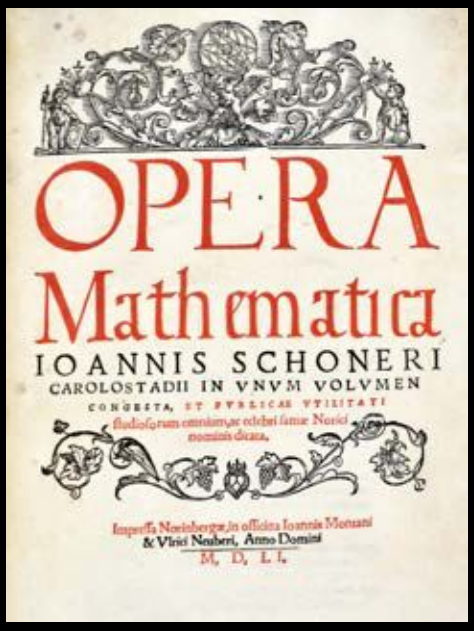
Opera Mathematica ..in unum volumen congesta.

Nuremberg: Johann Montanus & Ulrich Neuber, 1551.

Folio (320 x 200mm) , 3 Parts in one volume, Early Citron Morocco Gilt, Gilt Crest of the Duke of Devonshire on Upper and Lower Covers, title printed in red and black, woodcut ornament on title-page, portrait of the author, preface by Philipp Melanchthon, numerous woodcut illustrations throughout concerning geographical, navigational and astronomical subjects, astronomical instruments and Schoner's celebrated celestial and terrestrial globes, with 11 woodcut volvelles and 10 leaves with 34 printed discs for use on the volvelles.
A Splendid complete copy of this extremely scarce work.
£75,000
The First Edition of Shoner's most important work, his collected Astronomical works published after his death in 1547. This includes the Aequatorium Astronomicum of 1521 the earliest works to contain moveable discs. This original edition, of which there is only one surviving copy, published on his own press at Bamberg, was the inspiration for Peter Apian's extraordinary Astronomicom Caesareum of 1540.

'Shoner assembled a printing shop in his house in Bamberg. He himself set the type, carved the woodblocks for the illustrations, and bound the finished product. He also made his own globes and astronomical instruments.' DSB

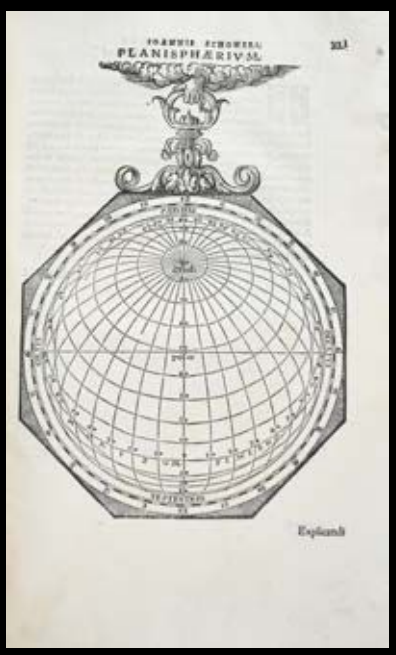
Johann Shoner, astrologer, astronomer, geographer, physician and author of forty-six books on these subjects was born in Carlstadt, Franconia in 1477 and received an education at Erfurt. He later taught at the Melanchthon Gymnasium in Nuremberg where he constructed a celestial globe for


OPERA
Mathematica
IOANNIS SCHONERI
CAROLOSTADII IN VNVM VOLVMEN
CONGESTA, ET PVBLICAE VTILITATI
studiosorum omnium, ac celebri famae Norici
nominis dicata.
Impressa Norimbergae, in officina Ioannis Montani
& Vlrici Neuberi, Anno Domini
M. D. L. I.

