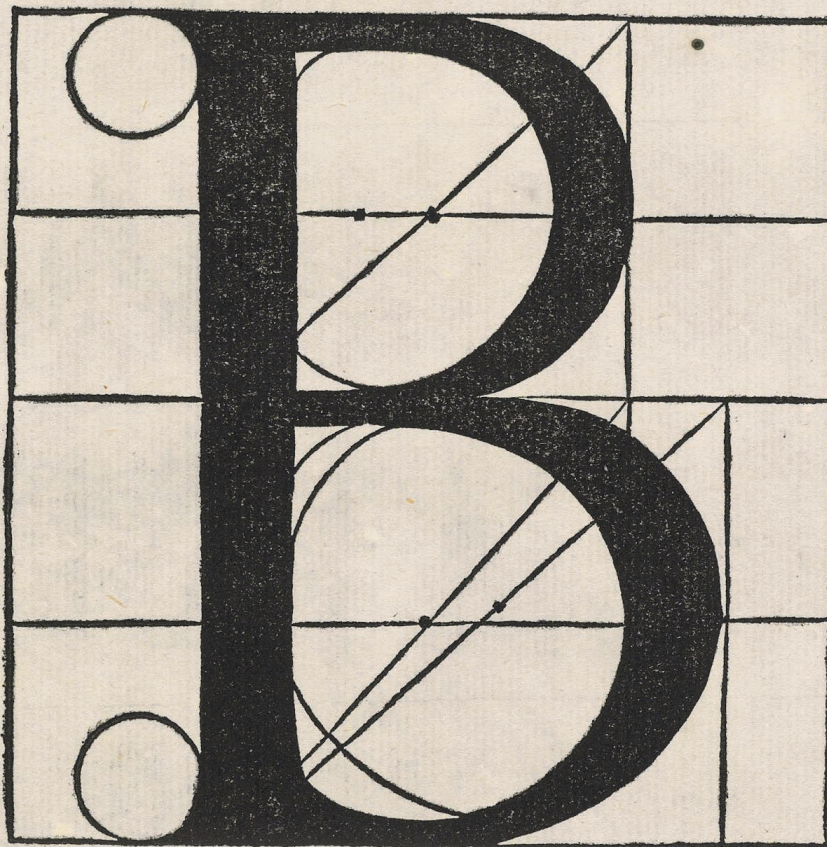


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13 July 2016

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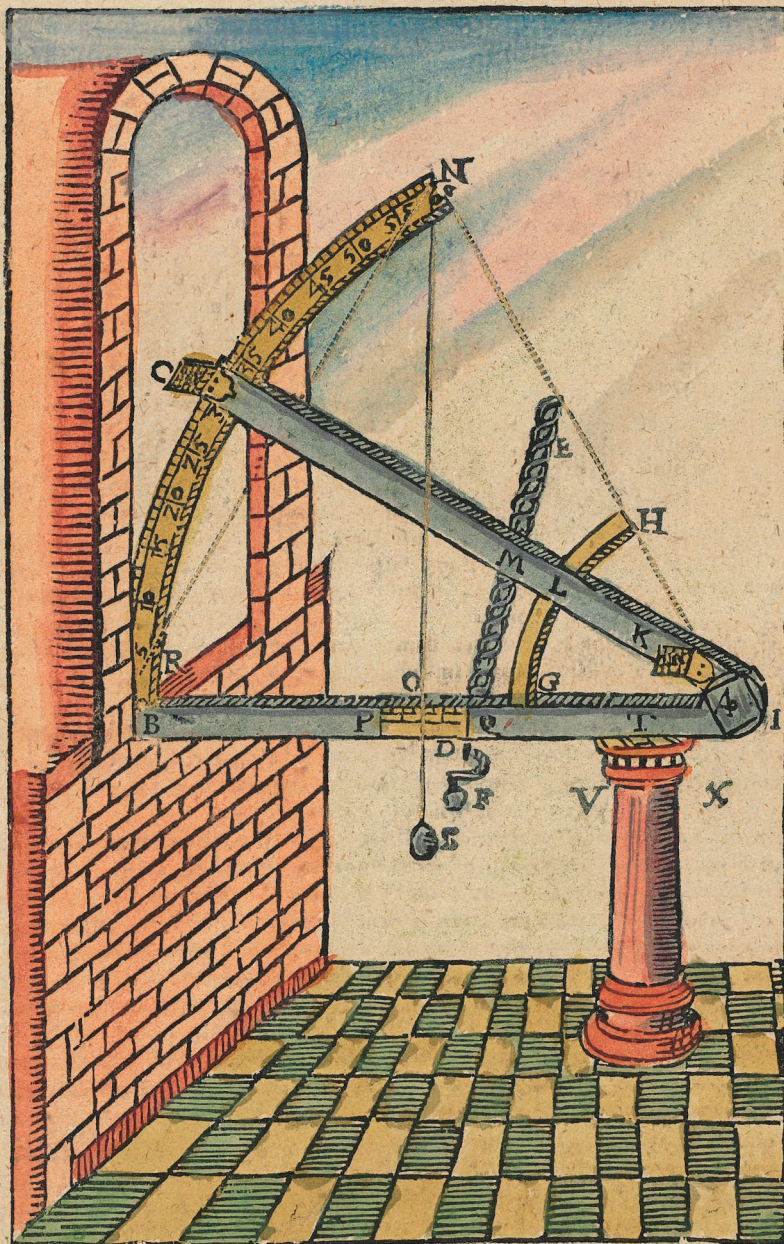
1627







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EXPLI-



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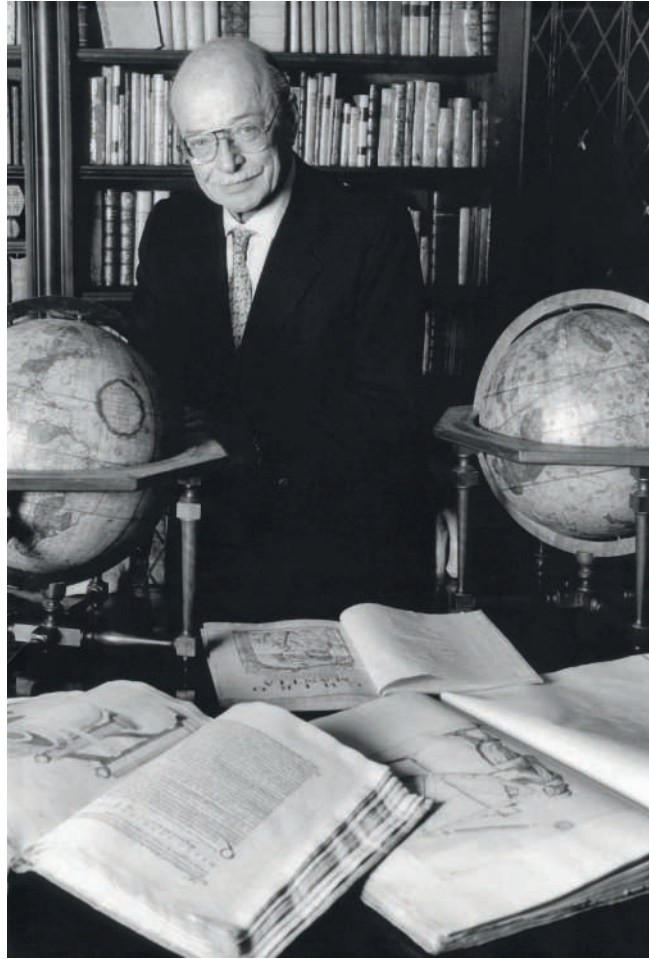
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Giancarlo Beltrame (1925-2011)

Giancarlo Beltrame was an exceptional personality, a world-class entrepreneur and a man schooled in the humanities and the sciences, with multiple and varied interests. He was one of the leading lights in Vicenza's post-war industrial rebirth: following in the footsteps of his grandfather Angelo and father Antonio, Giancarlo took the helm of the family company, founded in 1896, and recast it as one of the main players in the global steel industry. A complex person, he was both a man of great culture and an inspired businessman.

He collected scientific instruments, rare books, autograph letters and prints. His world-renowned scientific library includes some of the most important texts on astronomy – his all-encompassing passion – as well as on geography, mathematics, technology and medicine, but also philosophical works, esoteric texts and humanist literature. For years he sought these out throughout the world, taking part in international auctions and buying from booksellers far and wide, spurred on by eminent bibliophile scholars and friends with whom he shared his passion. He was particularly fascinated by the concept of time, and by the eternal dichotomy of *Eros* and *Thanatos*, Love and Death, as testified by the many books on this subject and the countless 'memento mori' in his collection. Giancarlo Beltrame used to say 'my soul is eternal, like iron' – linking his firm conviction of the immortality of the soul against the passing of time to what he knew better than anything else: steel. He founded an international centre dedicated to the study of the history of space and time ('Centro internazionale di storia dello spazio e del tempo') in Brugine, near Padua. In 2009, during the International Year of Astronomy, he contributed books, astrolabes and binoculars to the exhibition 'Della celeste fisionomia: mito fede e scienza' in the Biblioteca Bertoliana of Vicenza.

Giancarlo Beltrame was also a man of profound humanity and unexpected irony. Proof of this were his passion for dance and games, his curiosity for and love of every religion and the way he was eternally taken aback by children and artists who didn't wear a watch, noting that they were the only ones who lacked an obsession with the notion of time. He formed close relationships with his employees and had a profound love for his city, Vicenza – a city whose cultural or charitable initiatives he was always ready and willing to support. Inspired by this love, in 2015 Giancarlo Beltrame's son Antonio and daughters Patrizia and Angiola donated to the prestigious Biblioteca Bertoliana in Vicenza all the books from their father's collection that had been printed in Italy and of which no copy survived in Italian libraries, together with all the most important manuscripts – amongst them a 13th-century Parisian Bible written by Cambius of Vicenza and unusually bearing his inscription. The donation represents a highly important addition to Italian and Venetian public library collections, especially since many of the donated items were unique and had never before been studied: this gift, of great cultural value, was therefore rendered all the more important because of its future benefit to the public. In addition, the Beltrame family instituted an annual bursary dedicated to the memory of their father to support the study of the early scientific texts which Giancarlo Beltrame so cherished.

Grazie papà, grande amico dell'umanità,
Antonio, Patrizia e Angiola

Excellentissimi magistri alberti de
saxonia tractatus pportionum inci-
pit feliciter.

Proportio est accepta
est duorum partium in al-
quo termino uniuoco ad
inuisicem habitudo. Et
dicitur uniuoco quod licet sitius dicat a
cutus et similiter uox tamē quod acuties
non dicitur uniuoco de uoce et de si-
lo ideo sitius et uox non opant inuis-
icem in acuties. Unde non solemus di-
cere sitium esse acutiorem uoce nec
ita acutum nec eotra. Similiter li-
cet mel sit dulce et similiter uox tamē
quod dulcedo nō dicit uniuoco de dulce
dine mellis et de dulcedie uocis. ideo
mel et uocem in dulcedine non opar-
mus ad inuisicem. Proportio ppe ac-
cepta est duarū quantitatum eiusdē gene-
ris ad inuisicem habitudo. Quāitates
omēsurabiles dicūt quod est una mēsa-
ra cōis quibet istarū pēse mēsuras
sicut sunt quāitates iste .s. pedale bi-
pedale. semipedale en in aliquotiens
sumptū reddit utriūque istorū pēse.
Quantitates inmēsurabiles dicunt
quibet non est una mēsuras cōis quā
libet illarū pēse reddens sicut dy-
ameter quadrati et costae eiusdem. Un-
data aliqua quāitate que aliquotiens
sumpta pēse reddat diametrum illa
eandem uel sibi equalis aliquotiens
sumpta nūquam reddet pēse costarū
sed uel maius uel minus. et sic etiam
est de quāitate reddēte pēse costarū.
Proportio rationalis est duarū quā-
titarum omēsurabilium ad inuisicem

habitudo. Uel sic proportio rationalis
est que immediate potest denominari
ab aliquo numero. Proportio irra-
tionalis est duarū quantitatum inom-
mēsurabilium ad inuisicem habitudo.
Uel sic proportio irrationalis est que
non potest immediate denominari
ab aliquo numero sed immediate de-
nominatur ab aliqua pportione quod
immediate denominatur ab aliquo
numero sicut proportio que medietas
duplex nominatur qualis est proportio
diametri quadrati ad costam eiusdē.
Un si scribāt duo quadrati sic hōtis
quod costae maioris sic diameter mino-
ris istorū quadratorū ē proportio du-
plex ut potest scilicet declarari p pe-
nitimam pme geometrie. si quod quā-
tis est proportio laterū seu costarū qua-
dratorū duplicata talis est proportio
quadratorū ad inuisicem per decimā
octauam sexti geometrie sequitur p-
portionem costarū dictorum qua-
dratorum esse medietatem duplex et
quia costae maioris est diameter mi-
noris sequitur diametrum minoris
quadrati ad costam eiusdem se habe-
re in proportione que medietas du-
plex nuncupatur. Et dixi notanter in
secōa descriptione pportionis irra-
tionalis que nō potest immediate de-
nominari etiam nam licet medietas quod tri-
plex denominetur ab aliqua pportio-
ne non tamen ppter hoc est irrationalis
quod etiam potest denominari a nume-
ro cum medietas quadruple sit ppor-
tio duplex. Et differunt inuisicem p-
portio rationalis et irrationalis quia
proportio rationalis tam in omnibus
f

01

ALBERTUS DE SAXONIA (d.1390). *De proportionibus*. [Padua: Johannes Herbolt, de Seligenstadt, c. 1476-77].

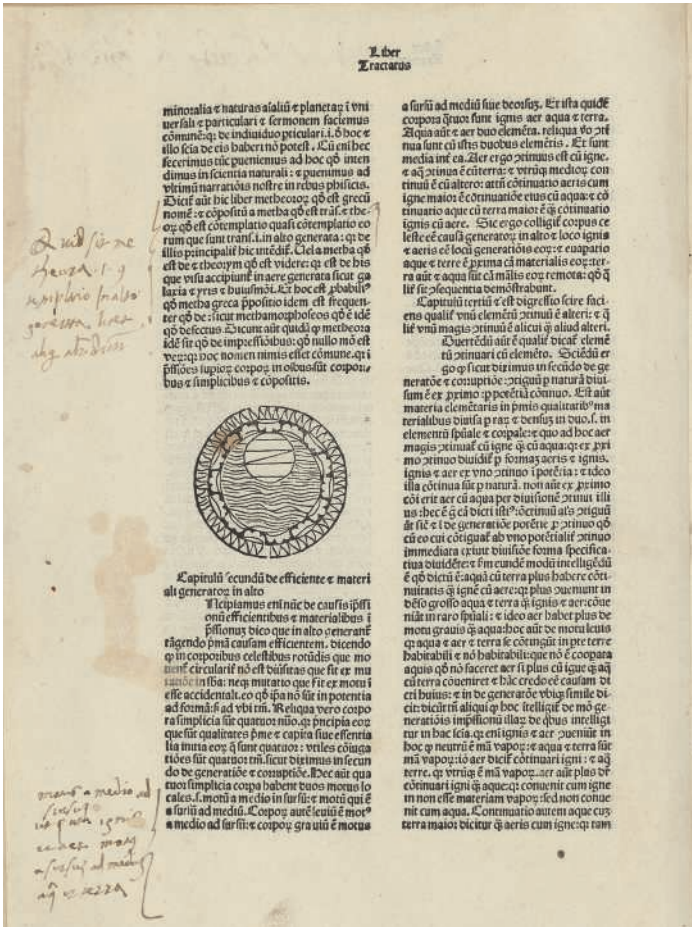
Chancery 2° (288 x 205mm). Collation: F¹⁰ (F1r text, F1ov blank). 9 leaves (of 10, without final blank as usual). 39 lines, double column. Type: 87G. 4-line initial spaces with guide-letter. (Some spotting, water-stain at upper outer corner, single marginal wormhole.) Modern blue morocco, spine lettered in gilt.

FIRST EDITION of a highly influential treatise on the mathematical analysis of motion. Albertus 'had the particular merit of bringing together the mathematical treatments of motion in its kinematic aspect ... with the dynamical theories that Buridan had developed' (DSB); he was the principal means of transmission of 14th-century scholastic contributions to the science of mechanics to later men of science such as Leonardo da Vinci and Galileo. RARE: one of only 6 copies known. C 210; GW 786a; IGI 244; BSB-Ink. A-134; Klebs 29.1; Smith(RaraAr) p. 9; Hunt 3721; Goff A-341.

£12,000-18,000

\$18,000-26,000

€16,000-24,000



63
ALBERTUS MAGNUS (c.1200-1280). *De duabus sapientis*. [Nuremberg: Caspar Hochfeder, c. 1493-96].

Chancery 4° (194 x 136mm). Collation: a-b⁶ (a1r title, a1v blank, a2r text, b6v blank). 12 leaves, 38 lines. Types: 1:83G, 2:168aG. 3- to 4-line initial spaces with guide-letter. Modern red morocco-backed marbled boards. *Provenance*: faint early inscription of an ecclesiastical library on title.

FIRST EDITION and the only one printed in the 15th century of this rare tract which was used as a standard reference book for many centuries. The last record for a copy selling at auction on ABPC/RBH is from 1984. Houzeau and Lancaster 1671; HC 483*; GW 718; Klebs 25.1; Voull(Bonn) 26; Bod-inc A-132; BMC II 474; BSB-Ink A-220; Goff A-243.

£20,000-30,000

\$30,000-44,000

€27,000-39,000

02

ALBERTUS MAGNUS (c.1200-1280). *De meteoris*. [Venice]: Reynaldus de Novimagio, 24 May 1488.

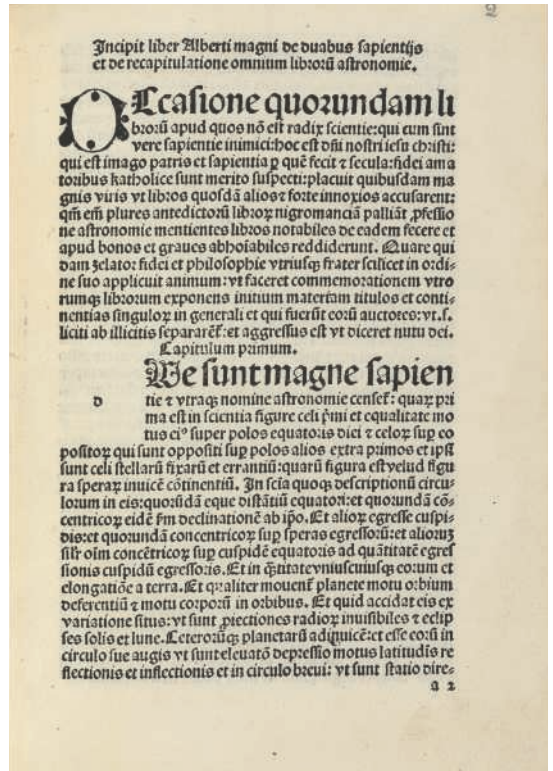
Super-chancery 2° (309 x 198mm). Collation: a-p⁶ q⁸ (a1 blank, a2r text, q5r table, q8r register, colophon, q8v blank). 98 leaves. Woodcut text illustrations. 56 lines and headline, double column. Type: 9:75G. 9-line initial space with guide-letter opening text. (Small marginal wormholes in first and final quires, repaired in first quire, occasional light spotting, small stain at extreme fore-margin repaired in several leaves, light stain in some gutters, final leaf with marginal repairs, a1.6 rehinged.) Modern vellum, titled in gilt on spine. *Provenance*: early substantive annotations in at least two Italian hands, one humanistic; early foliation.

FIRST EDITION. Albertus Magnus wrote his treatise on comets after he had observed the comet of 1240. He records its appearance, course and duration and sets out the classical theories on comets, principally those of Aristotle and Seneca, but also those of Arabic science, such as Haly, Algazel and Avicenna. RARE ON THE MARKET; no copy recorded at auction in over 40 years. HCR 513; GW 684; IGI 204; BMC V 258; BSB-Ink. A-1 59; Klebs 20.1; Sander 189; Goff A-277.

£15,000-25,000

\$22,000-37,000

€20,000-33,000



Sermo in manareth ꝛ super planetas.
¶ Et cum fuerit ꝛ transiens sup ꝛ significat illud vberementiam gaudiorum regis babilonie cum destructione inimicorum suorum et rectificatione plurium rerum futurum: et latrones invenire de censu inimicorum: et multas nubes. **¶** Cum fuerit transiens sup ꝛ significat illud inimiam aeris siccitatem. **¶** Cum fuerit transiens super ꝛ significat illud infocetum: et angustias consequi ciues nigredinis: et prosper esse ciuibꝫ babilonie: et multas comitades in armenia: et destructionis arabuꝫ cum multis terremotibꝫ: et bonu esse messium. **¶** Cum fuerit transiens super ꝛ significat illud salutes fore in plurimis regionibus et consequentium bonitatem cum incessante ventoruꝫ flatu. **¶** Cum fuerit transiens super ꝛ significat illud paucitatem humiditatum: siccitatem aeris.



Sermo in manareth planetarum super ꝛ.
¶ Et cum fuerit ꝛ transiens super ꝛ significat multos timores hominum: et odio se habere ad invicem: et maliciam esse mercationi cum multis pluvijs et contritijs et chorificationibus. **¶** Cum fuerit ꝛ transiens super eum significat illud pluvias fore et temperantiam earum. **¶** Cum fuerit ꝛ transiens super eum significat illud prosperum esse mercationum: et multas febres advenire hominibus et egritudines melancolicas: et caritias annonae et destructionem messium in armenia et fortasse reparabitur: et multas pluvias et humiditates. **¶** Cum fuerit ꝛ transiens super eum significat illud morte regis perse et romanorum: et multos latrones et abscissores viarꝫ mali ciuioꝫ: et interfectionem quam consequentur mercatores ab eis: et timores qui accidunt in pluribus ciuitatibus: et siccitatem cum ralditate ventorum. **¶** Cum fuerit ꝛ transiens super ꝛ significat illud superfluas humiditates et multitudinem earum.

¶ Et cum fuerit sol transiens sup venerẽ significat illud multa nubila et paucitatem pluuiarꝫ. **¶** Cum fuerit transiens sup mercuriuꝫ figit illud detrimẽta que aduenient scriptoribꝫ: et vilicia cum supfluitate pluuiarꝫ. **¶** Cum fuerit transiens sup lunam figit illud aduentuꝫ natiuitati cum multis rumoribꝫ: et riuulibꝫ: et bona aeris comitacione.