the Duke of Saxony, Johann Friedrich the Magnanimous (1503- 1554). This globe was constructed with the help of Georg Spalatin and represents a revision and correction of the known earlier globes. His terrestrial globe of 1515, after Martin Waldseemuller was the first printed globe to name the recently discovered continent of America, and his globe of 1524 was the first to describe Ferdinand Magellan's circumnavigation.
Schoner's celestial globe of 1533 is the oldest surviving printed celestial globe and is on display at the Science Museum in London. He is considered the most influential early globe maker, establishing Nuremberg as the European centre of the craft,and creating the idea of pairing celestial and terrestrial globes.
The Opera Mathematica opens with two extensive treatises , 'Isagodes Astralogiae Iudiciariae' and the 'Tabulae Astronomicae'. The four following treatises concern the composition and use of celestial and terrestial globes. Schoner's star catalogue, in the section 'Coelestis Globi Compositio' is an adaptioon of the star list published in 1543 by Nicolaus Copernicus in his 'De Revolutionibus'. The section 'De Usu Globis Terrestris' contains a splendid engraving of the author's globe of 1520.
The text refers to the voyages of Vespucci and mentions that the upper indies had been named 'Americus' after him. The voyages of Columbus, Marco Polo, Ferdinand Magellan are discussed and Schoner also mentions Cuba, Florida, Mexico, Darien, Jamaica and North America, referred to as Parias. Three chapters of this work are given entirely to discoveries in the Western Hemisphere, among them ' Brasiliae novae terrae annotation.'
The Opera Mathematica is Schoner's 'magnum opus' encapsulating all his theories and most important works. Perhaps the most influential of the Renaissance scholars, he is responsible for sending the Wittenberg professor, Rheticus to visit Copernicus and was instrumental in the publishing of 'De Revolutionibus'. The first printed celestial globe was made in Schoner's workshop in 1515 and he is remembered as one of the most important sixteenth century astronomers and globe makers. A crater on Mars is named in his honour.
This is a particularly splendid copy of the 'Opera Mathematica' , a work that is exceedingly scarce and the few copies that have appeared in the last fifty years have often lacked the important volvelles.

Provenance: Chatsworth House, Duke of Devonshire

Zinner 2033; VD16 S3465; Sabin 77805



27. SMITH, CHARLES & SON

SMITH'S CELESTIAL GLOBE Containing all the known Stars, Nebulae &c Compiled from the Works of WILLASTON, FLAMSTED, DE LA CAILLE, HAVELITS, MAYER, BRADLEY, HERSCHEL, MASKELYNE.

A Smith's 12-inch celestial table globe, English, mid 19th century,
the sphere with coloured gores printed within cartouche SMITH'S CELESTIAL GLOBE Containing all the known Stars, Nebulae &c Compiled from the Works of WILLASTON, FLAMSTEED, DE LA CAILLE, HAVELITS, MAYER, BRADLEY, HERSCHEL, MASKELYNE.
The Transactions of the ASTRONOMICAL SOCIETY OF LONDON SMITH & SON 63 CHARING CROSS, mounted within brass meridian and horizon ring, horizon ring printed scale, on stained wood stand, 18in (46cm) high.
£3,000

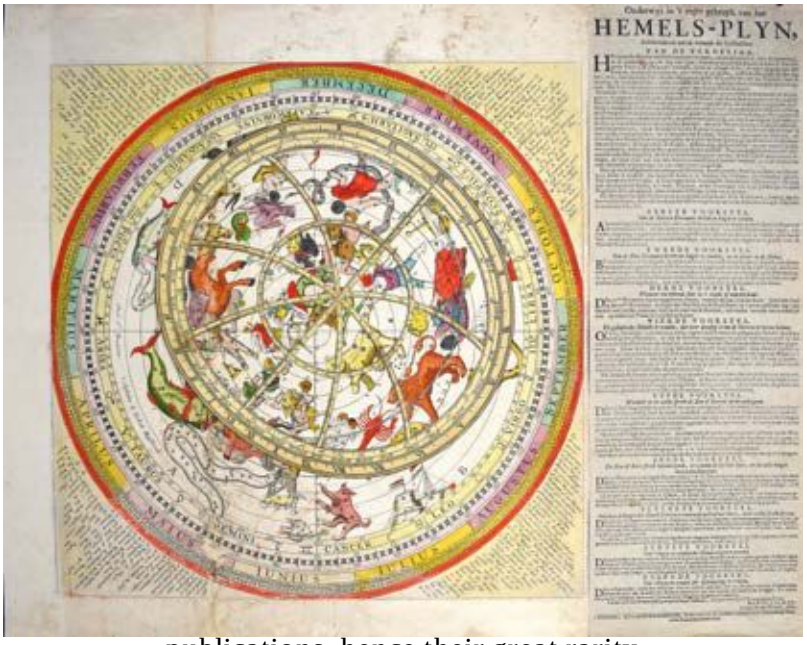
Charles Smith founded a publishing firm in 1799 and advertised himself as "engraver to the Prince of Wales" and initially started selling maps. Competition with the Cary company probably led to the addition of globes to their line of production. In 1845, when Charles's son entered the business, the range of published globes was extended to include a complete range from pocket to library globes. From 1827 the firm had a shop at 172 The Strand but moved to 63 Charing Cross in 1870.