Sermo in manareth planetarum sup solẽ.
¶ Et cum fuerit venus transiens sup soles figit illud multos humores et supfluitate pluuiarꝫ. **¶** Et cum fuerit mercurius transiens sup eum figit illud incessante ventoruꝫ flatu et supfluitate humiditatuꝫ. **¶** Et cum fuerit luna transiens sup eam figit illud multas humiditates.

Sermo in manareth veneris sup planetas.
¶ Et cum fuerit veriꝫ transiens sup mercuriuꝫ figit illud mores regis babilonie et salutẽ plebi: et regẽ romanorꝫ facere exercitiuꝫ contra thurcos et terrã alhamey et eos depredare regna eorꝫ et impugna re eos: et supfluitate pluuiarꝫ et multas aquas et inundationes fluminuꝫ. **¶** Cum fuerit transiens sup lunam figit illud rãntia aeris et paucitatem pluuiarꝫ.



Sermo in manareth planetarum sup venerẽ.
¶ Et cum fuerit ꝛ transiens sup ꝛ figit illud bella cadere inter romanos et thurcos et romanos: et ciues in dẽtũ facere exercitiuꝫ contra armenia: et mouẽ: et flumina cadere in plura climata cum supfluitate pluuiarꝫ et rãntia earꝫ. **¶** Cum fuerit luna transiens sup eam figit illud prosperitate pluuiarꝫ et multas humiditates.

04

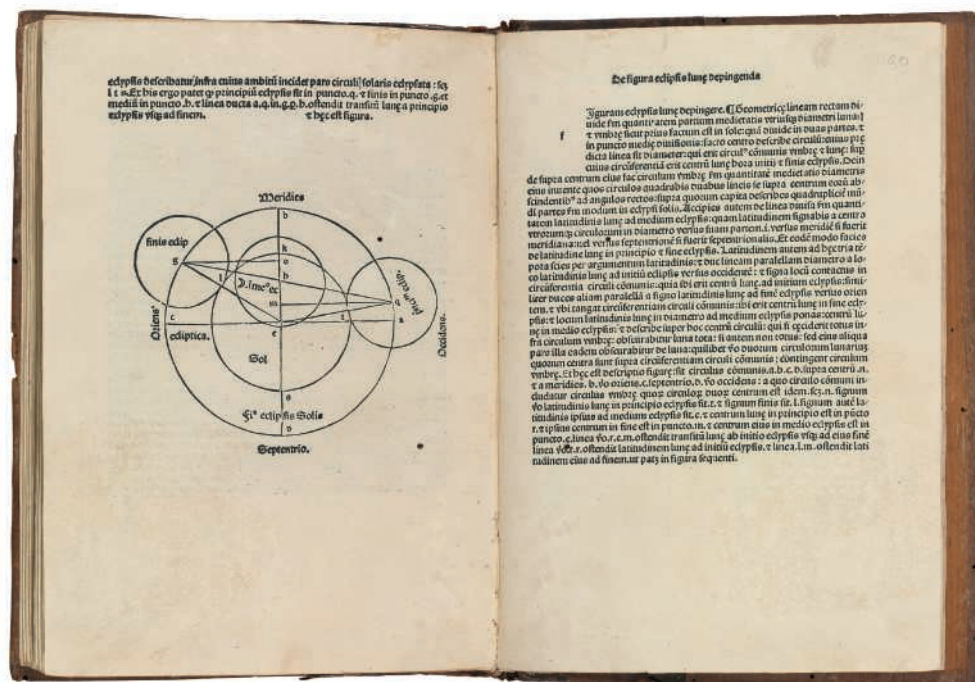
ALBUMASAR (787–886). *De magnis coniunctionibus*. Edited by Johannes Angelus, translated by Johannes Hispalensis. Augsburg: Erhart Ratdolt, 31 March 1489.

Super-chancery 4° (215 x 160mm). Collation: A-N⁸ O⁶ P⁸ (A1r title, verso blank, A2r text P8r colophon, verso blank). 118 leaves, 40 lines. Types: 9:130G; 8:90G; 4:76G. 286 woodcuts, some repeated, ornamental initials. (Old paper strip pasted over part of outer margin of title recto and verso of final leaf, outer upper corner of final leaf excised and repaired, lightly spotted.) Modern half vellum (sides with a few spots).

FIRST EDITION. Albumasar was the leading astrologer of his day. In this work he presents his thesis of creation based on the alignment of the seven planets. *De magnis coniunctionibus*, a translation of *Kitāb al-qirānāt*, is divided into eight ‘maqālāt’: the appearance of prophets and their laws; the rise and fall of dynasties and kings; the effects of planetary combinations; the effects of each zodiacal sign’s being in the ascendant; the lordships of the planets; transits; each zodiacal sign as ‘muntahā’ and as ascendant of the revolution of the year; and lastly the revolutions of the years and the ‘intihā’at’ (DSB). HC *611; GW 836; BMC II 383; BSB-Ink A-226; Bod-inc A-153; Schreiber 3072; Houzeau & Lancaster 3819; Fairfax Murray German 26; Klebs 39.1; Goff A-360.

£10,000–15,000

\$15,000–22,000
 €14,000–20,000



65

ALPHONSUS X, King of Castile and Leon (1221-1284). *Tabulae astronomicae* - Johannes DANCK (fl. first half 14th century). *Canones in tabulas Alphonsi*. [Venice:] Erhard Ratdolt, 4 July 1483.

Median 4° (224 x 157mm). Collation: a-1⁸ m⁶ (a1 blank, a2r incipit, text of the Canons of John of Saxony, b3v supplement to the Canons of John of Saxony, c1r astronomical tables, m3r explanation of figure of solar eclipse, m3v woodcut diagram of solar eclipse, m4r explanation of figure of lunar eclipse, m4v diagram of lunar eclipse, m5r table of the latitude and longitude of principal European and North African cities, m6r colophon, m6v blank). 93 leaves (of 94, without blank a1). 41 lines. Type: 4:76G. White-on-black woodcut floriated capitals 2, 5 and 8. Incipit printed in red. (Marginal repairs in first quire and last 2 leaves touching text but with little loss, small wormholes in first and last few quires touching some letters.) Half blindtooled calf over old wooden boards, remboitage (a few wormholes, calf lightly rubbed, without clasp). *Provenance*: title written along bottom fore-edges in an early hand — initials 'N.A.' at end — stamps removed from first leaf.

FIRST EDITION of the Toledan Tables of the Cordoban astronomer al-Zarqali (c.1029-c.1087), known as the Alphonsine tables after the patron who commissioned their translation. This Latin version, which circulated widely in the Middle Ages, was translated from an earlier Spanish version that is now lost. It is the most famous of numerous translations commissioned by Alfonso X, 'el Sabio,' of Arabic scientific, legal, and magical treatises. Although the translation contains new observations, made from 1262 and 1272, it follows the overall format of al-Zarqali's compilation and adheres to the Ptolemaic system for explaining celestial motion. The present text follows a revised version of the tables completed in the early 14th century; Ratdolt prefaced it with the first appearance of John (Danck) of Saxony's almost equally popular canons, written in 1327, which completed the Alphonsine tables in several areas, including supplementary tables of the eclipses and several chapters on the latitudes of the planets. H *868; GW 1257; BMC V, 287; CIBN A-278; BSB-Ink T-6; Bod-inc A-220; IGI 399; Klebs 501.1; Redgrave 34; Houzeau & Lancaster 12487; Essling 302; Sander 277; Stillwell *Science* 14; Norman 36; Goff A-534.

£30,000-50,000

\$44,000-73,000

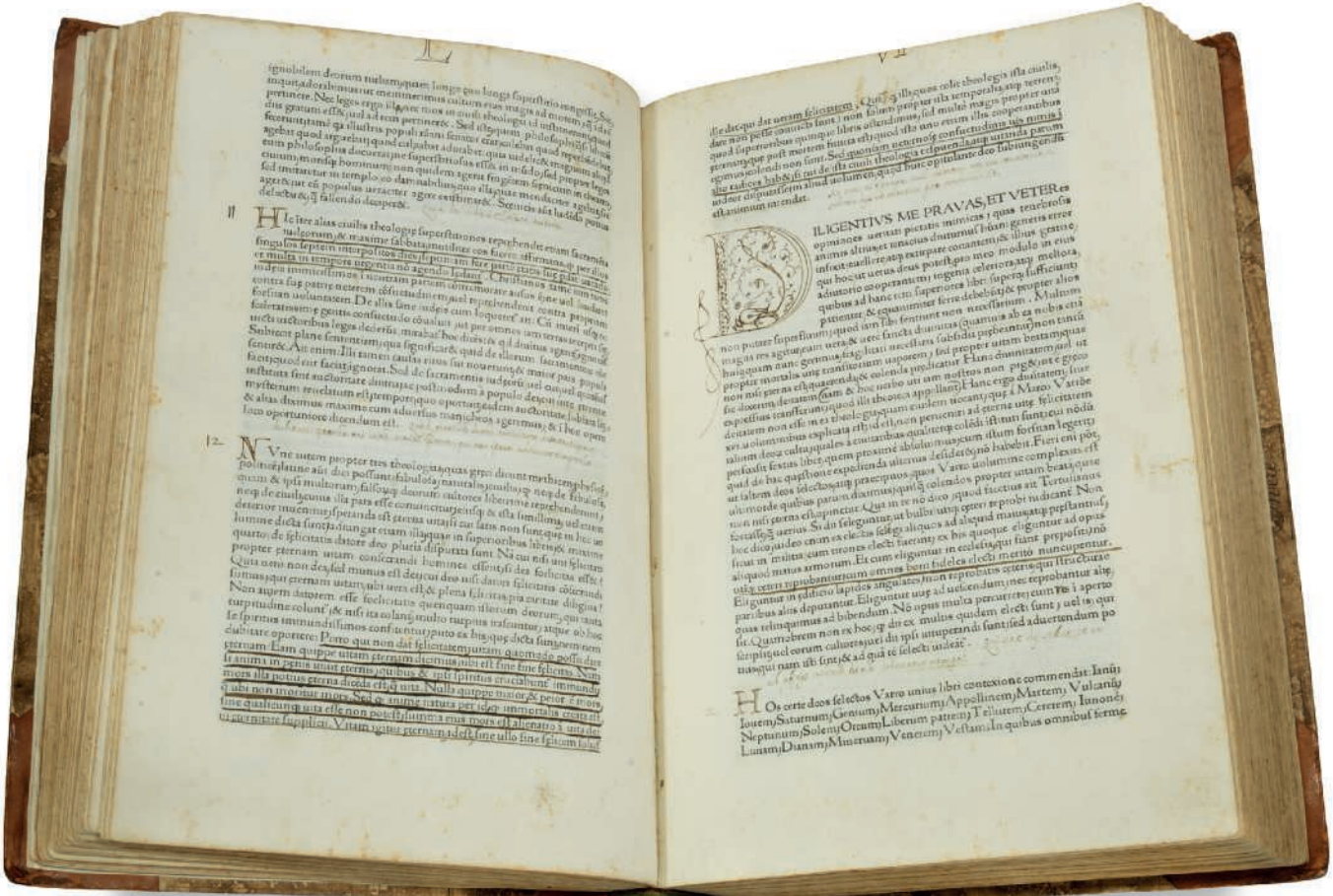
€40,000-66,000

66

APULEIUS Madaurensis, Lucius (b. c. 123). *Opera*. Edited by Johannes Andreae de Buxiis, bishop of Aleria (1417-1475). - HERMES Trismegistus. *Asclepius*. Translated by Apuleius. - ALBINUS (fl. 2nd century). *Epitome disciplinarium Platonis*. Translated by Petrus Balbus (d. 1479). Vicenza: Henricus de Santo Ursio, Zenus (Rigo di ca Zeno), 9 August 1488.

Median 2° (322 x 210mm). Collation: A⁶ a-m^{8.6} n⁸ o-x^{8.6} y-z⁶ & 6>6 (A1 blank, A2r editor's letter, A6v table, a1r Apuleius, u8v Hermes Trismegistus, y6r Albinus (attributed to Alcinoüs), 74v colophon and printer's device, 75r register, 75v-6 blank). 177 (of 178, without final blank) leaves. 38 lines and headline. Type: 9:112R, some Greek. 3- to 8-line initial spaces with guide-letter, filled with near-contemporary illumination and decoration: Confalonieri arms in lower margin of a1r, opening initial in gold on a scrolling floral ground, other major initials in blue or magenta on decorative ground. Printer's device at end. (Two small wormholes at end, one just touching some letters.) Tan crushed morocco over bevelled wooden boards by David, spine lettered in gilt, gilt turn-ins, vellum doublures, gilt edges. *Provenance*: Confalonieri (armorial with initials F C on a1) — contemporary annotations in probably two humanist hands (occasionally trimmed) — 16th-century inscription on first leaf playing on the Confalonieri arms and the name of Conrad — [Baron de Gunzberg (pencilled ascription)] — Albert Ehrman (1890-1969; Broxbourne Library: bookplates and notes; sale, Sotheby's London, 9 May 1978, lot 669).

10



AUGUSTINUS, Aurelius (St, 354-430). *De civitate Dei*. Venice: Johannes and Vindelinius de Spira, 1470.

Royal 2° (342 x 230mm). Collation: [1-2⁸ 3-26¹⁰ 27⁸ 28¹⁰] (1/1 blank, 1/2r rubrics table, 2/8 blank, 3/1r rubrics and text, 28/9r colophon, 28/10 blank). 271 leaves (of 274, without the blanks). 50 lines, table in two columns. Type: 1:110R. First 5 quires with contemporary illumination and rubrication: major initials opening text illuminated in gold and colours on blue ground, other initials to 5/3 in red, initials thereafter in 18th-century ink, incipits to 5/10 in several early hands, some in red, thereafter some erased at an early date and supplied in an 18th-century hand, headlines giving book numbers in early hand to quire 5 and thereafter in an 18th-century hand (often trimmed). (Spotting, a few small wormholes in final quires, 4/9 with short ?deckle fore-edge, dampstain at upper margin of one or two quires, numerous small early erasures occasionally leaving a small hole, marginal repair to first leaf.) 19th-century half sheep, spine label (repairs at spine and corners, tear at spine foot, a little rubbed, recased). *Provenance*: Capuchin convent (inscriptions deleted from first page) — Nicolas Montenianus (17th-century inscription on 2/7) — numerous 17th/18th-century annotations, occasionally extensive.

FIRST VENETIAN EDITION and fourth or fifth edition of *De civitate Dei*. In addition to exercising a monumental influence on western thought and theology, Saint Augustine paved the way for the European scientific revolution. His view of human history as a developmental process with meaning presumed an assessment of 'things in terms of their origins and of the steps that have led to their present state' (DSB). THE FOURTH BOOK PRINTED AT VENICE. Johannes de Spira established the first press at Venice in 1469. As the colophon to the press's Augustinus famously states, Johannes died suddenly, and the edition was completed by his brother Vindelinius, named here for the first time. The colophon also gives valuable evidence for the earlier books, stating that the Pliny, which immediately preceded *De civitate Dei*, was printed in 100 copies within 3 months. Based on the number of other works subsequently printed by Vindelinius in 1470, Geldner argues that the Augustinus appeared early in 1470 and thus pre-dates Sweynheym and Pannartz's edition printed at Rome the same year (*Die deutschen Inkunabeldrucker*, pp.62-4). H *2048; GW 2877; BMC V, 153; IGI 969; CIBN A-679; BSB-Ink A-855; Bod-inc A-520; Goff A-1233.

£20,000-30,000

\$30,000-44,000
€27,000-39,000



69

BACON, Sir Francis (1561–1626). *Instauratio magna*. [*Novum organum*]. London: [Bonham Norton and] John Bill, 1620.

2° (334 x 208mm). Engraved title by Simon van der Pass. Woodcut headpieces and large historiated initials. With blank c4 but without the first and last blanks. (Some marginal soiling and spotting.) Contemporary calf gilt (neatly rebacked); red cloth box with ties. *Provenance*: William Cavendish, 2nd Duke of Devonshire (1672–1729; bookplate on title verso) — Harrison D. Horblitt (book label, part 1 of his sale, Sotheby's, London, 10–11 June 1974, lot 68 to:) — the House of El Dieff (Lew David Feldman) — Haven O'More and Michael Davis (purchased from Feldman in March 1977; sold in the Collection of the Garden Ltd., Sotheby's New York, 9–10 November 1989, lot 84).

THE DEVONSHIRE–HORBLITT–GARDEN COPY OF THE FIRST EDITION, FIRST ISSUE. A LARGE-PAPER COPY, published in October 1620 with Norton's name in the colophon. The volume consists of a preface, a plan of the whole work, the incomplete second part (*Novum organum*), and a preparative to the third part of natural and experimental histories, as well as a catalogue of particular histories. The *Instauratio*, relatively short at 33 pages, is the preliminary material of Bacon's entire philosophical plan; part two, the *Novum organum*, consists of his great unfinished treatise on the scientific method. In sending a copy of the book to James I, the dedicatee, Bacon explained his overall scheme and the particular intention of the *Novum organum*: 'The work, in what colours soever it may be set forth, is no more but a new logic, teaching to invent and judge by induction, (as finding syllogism incompetent for sciences of nature), and thereby to make philosophy and sciences both more true and more active' (*Works*, 14.119–20). ESTC notes that 'about 15 copies are printed on large paper, with a large crown watermark... The large paper copies were printed last, and have all but one of the errors in pagination corrected, as well as two of the errors listed in the errata of the second issue.' Gibson 103a; Pforzheimer, App. 1; PMM 119; STC 1162.

£20,000–30,000

\$30,000–44,000

€27,000–39,000



010

BARANZANO, Giovanni Antonio Redento (1590-1622). *Uranoscopia seu De coelo in qua universa coelorum doctrina clarè, dilucidè & brevitur traditur*. Geneva: Pierre & Jacques Chouet, 1617-[1618].

3 parts in one volume [including: *Nova de motu terrae Copernicolo*], small 4° (233 x 166mm). Title within woodcut architectural border, one folding woodcut illustration, 2 folding letterpress tables, woodcut illustrations, head- and tailpieces. (Title spotted, repair at bottom, some upper margins a little frayed, one or two repaired, some light spotting and browning throughout.) Contemporary vellum (large repair on rear cover, lacking ties and lettering-piece, front hinges starting to detach, rear hinges detached, lightly soiled).

FIRST EDITION. 'In 1617 Baranzano published his most important work, *Uranoscopia seu De coelo*, in which he defended the Copernican system. This book was not well received by the Church, however, and Baranzano was called to Milan by the archbishop to make corrections. It is of some interest that he took with him on this occasion a letter written by his good friend Francis de Sales, testifying to his merits. Baranzano was indeed capable of progressive thought but was nevertheless obliged to withdraw his assertions and wrote a small tract in which he presented his excuses. This was entitled *Nova de motu terrae Copernicolo iuxta Summi Pontificis mentem disputatio* (1618) and was appended, where possible, to the original *Uranoscopia*.' (DSB). Riccardi I, 72.

£12,000-18,000

\$18,000-26,000

€16,000-24,000



011

BARTISCH, Georg (1535–1607). *Οφθαλμοδονλεία, das ist Augendienst*. Dresden: Matthes Stöckel, 1583.

2° (298 x 185mm). Title printed in red and black within woodcut border (repeated in the preliminaries on C1r), large woodcut arms of Duke August of Saxony on A2r, fine full-page woodcut portrait of the author on E4v, numerous large woodcuts in the text (including a few repeats), woodcuts with overlays on A5r (with 5 flaps) and B2v (with 6 flaps), printer's woodcut device at end. (Title with extensive laminated repairs, mostly around the edges, several small laminated repairs throughout, mostly in margins and more at beginning and end, lightly browned and spotted.) Modern old style vellum (new endpapers). *Provenance*: Philip Enman, Altwilmsdorf, doctor (inscription on lower margin of t1) — Joseph Henricus ? 1718 (inscription below) — illegible inscription on verso of final leaf — A. Franceschetti, Lugano (bookplate on pastedown) — bookseller's label (on pastedown).

THE RARE FIRST EDITION OF THE MOST IMPORTANT RENAISSANCE WORK ON OPHTHALMOLOGY AND ONE OF THE EARLIEST SURGICAL WORKS PRINTED IN THE VERNACULAR. Bartisch's *Ophthalmoduleia* (Eye Care or Augendienst) is the first modern work on eye surgery. 'In this treaty on ophthalmic surgery Bartisch, who limited his practice to ophthalmology and hernia repair, left the first extensively illustrated account of any surgical specialty' (Garrison and Morton). Considered the founder of modern ophthalmology, Bartisch gained a reputation for his skilful operations on the cataract using a clean needle to depress the lens through the sclerotic. He became the court oculist to Duke August I of Saxony, to whom this work is dedicated. Bartisch employed numerous pioneering techniques in the treatment of the eyes, including both surgical and non-surgical methods. He was the first eye-doctor to recommend removal of the eye in cases of cancer. The striking woodcut illustrations, made after Bartisch's own drawings from life, provide a comprehensive pictorial record of Renaissance eye-surgery. The innovative and effective use of movable flaps to show sectional views of the brain and the eye appears here for the first time. BM/STC German p. 68; Choulant-Frank p. 234; Garrison and Morton 5817; Grolier *Medicine* 22; Heirs 369; Durling 479; Norman 125; Waller 756; Wellcome I, 697.

£10,000–15,000

\$15,000–22,000

€14,000–20,000



012
 BASSANTIN, Jacques (James Bassandyne, fl. 1550s-1560s). *Astronomique discours*. Lyons: Jean de Tournes, 1557.

2° (443 x 305mm). De Tournes' device (Cartier 'Semeur') on title and second device (Cartier 'Lac d'Amour') on N4r. 175 woodcuts, including numerous diagrams, of which 14 have a total of 40 volvelles, criblé initials in three sizes. (First 16 leaves and h3 with marginal repairs, heavy stain at top of gutter and into text affecting gathering d, volvelles on p.216 detached, occasional staining and soiling, mostly confined to margins, although sometimes heavier to text on verso of central volvelle 'buttons'.) ?17th-century sheep with later tooling in black and gilt (extensively repaired and restored, new endpapers). *Provenance*: M.S.G. (ink initials on title) — evidence of stamp removed on title.