28. STAMPIOEN, Jan Jansz the Younger - M. CALMAM

Onderwys in 't Regte Gebruyk van het Hemels-Plyn strekkende tot nut en vermaak der liefhebbers

Published by Jochem Hasebroek, Amsterdam, [c. 1722]
£12,500

Large engraved celestial chart with a rotating printed paper ring (volvelle or rete) on an off-centre axis to indicate the part of the sky visible at any date and time and to make a variety of celestial calculations, all for the Netherlands' latitude of 52 degrees.
With letterpress instructions by Calman on a separate printed slip at the right. The sky image 32.5 cm in diameter; the whole chart with the letterpress slip as mounted 56 x 66.5 cm. A string serves as a pointer for aligning the scales in the stationary and rotating parts. Coloured by a contemporary hand.
The chart is here in its third state, but we have located no complete example of any earlier version. The Boerhaave Museum in Leiden has the chart without volvelle or instructional text, published by Doncker, but the 1664 edition described in Doncker's advertisement clearly included the volvelle and instructional text. Perhaps the surviving chart is the 1684 version mentioned but not seen by Bierens de Haan, who provides neither a detailed description nor a source for his information. They and the present version (printed from Doncker's plate c. 1722) seem to have appeared only as separate



publications, hence their great rarity.

The circular border around the sky image and the outer part of the volvelle include scales with several kinds of data so that the chart can be used for various purposes. one can use the string to align the time in the volvelle with the date in the border of the chart, so that the part of the sky visible at that moment appears inside the volvelle. The chart with its volvelle, scales and string can also be used to calculate times for the rising and setting of constellations at various dates (or to calculate the present time based on the position of the stars). Fifty-three constellations are numbered quarter by quarter (15, 9, 14 and 15), with a Dutch key identifying them in each corner. Calman's instructional text, printed letterpress on a separate slip (495 by 185 cm) and mounted to the right of the chart itself, describes the different scales, etc., then presents nine "proposals" (giving examples of the use of the chart).

In the plate of the star chart itself is engraved, "Auct. J. Stampioen. 't Amsterdam by Iochem Hasebroek" but Hasebroek's name is larger and in a different style than the rest of the lettering, and one can see traces of an earlier name under it. Although the older name cannot be deciphered, one can see that "Hendrick Doncker" would fit (with traces of the h and Do, and marks where the ascenders to the d, k and k would have been), making it clear that the present chart is printed from Doncker's original plate. Calman advertised his Amsterdam boarding school for calligraphy, mathematics, etc. in 1722, and Hasebroek (1682- 1756) is recorded as a sea chart publisher and instrument maker from 1714 to 1743.