FIRST EDITION WITH THE LARGEST NUMBER OF VOLVELLES TO APPEAR AT AUCTION. Bassantin, a Scottish astronomer, settled in France at this period after his education at Glasgow. 'The size of this volume and extent of its illustration and ornamentation make this an unusually fine example of the attention given to the printing of scientific works at this period' (Mortimer). The cuts are closely derived from Apianus' *Astronomicum Caesareum*, 1540. The Honeyman copy had 35 volvelles, and the two copies at Harvard each have 33. Most authorities call for 36, though Honeyman believes there should be 38. Brunet 1, 692; Cartier 2, no. 357; Mortimer *French* 47.

£50,000-80,000 \$74,000-120,000
 €66,000-110,000

013

BAYER, Johann (1572-1625). *Uranometria, omnium asterismorum continens schemata, nova methodo delineata, aereis laminis expressa*. Ulm: Johann Gorlinus, 1655.

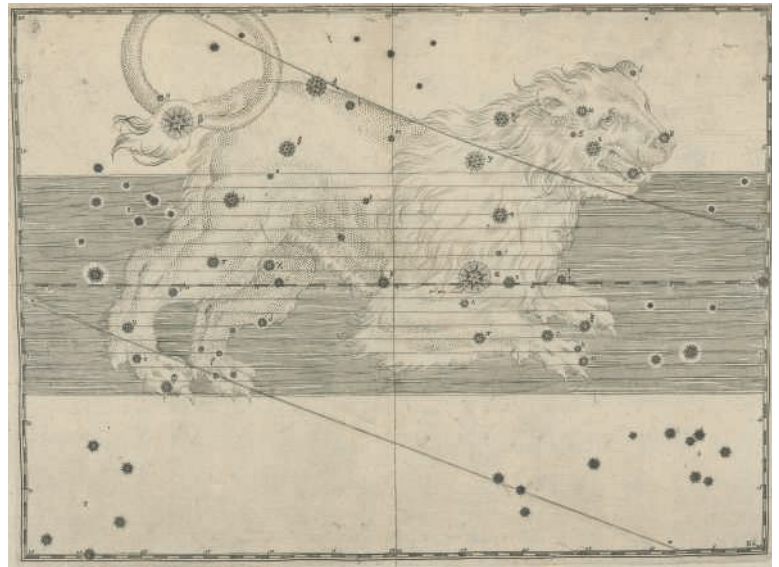
2° (394 x 315mm). Engraved title and 51 engraved plates, each unfolded. (Plates pressed, occasional light staining at fore-edge to a number of plates, heaviest in pl. Ii, general even soiling.) Later vellum binding (front flyleaf detached, covers bowed). *Provenance*: ink captions in French on plates in an 18th-century hand.

Sixth edition of the first important star atlas, based on the star section of Tycho Brahe's *Astronomiae instauratae*, 1598 (see lot 23), but giving large clear illustrations and adding Greek letters to the prominent stars, a nomenclature that is still current. Bayer's was the first accurate star atlas.

Earlier star catalogues followed Ptolemy's *Almagest* in using verbal descriptions to locate stars within the 48 northern constellations of classical astronomy, an awkward system that occasioned constant errors and misapprehensions. Bayer used Brahe's recent observations for the northern sky, and included, in chart Aaa, twelve new southern constellations observed by the Dutch navigator Pieter Dirckzoon Keyzer and reported by Pedro de Medina. To simplify identification of the stars Bayer included in his typographic descriptions both the traditional star numerations within each constellation and the many names for the constellations employed since Ptolemy. Cf. Norman 142.

£10,000-15,000

\$15,000-22,000
€14,000-20,000



Small 4° (197 x 146mm). Woodcut device on title, EXTRA-ILLUSTRATED WITH 51 double-page engraved star maps. (Lightly browned throughout, a few plates with clean tears along folds, plate between pp. 36/37 creased, paper flaw in plate between p.42/43 causing one hole and a few clean tears, small abrasions on plates between pp.44/45, 58/59, and 72/73, small paper flaw affecting plate between 56/57, small wormtrack in margin of plate between pp.62/63, worming, mostly affecting margins but also affecting text in pp.80/91 and from p.87 to end.) Contemporary calf, spine lavishly decorated in gilt.

Text-only edition of Bayer's *Uranometria* of 1603. From 1624, the descriptive text was published without the engravings. This copy though has been EXTRA-ILLUSTRATED with the star maps, without letterpress on verso. Bayer's work was the first accurate star atlas. Earlier star catalogues followed Ptolemy's *Almagest* in using verbal descriptions to locate stars within the 48 northern constellations of classical astronomy, an awkward system that occasioned constant errors and misapprehensions. Bayer, a lawyer and amateur astronomer, was the first to identify the location of stars within a constellation by the use of Greek letters (with the addition of the Latin alphabet for constellations with more than 24 stars). This simple innovation greatly facilitated the identification of stars with the naked eye, just five or six years before the invention of the telescope, and Bayer's stellar nomenclature is still in use today. Bayer used Brahe's recent observations for the northern sky, and included, in chart 49, twelve new southern constellations observed by the Dutch navigator Pieter Dirckzoon Keyzer and reported by Pedro de Medina. To simplify identification of the stars Bayer included in his typographic descriptions both the traditional star numerations within each constellation and the many names for the constellations employed since Ptolemy. The graceful figures of Mair's charts were based on those of Jacobo de Gheyn in Grotius' edition of the *Syntagma arateorum* (1600). Cf. Norman 142 and 143.

£10,000-15,000

\$15,000-22,000
€14,000-20,000



014

BAYER, Johann (1572-1625). *Explicatio characterum aeneis uranometrias imaginum, tabulis*. Ulm: Johann Wolfgang Breuerlin, 1697.



015

BERENGARIO DA CARPI, Giacomo (c.1460-1530). *Carpi Commentaria cum amplissimis additionibus super anatomia Mundini una cum textu eiusdem in pristinum et verum nitorem redacto*. Bologna: Hieronymus de Benedictis, 1521.

4° (210 x 146mm). Title printed in red and black within architectural and historiated woodcut border, 21 large anatomical woodcut illustrations, woodcut initials. (Title extensively repaired and conjoined with 2A4 at gutter, marginal repairs to leaves 2A2-3, tiny wormhole from 2A3-2D4 with a few letters affected, 2Y4 with corner repaired affecting a few letters, 6G4 re-margined, light marginal staining and spotting, heavier and into text in gatherings 7O, 10I, 10O-10Y, very small marginal burn holes in gatherings 10M-10N, stamps erased from margin of 10O3 and final leaf, marginal paper flaw in 12E4.) Modern reversed calf, antique style (lacking ties, rubbed). *Provenance*: Albert (ink ownership inscription on title).

THE VERY RARE FIRST EDITION OF THE FIRST MODERN BOOK ON ANATOMY. Berengario's *Commentaria* on Mondino's fourteenth-century *Anatomia* was the first published work to contain anatomical illustrations based on the anatomist's own dissections. In addition, the *Commentaria* 'contains the first mention of the vermiform appendix, as well as the first good account of the thymus. The description of the male and female reproductive organs, or reproduction itself, and of the foetus, is more extensive than any earlier account' (Garrison and Morton). It is the most important predecessor to Vesalius's *Fabrica*. Numerous innovations in anatomical iconography introduced in the *Commentaria* were later adopted by Vesalius, including the dissection vignette on the title border in which Berengario is shown dissecting a cadaver. Most importantly Berengario was the first to begin the long tradition of illustrating standing dissected figures in a naturalistic setting. Choulant-Frank pp. 137-39; Garrison and Morton 367; Grolier *Medicine* 15; Herrlinger pp. 80-82; Lind pp. 159-65; NLM/Durling 530; Putti pp. 143-46; Wellcome 1, 781; Norman 187.

£30,000-50,000

\$44,000-73,000

€40,000-66,000



016

BETTINI, Mario (1582-1657). *Apiaria universae philosophiae mathematicae*. Bologna: J.B. Ferroni, 1642-1654.

3 volumes, 2° (367 x 250mm). Pagination of vols I-II as in Riccardi. Vol. III: [34], 199[1], [20], 54pp. Engraved frontispieces, folding in vols I-II, engraved equestrian portrait of Ferdinand III, engraved and woodcut illustrations. Half-title in vol. III. (Occasional soiling and waterstaining, half-title stained, O3-O4 of vol. III soiled and holed, a few quires near end of vol.III browned and waterstained, final leaf of text holed with slight loss and repaired, without final [?]blank.) Vols I-II: contemporary vellum, manuscript titles along spines (covers bowed, spines a little torn). Vol. III: contemporary pasteboard with manuscript title, uncut (lightly soiled). *Provenance*: Jesuit College at Brescia (inscription on title of vol. III).

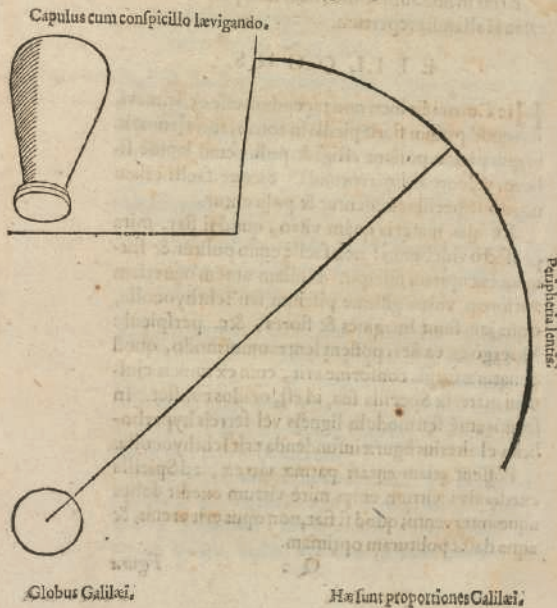
A Jesuit philosopher, mathematician and astronomer, Bettini was widely enough admired to have the lunar crater Bettinus named after him by Giovanni Riccioli in 1651. His *Apiaria Universae Philosophiae Mathematicae* is a superbly illustrated collection of mathematical problems, covering not just pure mathematics but the applied fields of physics, catoptrics, dioptrics, dialling, surveying, music and acoustics. Riccardi gives a date of 1641 for volume I, but notes that vol. I of the Palatina di Modena copy is dated 1642. Vols 1-2 of the BL copy are likewise both dated 1642. Riccardi only cites a later edition (1656) of vol. III, and notes the difficulty of finding the three volumes united together. RARE ON THE MARKET. BL/STC 17th-century Italian p. 103; Brunet I, 833; Houzeau & Lancaster 9316; Riccardi I 123-24.

(3)

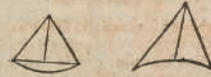
£22,000-28,000

\$33,000-41,000
£29,000-37,000

Figure quedam necessarie ad ea que dicta sunt facilius intelligenda.



LIMA CAÏS.



Sagmata explorantia, an Conspicilla bene sint elaborata, vel an patina bene sint fabricata.

Hic etiam adjungendas coramimus Epistolas quasdam memorandas Illustrissimi Galilei & aliorum circa eandem materiam, quas mihi Excellentissimus D. Borellius Legatus Belgii Unius apud Reges, verumque curiosarum amantissimus mihi communicare dignatus est.

AMPEISSIME DOMINE. Vide quaeso ex literis Dn. Galilei, quam necesse fit me ipsum adire & presentem convenire ad promovendum rem istam incomparabilem. Ego perfectionem inventi ejus artonicus legi & miratus sum: neque Telescopium tant perfectum usque hætenus visum neque auditum fuit, quale Galileus promittit. Etiam hoc solum meretur ut Italiam petam quam oculis. Hinc enim non solum longitudinum scientia aperietur navigantibus Oceanum, sed etiam magna perfectio in studiis Geographicis & Astronomicis.

Vides etiam venerandum Senem præ senio non satis aptum recolligendis observationibus suis multis numero & tamen necessariis & utilissimis. Et utinam hoc fieri possit me juvante ante mortem Galilei. Hæc occasio que nobis datur magnum & illustre aliquid promittit & producet, etiam ad navigationis usum nihil conferret.

Q 3

Ego

018

BOREL, Pierre (c.1620–1671). *De vero telescopii inventore... Accessit etiam centuria observationum microscopiarum*. The Hague: Adrian Vlacq, 1655.

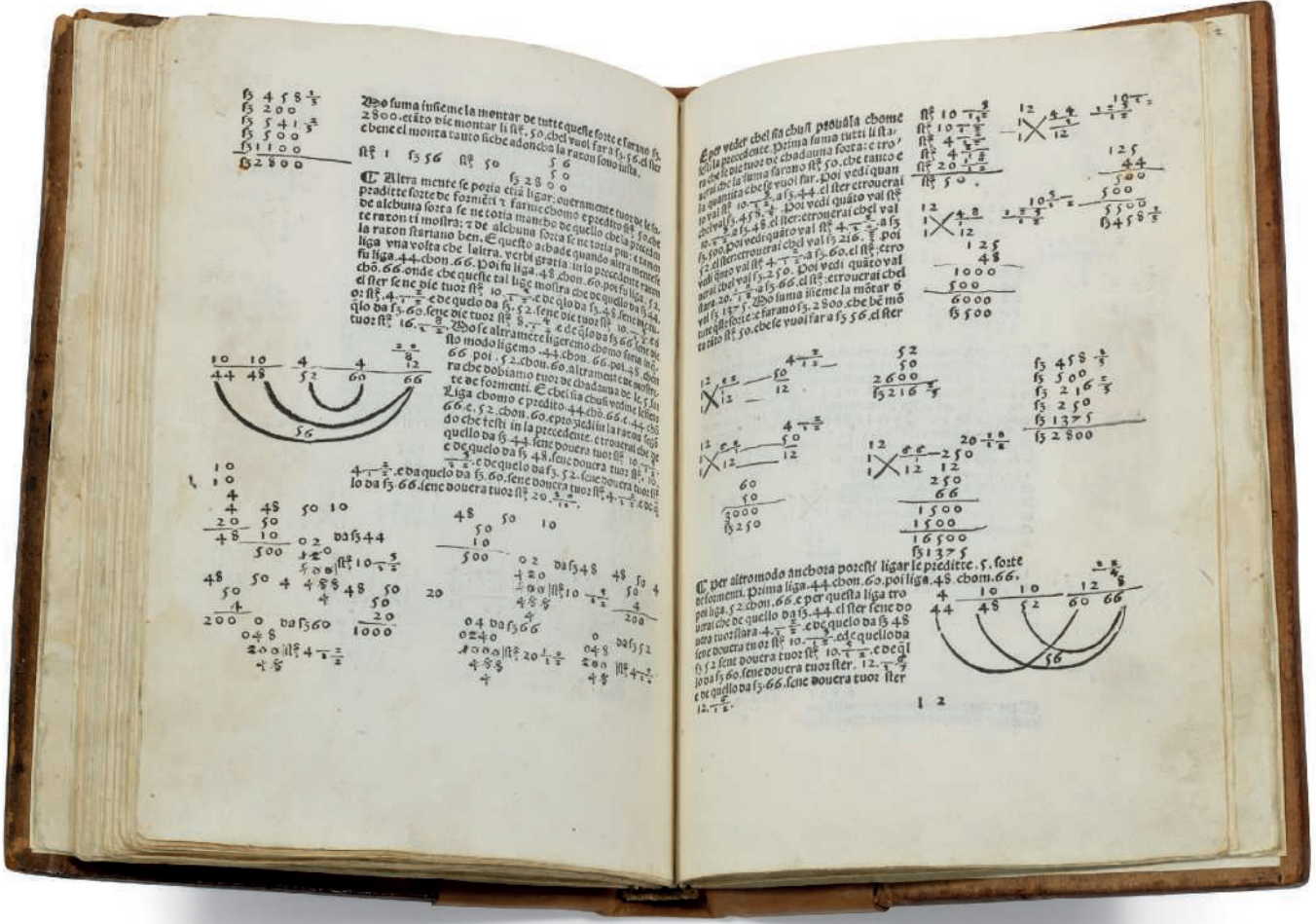
3 parts in one volume, 4° (205 x 151mm). 2 engraved portraits of Zacharias Janssen and Hans Lipperhey by J. van Meurs after Berckman, one folding engraved plate and one half-page engraved illustration, several woodcuts in text, including one of a telescope, *Centuria* with separate title, woodcut initials and headpieces. (Lacking errata at end, lightly waterstained, stronger at beginning and end, light browning at beginning.) Contemporary vellum (rubbed, lightly soiled, spine with two small holes). *Provenance*: unidentified bookplate (pastedown) — partly erased inscription on title.

FIRST EDITION. 'Borel's work is remarkable on two counts: it was the first documentary history of the invention of the telescope and microscope, and it contained Christiaan Huygens's preliminary announcement in anagram form of his discovery of the rings of Saturn and of the Saturnian moon Titan' (Norman). In this work, Borel presents evidence to show that Zacharias Janssen and Hans Lipperhey, both spectacle-makers in Middelburg, Holland, were the first inventors of the telescope, in that order. He gives a detailed history of the telescope from the earliest times up to Galileo, Descartes, Metius and numerous others. The second part of the book is devoted to microscopic observations. It also gives a full account of the construction of telescopes and microscopes and their lenses. Carli and Favaro 54; Cinti 254; Garrison and Morton 261; Graesse I, p.495; Norman 268; Wellcome II, p.204.

£15,000–25,000

\$22,000–37,000

€20,000–33,000



019

BORGO, Pietro (d. after 1494). *Aritmetica mercantile*. Venice: Johannes Leoviler, de Hallis, 1488.

Chancery 4° (212 x 144mm). Collation: a-m⁸ (a1r title, a1v explanation of symbols, a2r text, m8v colophon). 96 leaves. 43 lines. Types: 1:68G, 2:135G. Arithmetical calculations printed as marginalia, as well as within the text in a variety of shapes, woodcut initials. (Title, first and last few leaves with repairs in margins, affecting a few numbers or letters in shoulder notes, some other leaves with small marginal repairs, waterstaining at beginning and end, soiling.) Modern half calf over old wooden boards (minor worming). *Provenance*: Fr. Giovanni Marra and Mateus Colla (16th/17th-century inscriptions).

Second edition of an important Renaissance handbook of arithmetic for merchants. The author was a mathematician from Venice. Because of their practical nature, all early editions of such texts are RARE. HCR 3661; GW 4937; Klebs 205.2; Smith(RaraAr) p. 19-20; IGI 2010; BMC V 406; Goff B-1035.

£30,000-50,000

\$44,000-73,000

€40,000-66,000



Etiam Tempus ab ingressu Solis in ♋, quo Equinoctium ob id Verale dicitur, continetur incipit Astrologi. Quod iuxta has ipsas Tychoonicae Observationes, & recentiores correctiones in calculo Solis est Notus, accidit hoc Anno, D. 10 Martii. H. 9. M. 2. PM. Licet Alphonsinus calculat Equinoctium hoc, Horis 13 M. 13 PM. seu vi constituit, sex propinqua horis citius; & Copernicus in 22 Horis PM. idem ponat; idcirco totis 13 Horis festo tardius, abundante plus quam dimidia die. Vident itaque, qui Anni Revolutiones, ex ingressu Solis in ♋, siue ex Alphonsina, siue etiam Copernicana supputatione instituant, deq; tota Anni constitutione hinc iudicium ferant, quantum in ipso Astronomico Fundamento hallucinantur, necdum Astrologicam in praedictionibus veritatis, quae priori innititur, multoq; intricatior exiit, plenius assequantur. Sed de his nunc non est differendi locus. Quantum itaque ad Vernalem Caeli positum artem, quem tempore praedicto, quod cum caelitus apparente Solis motu convenit, adaptatum, hic assignamus, praecipuam iurisdictionem Marti sibi vendicant; ob Ascendentis & utriusq; luminarii dispositionem. Verum quia ita Sole combustus est, minus efficaciter operatur, idcirco potius Vires Saturno tribuantur, cui Luna proxime corporatiter applicat. Sed & ♄ Stella non parum potest, in cuius ♀ partem Luna exiit. Quae propter Veris dispositionem maxima ex parte obscuram, nebulosam, humidam, & intumescam futuram iudico, quae tamen nonnisi quosdam letas serenitates intermiscet. Minus etiam salubris existet, non saltem ob fluxum Planetarum circa Sextam domum, sed quia omnes in ♀ & ♋ (excepto solo Iove) reperiantur, quae duo dodecatemoria; Cometae Mensis Octobris & Novembri proxime elapsi anni conspectum pertransiit. Quae Vires & effectus huius Cometae, hoc Verino Tempore plurimum intendant, & procul dubio contagiosorum Epidemiarum morborum noxas parient, aliisque lentas et Chronicas egritudines inducent; Veluti haec & alia superius inter Cometae Effectus copiosius indicantur.

pernata supputatione instituant, deq; tota Anni constitutione hinc iudicium ferant, quantum in ipso Astronomico Fundamento hallucinantur, necdum Astrologicam in praedictionibus veritatis, quae priori innititur, multoq; intricatior exiit, plenius assequantur. Sed de his nunc non est differendi locus. Quantum itaque ad Vernalem Caeli positum artem, quem tempore praedicto, quod cum caelitus apparente Solis motu convenit, adaptatum, hic assignamus, praecipuam iurisdictionem Marti sibi vendicant; ob Ascendentis & utriusq; luminarii dispositionem. Verum quia ita Sole combustus est, minus efficaciter operatur, idcirco potius Vires Saturno tribuantur, cui Luna proxime corporatiter applicat. Sed & ♄ Stella non parum potest, in cuius ♀ partem Luna exiit. Quae propter Veris dispositionem maxima ex parte obscuram, nebulosam, humidam, & intumescam futuram iudico, quae tamen nonnisi quosdam letas serenitates intermiscet. Minus etiam salubris existet, non saltem ob fluxum Planetarum circa Sextam domum, sed quia omnes in ♀ & ♋ (excepto solo Iove) reperiantur, quae duo dodecatemoria; Cometae Mensis Octobris & Novembri proxime elapsi anni conspectum pertransiit. Quae Vires & effectus huius Cometae, hoc Verino Tempore plurimum intendant, & procul dubio contagiosorum Epidemiarum morborum noxas parient, aliisque lentas et Chronicas egritudines inducent; Veluti haec & alia superius inter Cometae Effectus copiosius indicantur.