Koeman IV, p. 5 (no location noted; cf. p. 153); Warner, Sky Explored, p. 260, no. 1c (no location noted; cf. p. 247); Alder Planetarium on-line database A-259; cf. Bierens de Haan 4516 (1684 ed., not seen: see his Bouwstoffen II, pp. 386 & 429 note 5); E.O. van Keulen et al., "In de Gekroonde Lootsman," item 4 & illustration between pp. 64 & 65 (1680/1696 Vooght/Van Keulen ed.); not in BMC Printed Maps; Zinner, Astron. Instrumente; NCC/Picarta; OCLC WorldCat

29. VALK, GERARD AND LEON

Uranographia / caelum omne hic Complectens / Illa pro ut aucta / et ad annum 1700 Completum / MAGNO ab HEVELIO / correcta est / its, ejus ex Prototypis / sua noviter haec Ectypa / veris Astronomiae cultoribus / exhibet et conserant / Ger. et Leon Valk / Amstelaedamenses / Cum Privilegio. 1700

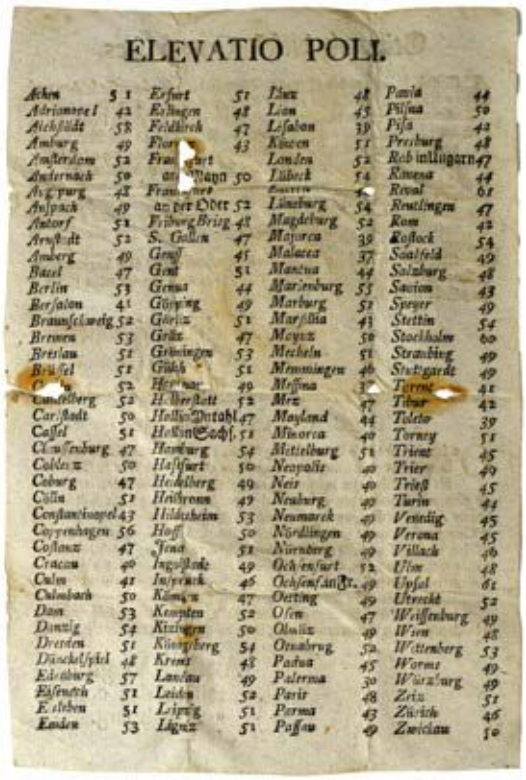
A Fine 31cm Celestial Globe
The sphere applied with printed and hand coloured gores with the stars highlighted in gold, the globe adorned with celestial figures, mounted in original brass meridian divided into four quadrants on the original stained oak stand, with four columns, supporting horizon ring applied with calendar, zodiac, and degree scales.
£30,000

The pageant of resplendent imagery featured on this celestial globe is derived from the celebrated work of the Polish astronomer Johannes Hevelius, the Uranographia (1687). A total of fifty-four stars and celestial groups, beautifully touched in gilt, are labelled, while the forty-eight Ptolemaic constellations and four of the modern constellations are depicted. Three southern constellations are featured, in addition to the Milky Way and the Magellanic clouds. A magnitude table is included, located below Corono Australis within a cartouche surmounted by the Sun.

The Valk family firm was one of the most highly respected and enduring manufacturers of globes and maps in Europe. Gerard Valk, the family patriarch, apprenticed in London in the 1670s under the mapsellers David Loggan and Christopher Browne. Following his return to Amsterdam, in 1687, he formally established his own business, often working in concert with his brother-in-law, Petrus Schenk. Valk and Schenk would famously go on to produce an edition of Cellarius' Harmonica Macrocosmica (1708). While Valk was initially known for his monumental wall maps, he was tutored in the exceedingly difficult craft of globe-making by Pieter Maasz Smit, who specifically praised Valk in his 1698 treatise on globe making.
In 1700, Valk moved his enterprise into the Amsterdam shop formerly occupied by the legendary Jocodus Hondius. Shortly thereafter, Valk published his own globe manual, 't Werkstellige der Sterrekonst, and issued the first pair of globes under his own name, at 12-inches in diameter. The Valk globes soon met with great acclaim, produced in a variety of issues: 3, 6, 9, 12, 15, 18 and 24-inches in diameter. It was not long before the family captured a virtual monopoly of the globe market. Around 1711, Gerard's son Leonard became a partner, and assumed control of the business following his father's death in 1726. After Leonard's death in 1746, globe production continued for a time under the auspices of Maria Valk. That same year, the company's catalogue advertised a pair of 12-inch table globes at a cost of 33 guilders. This was an immense sum, and indicative of the role of globes as true luxury items, geared to the intellectually sophisticated and culturally refined elite.
Van der Krogt, Val 43.