DE



Obstitit aestivum, quod Astrologis Aestatem incipit, contingit iuxta hanc Neotericam revolutionem in motu Solis, tunc die 11 hora 13. Minuto 11. PM. a quo Alphonsina supputatio, tribus quartis actus horae, abundat. Copernicana vero tertio excedit Marti & cum duobus tertij, respondens illud in horas a Meridie 18. M. 50. Constitutio autem Caeli in ipso solstitio, qualis hic admittitur est, indicat prerogativas penes se esse, eo quod si iam postmodum supra terram exortus, solusq; supra alios omnes elevatus, in ♀ partem Solis exiit, signumq; & ingreditur, qui etiam Lunam in sua Triplicitate constituit, per Trinitatem insuetur. Et etiam aliquid veris ordinis, eo quod si partiter Solis exiit, & Caelum disponat, perq; Sextilem partem aspicit; Sed & Martis Stella in ipso Horoscopo cum Hyadibus constituta, non parum sibi vendicat. Ex horum itaq; Planetarum Natura, Aestatis dispositio dependet. Saturnus autem calorem remittit, obsecrat itaq; plurimum & manens parit, & ventos & tempestates adauget. Martis vero constitutio circa Orientis limites, imbres, procellos, & fulmina atq; contraria crebra intermiscet. Licet vero haec ita se habere, quantum ad hanc Aestatem Caeli constitutionem acriter, verisimile appareat, tamen si altiori & generaliori quadam indagine, quae particularioribus devagare solet, negotium hoc perferatur, probabitur erit commixtionem tot Planetarum, Mense Martio & Aprili, in signo ♋, quod ignea natura esse Astrologi rationantur, plurimum aestivos ardores & siccitates, per totam ferè hanc Aestatem, excitaturam, quoniammodum etiam ante biennium accidit, cum tot Planetae eodem Aprili in ♋ concurrerent, sequutaq; est aestas atmodum secca & calida, idq; magis ex generali ista constitutione, quam particulari significatione introitus Solis in solstitij punctum. Idem Iovis exortus cum Luminaribus in Novembrio proxime antecedente contigisse videtur, & ad serenitatem atq; calidior Soles aetiam potissimum inclinat. Non tamen desunt subinde hominici quidam imbres, & humiditates intempestivae, ut ob id magna & incerta aetate, in aera mutationibus, per hanc Aestatem anni quadrantes, expectanda fiet.

Obstitit aestivum, quod Astrologis Aestatem incipit, contingit iuxta hanc Neotericam revolutionem in motu Solis, tunc die 11 hora 13. Minuto 11. PM. a quo Alphonsina supputatio, tribus quartis actus horae, abundat. Copernicana vero tertio excedit Marti & cum duobus tertij, respondens illud in horas a Meridie 18. M. 50. Constitutio autem Caeli in ipso solstitio, qualis hic admittitur est, indicat prerogativas penes se esse, eo quod si iam postmodum supra terram exortus, solusq; supra alios omnes elevatus, in ♀ partem Solis exiit, signumq; & ingreditur, qui etiam Lunam in sua Triplicitate constituit, per Trinitatem insuetur. Et etiam aliquid veris ordinis, eo quod si partiter Solis exiit, & Caelum disponat, perq; Sextilem partem aspicit; Sed & Martis Stella in ipso Horoscopo cum Hyadibus constituta, non parum sibi vendicat. Ex horum itaq; Planetarum Natura, Aestatis dispositio dependet. Saturnus autem calorem remittit, obsecrat itaq; plurimum & manens parit, & ventos & tempestates adauget. Martis vero constitutio circa Orientis limites, imbres, procellos, & fulmina atq; contraria crebra intermiscet. Licet vero haec ita se habere, quantum ad hanc Aestatem Caeli constitutionem acriter, verisimile appareat, tamen si altiori & generaliori quadam indagine, quae particularioribus devagare solet, negotium hoc perferatur, probabitur erit commixtionem tot Planetarum, Mense Martio & Aprili, in signo ♋, quod ignea natura esse Astrologi rationantur, plurimum aestivos ardores & siccitates, per totam ferè hanc Aestatem, excitaturam, quoniammodum etiam ante biennium accidit, cum tot Planetae eodem Aprili in ♋ concurrerent, sequutaq; est aestas atmodum secca & calida, idq; magis ex generali ista constitutione, quam particulari significatione introitus Solis in solstitij punctum. Idem Iovis exortus cum Luminaribus in Novembrio proxime antecedente contigisse videtur, & ad serenitatem atq; calidior Soles aetiam potissimum inclinat. Non tamen desunt subinde hominici quidam imbres, & humiditates intempestivae, ut ob id magna & incerta aetate, in aera mutationibus, per hanc Aestatem anni quadrantes, expectanda fiet.

DE

620

BRAHE, Tycho (1546-1601) & Elias Olsen Cimber MORSING (1540-1590). *Diarium astrologicum et metheorologicum anno a nato Christo 1586. Et de cometa quodam rotundo omnique cauda destituto, qui anno proxime elapso, mensibus Octobri & Novembri conspicietur, ex observationibus certis desumpta consideratio astrologica.* Uraniborg: Officina Uraniburgica, 1586.

Small 4° (186 x 146mm). Woodcut initials, woodcut diagrams, large printer's device on verso of penultimate leaf. (Outer margin of title a little browned, very light waterstaining in a few top margins.) Modern half morocco (new endpapers).

RARE FIRST EDITION, THE FIRST BOOK TO BE PRINTED AT TYCHO BRAHE'S PRIVATE PRESS AT URANIBORG. In 1576 King Frederick II offered to fund an observatory for Tycho Brahe, which was built on the little island of Hven near Copenhagen. The observatory, Uraniborg, became the finest observatory in Europe. The first part of this work was written by Brahe's assistant Elias Morsing but 'De cometa seu stella crinite rotunda' was written by Brahe. Brahe's contributions to astronomy are enormous: 'He not only designed and built instruments, he also calibrated them and checked their accuracy periodically. He thus revolutionized astronomical instrumentation. He also changed observational practice profoundly. Whereas earlier astronomers had been content to observe the positions of planets and the Moon at certain important points of their orbits... Tycho and his casts of assistants observed these bodies throughout their orbits. As a result, a number of orbital anomalies never before noticed were made explicit by Tycho. Without these complete series of observations of unprecedented accuracy, Kepler could not have discovered that planets move in elliptical orbits. Tycho was the first astronomer to make corrections for atmospheric refraction... Tycho's observations of the new star of 1572 and comet of 1577, and his publications on this phenomena, were instrumental in establishing the fact that these bodies were above the Moon and that therefore heavens were not immutable as Aristotle had argued and philosophers still believed... the Aristotelian division between the heavenly and earthly regions came under attack and was eventually dropped. Further, if the comets were in the heavens, they moved through the heavens. Up to now it had been believed that planets were carried on material spheres... that fit tightly around each other. Tycho's observations showed that this arrangement was impossible because comets moved through these spheres. Celestial spheres faded out of existence between 1575 and 1625' (The Galileo Project). VERY RARE ON THE MARKET: RBH records only one copy sold in 1950, no record on ABPC. Not in Houzeau and Lancaster or Wellcome but on Wellcome online.

£50,000-80,000

\$74,000-120,000
€66,000-110,000



021

BRAHE, Tycho (1546-1601). *Epistolarum astronomicarum libri*. Uraniborg [Hven]: [at the author's press, 1596].

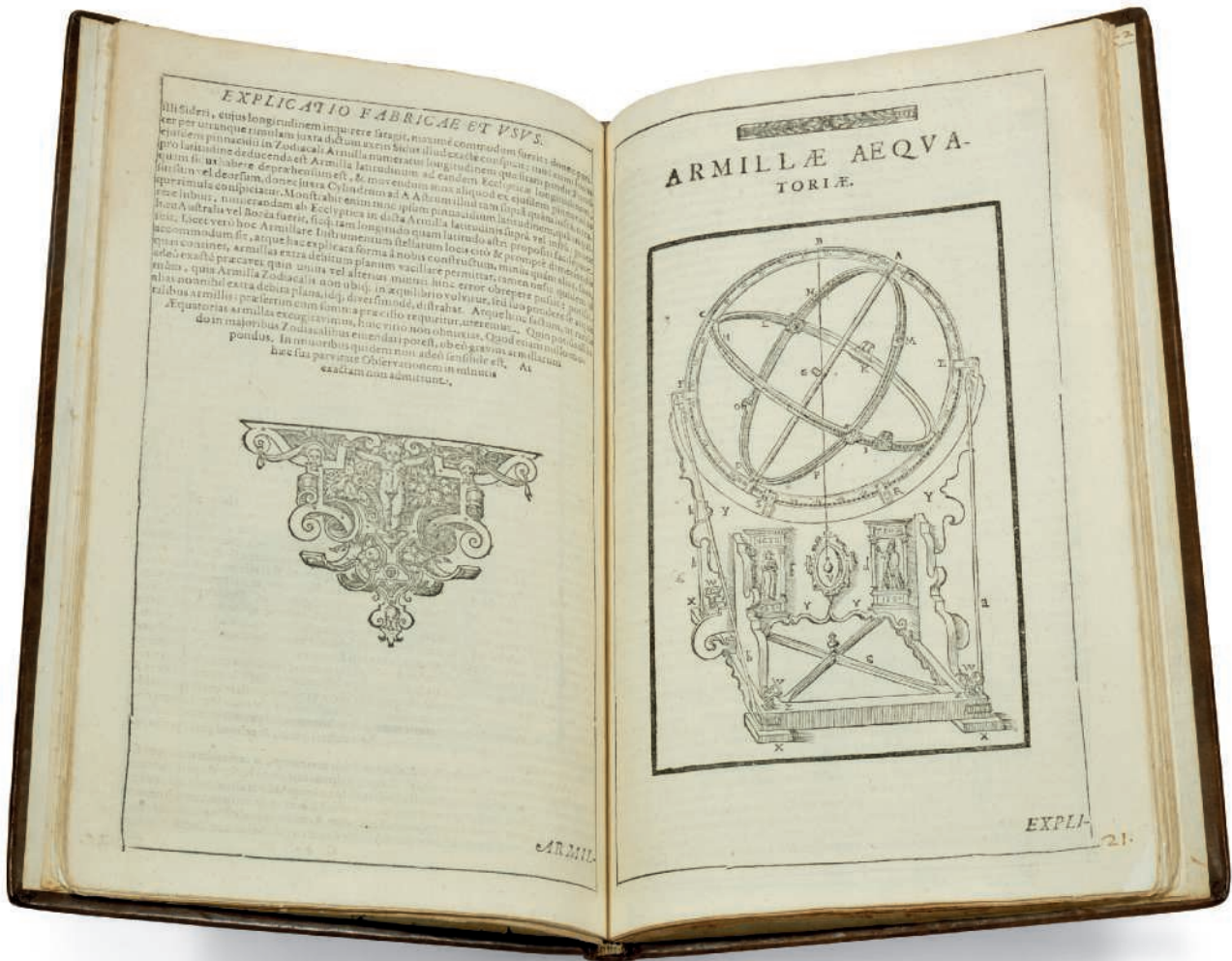
4° (230 x 169mm). 3 woodcut diagrams, 5 woodcut illustrations of Brahe's observatory, of which 2 full-page, one woodcut map, large woodcut device on final leaf. (Title torn and laid down with loss of first three letters in 'Epistolarum' and greater loss to imprint, next three leaves holed with minor loss, soiled, and crudely repaired with further loss to top lines, some waterstaining and more occasional soiling thereafter, quires X to Aa spotted, several quires heavily browned.) 17th-century vellum with manuscript title on spine, blue edges (covers bowed, two tears at upper joints, one corner chipped, spine repaired at foot). *Provenance*: note of purchase in Prague 1625 (on title-page) — entered in the catalogue of the Society of Jesuits, Vienna, 1653 and 1740 (further note on title) — University Library, Vienna (stamps).