30. VOGLER, ANDREAS

A fine Octagonal Equinoctial Brass Dial



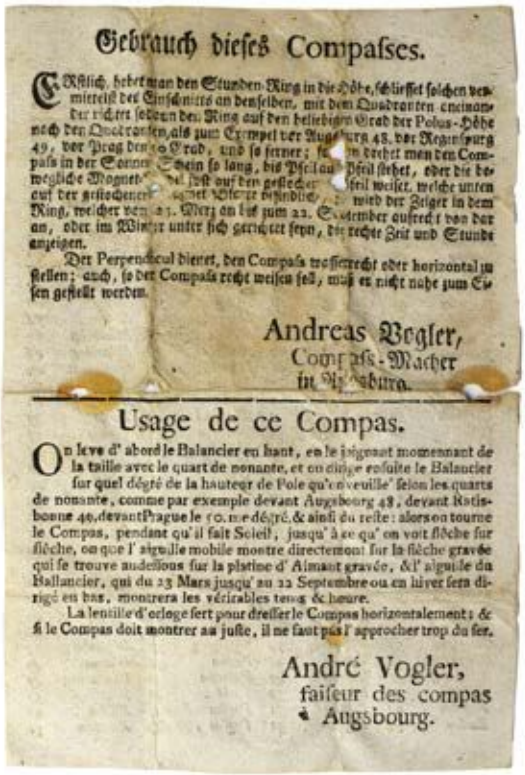
ELEVATIO POLI.

Aachen	51	Erfurt	51	Linz	48	Pavia	44
Adrianopel	42	Eslingen	48	Lion	45	Pisina	50
Aichstädt	58	Feldkirch	47	Lisabon	39	Pisa	42
Amburg	49	Florenz	43	Lucern	51	Presburg	48
Amsterdam	52	Frankfurt		London	52	Rab inUngarn	47
Andernach	50	an Meyn	50	Lübeck	54	Ravena	44
Augspurg	48	Frankfurt				Reval	61
Anspach	49	an der Oder	52	Lüneburg	54	Reutlingen	47
Antorf	51	Freyburg Brig	48	Magdeburg	52	Rom	42
Arnstadt	52	S. Gallen	47	Majorca	39	Rostock	54
Amberg	49	Genf	45	Malacca	37	Saalfeld	49
Basel	47	Gent	51	Mantua	44	Salzburg	48
Berlin	53	Genua	44	Marienburg	53	Savien	43
Berfalon	41	Göttingen	49	Marburg	51	Speyer	49
Braunschweig	52	Görtz	51	Marsilia	43	Stettin	54
Bremen	53	Grätz	47	Meyntz	50	Stockholm	60
Breslau	51	Gröningen	53	Mecheln	51	Strasburg	49
Brüssel	51	Gülch	51	Memmingen	46	Stutgardt	49
Cassel	52	Hamburg	49	Messina	38	Torent	41
Cantelberg	52	Hallerstatt	52	Metz	47	Tibur	42
Carlstadt	50	Hallo Dutahl	47	Mayland	44	Toledo	39
Cassel	51	Hessin Sachs.	51	Minorca	40	Torney	51
Clausenburg	47	Heydelberg	54	Mitilburg	51	Trient	45
Coblentz	50	Halsfurt	50	Neapolis	40	Trier	49
Coburg	47	Heidelberg	49	Neis	40	Trieft	45
Cölln	51	Hilbronn	49	Neuburg	49	Turin	44
Constantinopel	43	Hildesheim	53	Neumarck	49	Venedig	45
Coppenhagen	56	Hoff	50	Nördlingen	49	Verona	45
Costanz	47	Jena	52	Nurnberg	49	Villach	46
Cracau	40	Ingolstadt	49	Ochsenfurt	52	Ulm	48
Culm	41	Inspruck	46	Ochsenfanfurt	49	Upsal	61
Culmbach	50	Kempten	47	Oetting	49	Utrecht	52
Dam	53	Kempten	52	Ofen	47	Weissenburg	49
Dantzig	54	Kitzingen	50	Olmütz	49	Wien	48
Dresden	51	Königsberg	54	Osnabrug	52	Wittenberg	53
Düschelfchel	48	Krems	48	Padua	45	Worms	49
Edelsburg	57	Landau	49	Palermo	30	Würtzburg	49
Eisenach	51	Leiden	52	Parit	48	Zeiz	51
Elbogen	51	Leipzig	51	Parma	43	Zürich	46
Emden	53	Lignz	51	Paffau	49	Zwickau	50

Augsburg, German (c. 1740).
signed And Vogler, octagonal dial with hinged latitude arc, hour scale and gnomon, in shaped leather and card case and printed instructions in German and French, the dial 2in (5cm) wide
£1,250

This very rare 18th century brass equinoctial dial, signed on the base Andreas Vogler, with octagonal brass scroll pierced and engraved plate, glazed insert silvered compass with engraved compass rose, blued needle with brass cap, shaped hour ring with Roman chapters and gnomon, latitude arc 0o - 90o, glaze cover.The whole brass cover engraved with foliage scrolls, further set with a compass, the hour ring engraved with the Roman numerals I - IX and III - XII, with a brass pointer, the folding latitude engraved for 15-83 degrees, the back engraved 'Elev Poli Augsburg...” , signed And Vogler, Original Leather and Card Fitted Case.

With the single text leaf of Vogel's instructions to use the compass written in both German and French. On the verso the co-ordinates of 16o European cities are listed. Slight staining and small holes along fold line, without loss.



Gebrauch dieſes Compaſſes.

Erſtlich, hebet man den Stunden-Ring in die Höhe, ſchlieſſet ſolchen vermittelſt des Einſchnitts an denſelben, mit dem Quadranten zuſammen, richtet ſodann den Ring auf den beliebigen Grad der Polus-Höhe nach den Quadranten, als zum Exempel vor Augſpurg 48, vor Regenſpurg 49, vor Prag 50 Grad, und ſo ferner; ſodann drehet man den Compaſs in der Sonnen-Schein ſo lang, bis Pfeil auf Pfeil ſtehet, oder die bewegliche Magnet-Nadel juſt auf den geſtochenen Strich weiſet, welche unten auf der geſtochenen [illegible] Oerter befindlich, [illegible] wird der Zeiger in dem Ring, welcher vom 21. Merz an bis zum 22. September aufrecht von der an, oder im Winter unter ſich gerichtet ſeyn, die rechte Zeit und Stunde anzeigen.

Der Perpendicul dienet, den Compaſs troſſerecht oder horizontal zu ſtellen; auch, ſo der Compaſs recht weiſen ſoll, muß er nicht nahe zum Eiſen geſtellt werden.

Andreas Vogler,
Compaſs-Macher
in Augsburg.

Usage de ce Compas.

On leve d' abord le Balancier en haut, en le joignant momennant de la taille avec le quart de nonante, et on cinge enſuite le Balancier ſur quel dégré de la hauteur de Pole qu'on veuille' ſelon les quarts de nonante, comme par exemple devant Augsbourg 48, devant Ratisbonne 49, devant Prague le 50. me dégré, & ainſi du reſte: alors on tourne le Compas, pendant qu'il fait Soleil, jusqu' à ce qu' on voit fléche ſur fléche, ou que l' aiguille mobile montre directement ſur la fléche gravée qui ſe trouve audeſſous ſur la platine d' Aimant gravée, &l' aiguile du Ballancier, qui du 23 Mars jusqu' au 22 Septembre ou en hiver ſera dirigé en bas, montrera les véritables temps & heure.

La lentille d' orloge ſert pour dreſſer le Compas horizontalement: & ſi le Compas doit montrer au juſte, il ne faut pas l' approcher trop du fer.

André Vogler,
faiſeur des compas
à Augsbourg.