FIRST EDITION, FIRST ISSUE of the scientific correspondence between Tycho Brahe, Landgrave Wilhelm IV of Hesse (1532-1592), and the latter's court astronomer Christopher Rothmann (d. c. 1599-1608), printed at Brahe's private press in his observatory on the island of Hven, on paper made at the observatory paper mill. Although Brahe had projected publication of a series of volumes containing selections from his vast scientific correspondence, this was the only one to appear. Prince Wilhelm, who had been tutored in his youth by Rumold Mercator, was an important patron of the study of astronomy and a gifted amateur astronomer whose primary concern was the improvement of techniques of astronomical observation. He designed several astronomical instruments, built the first observatory with a revolving dome, and conceived the project, only completed after his death, of a complete catalogue of the Hessian sky, for which vast undertaking he obtained, at Brahe's advice, the assistance of the industrious Rothmann. Brahe had visited Wilhelm at Kassel in 1575, and had favourably impressed the Landgrave, whose recommendation may have led King Frederick II of Denmark to offer Brahe the island of Hven as the site for an observatory. The three are not known to have communicated again until the comet of 1585, 'which led to an exchange of letters between Tycho in Hven and William IV and Rothmann in Kassel that lasted for six years... This correspondence covered all aspects of contemporary astronomy: instruments and methods of observing, the Copernican system (which Rothmann supported against Tycho's system), comets, and auroras' (Dibner). Appended is a short description of the Uraniborg observatory — site of 'the last of the pre-telescope observations' (Dibner) — illustrated with woodcuts and a map of the island of Hven that would be reused in the 1598 *Astronomiae instauratae mechanica*. This is one of the first such descriptions of an astronomical observatory, and anticipates the more detailed report of the *Mechanica*. VERY FEW COPIES OF THIS FIRST ISSUE REMAIN IN PRIVATE HANDS. The work is more commonly known through the re-issues of 1601 (Nuremberg: Hulsius, with new title-page) and 1610 (Frankfurt: Tampach, new title-page and some sheets reprinted). Adams B-2653; Dibner *Heralds* 4; Dreyer *Tycho Brahe*, pp. 369-70; Houzeau & Lancaster 7824; Rosenkilde and Balhausen, *Thesaurus Librorum Danicorum* (Copenhagen 1987), 256.

£12,000-18,000

\$18,000-26,000

€16,000-24,000



022

BRAHE, Tycho (1546-1601). *Astronomiae instauratae mechanica*. Nuremberg: Levinus Hulsius, 1602.

2° (307 x 185mm). Title with large engraved portrait of the author standing beneath an arch hung with the arms of the families of Brahe and Bille, 6 large engravings (five of astronomical instruments, one of the observatory at Hven, Uraniborg), 19 large woodcuts (mostly of instruments and one of Uraniborg and one of Stellaborg), and several smaller woodcuts (including a map of the island of Hven), decorative woodcut head- and tailpieces and initials. (Text-block repaired at extremities, last 2 gatherings with tiny marginal wormtrack filled and repaired affecting a few letters to a couple of words on I2, occasional faint spotting.) Modern brown morocco, bevelled edges. *Provenance*: Cyrus Fontana (purchase inscription dated 29 November 1618 on flyleaf).

Second edition (first trade edition). The 1598 edition (see lot 23) was printed in forty copies which Brahe distributed privately. With the exception of the portrait, which is new, and the engraving of an armillary sphere on C6 verso, replacing the original woodcut, the illustrations of this published edition were printed from the blocks and plates of the first edition, sold by the author's heirs to Levinus Hulsius. Dreyer, *Tycho Brahe*, pp. 260-264 and 370; Houzeau and Lancaster 2703; Norman 320; Sparrow *Milestones* 29.

£18,000-25,000

\$27,000-37,000

€24,000-33,000



023

BRAHE, Tycho (1546-1601). *Astronomiae instauratae mechanica*. Wandsbek: Philipp von Ohr for the author, 1598.

Super-royal 4° (330 x 235mm). Title printed in red and black. 22 illustrations of Brahe's astronomical instruments (4 engraved and 18 woodcut), 9 woodcut plans and diagrams including a map of Hven, title and final verso with two different woodcut versions of the author's large allegorical device, woodcut head- and tailpieces and ornamental initials, type-ornament page borders throughout (including verso of title), ALL ILLUSTRATIONS, DIAGRAMS AND ORNAMENTS FINELY COLOURED AND ILLUMINATED BY A CONTEMPORARY HAND, the initials coloured in light red, page-borders all in green, head- and tailpieces in light red, blue and green. The imperfectly printed headline on G3r completed, as in most copies, in manuscript, possibly by the author; one word in line 29 on the opposite leaf G2v corrected seemingly in the same hand. EXTRA-ILLUSTRATED WITH JACQUES DE GHEYN'S ENGRAVED PORTRAIT OF BRAHE MOUNTED ON VERSO OF TITLE, UNIFORMLY HAND-COLOURED WITH THE REST OF THE BOOK. (First two and final gatherings repaired at gutter, some minor marginal finger-soiling, heavier to title, occasional light offsetting.) Modern binding reusing old vellum and later endpapers, these latter with stamps 'Leitzkau' and engraved bookplate 'Charles Thellusson' (rebacked), green and gilt edges. *Provenance*: three stamps erased from title — first recto foliated '1', verso of final leaf '42' with illegible initials, considerable underlining and occasional 'NB's in margins, all seemingly matching in a 19th-century hand.

UNRECORDED COPY OF THE FIRST EDITION OF BRAHE'S DETAILED DESCRIPTION OF HIS ASTRONOMICAL INSTRUMENTS AND OBSERVATORY on the island of Hven in the Danish Sound. In 1576 King Frederick II of Denmark conferred upon Brahe the lifelong use of the island, and Brahe established there a well-equipped modern observatory. The complex was furnished with two dozen large astronomical instruments of Brahe's own design — all without magnification but precisely graduated to facilitate angular measurements on his famous brass-covered celestial globe. Thanks to his relatively simple — but surprisingly accurate — instruments, Brahe spent a decade carrying out the first systematic astronomical observations since the Alexandrian period. It was from Brahe's mass of data that Kepler would discover the laws of planetary motion and construct a theory of the universe.

Already in 1588 Brahe had mentioned to a correspondent his desire to publish a description of the instruments, and by 1596 the woodblocks used in the present edition were ready. However, following the death of his protector Frederick II in 1588, Brahe fell out of favour at court, and, unable to obtain from the young Christian IV the necessary funds for maintenance of the observatory, left Hven in the spring of 1597. By October of that year he had taken up residence, instruments and all, in the castle of his friend and patron Landgrave Heinrich Rantzau at Wandsbek near Hamburg. There, he devoted himself to observations and to the publication of this descriptive catalogue of his extraordinary instruments and observatories. Brahe hired the Hamburg printer Philipp von Ohr, who printed a small number of copies of the *Mechanica* on Brahe's press in Rantzau's castle, making it THE FIRST BOOK PRINTED AT WANDSBEK (and the last, for several decades). The book was printed on thick good-quality paper; to the original 18 woodcuts, four engravings were added, two reserved for the most famous instruments, the wall quadrant and the globe. Probably executed in Germany, these were THE FIRST COPPERPLATE ILLUSTRATIONS TO APPEAR IN A DANISH BOOK. The book also contains an autobiographical sketch and extracts of correspondence relating to Brahe's work at Hven. It was printed for private distribution in a small print-run, perhaps as small as 40, certainly not exceeding 100 copies, and dedicated to Rudolph II, whose patronage Brahe was actively seeking at the time.

Brahe presented copies of his work, often inscribing them on the front flyleaf, to a number of prominent scientists and patrons of the arts and sciences. Several presentation copies are known where contemporary engraved portraits of Brahe have been mounted on the verso of the title. Although the front fly-leaf of this copy has been lost, the presence of De Gheyn's portrait — with plumed cap and wearing state clothes, seated beneath an arch decorated with Brahe's 16 quarterings — suggests the possibility it was in fact used for presentation. The edges are green and gilt, which may also be indicative of a presentation copy.

Dreyer *Tycho Brahe*, p. 260, passim; Brunet I, 1200; Houzeau & Lancaster 2703; Nielsen *Dansk Bibliografi* 432; W. Norlind *Tycho Brahe* (1970), pp. 268-293; Rosenkilde and Balhausen *Thesaurus Librorum Danicorum* 258; Zinner 3758.

£120,000-180,000

\$180,000-260,000
€160,000-240,000

QVADRANS MVRALIS
SIVE TICHONICVS.



EXPLI.



024

BRUNO, Giordano (1548–1600). *De triplici minimo et mensura ad trium speculatiuarum scientiarum & multarum actuarum artium principia, libri V*. Frankfurt: Johann Wechel & Peter Fischer, 1591.

Small 8° (143 x 88mm). Wechel's device on title, 31 geometrical woodcuts, most in white on black, woodcut initials and headpieces. (Cropped, a few margins closely shaved, lightly and evenly browned throughout.) 19th/20th-century morocco (extremities quite rubbed). *Provenance*: bookplate with motto 'Discessit non decessit' (pastedown) — stamp on title.

FIRST EDITION of this philosophical poem elaborating Bruno's conception of the threefold minimum — the smallest finite and indivisible part understood in physical, mathematical, and metaphysical senses — forming the atomic basis of an infinite universe.

This book was one of the last he published before being arrested by the Inquisition and burned at the stake for heresy. 'In these poems, written in a style imitating that of Lucretius, Bruno expounded for the last time his philosophical and cosmological meditations, mingled, as in the works published in England, with powerful Hermetic influences' (DSB). Adams B-2951; Riccardi I, 199.

£15,000–25,000

\$22,000–37,000
€20,000–33,000



025

BRUNO, Giordano (1548–1600). *De monade numero et figura*. Frankfurt: J. Wechel & P. Fisher, 1591.

8° (155 x 100mm). Woodcut device on title and 50 woodcut illustrations in text. (Occasional browning and spotting.) Contemporary blindstamped pigskin dated 1592 on front cover, dark edges (lacking one metal clasp, some rubbing to extremities, front free endpaper removed). *Provenance*: Bibliothek M.K. Neudold (noted 20th-century German calligrapher; n. 15009; bookplate).

RARE FIRST EDITION, IN A CONTEMPORARY BINDING of Giordano Bruno's work on philosophical and cosmological meditations. Most of the work was written in England and some parts during Giordano Bruno's pilgrimage in Germany. 'Giordano Bruno discussed at length the numbers from one to ten and the circle and other polygons up to the decagon... With the pentad, for example, he associated the shield of the magi, the key of Zoroaster, a figure of the hand with five lines and five "montes", a sign to protect the theurgist from violent spirits, and various groups of five, with citation of Paracelsus, Talmudists and cabalists' (Thorndike VI, 459). The *De monade*, the *De minimo* and the *De immenso* were bound together and were meant to be published as one work. The dedicatory letter is also important for the biographical information about Bruno's life. Adams B-2951; Riccardi I, 200; Silvestrini 201.

£15,000–25,000

\$22,000–37,000
€20,000–33,000



026

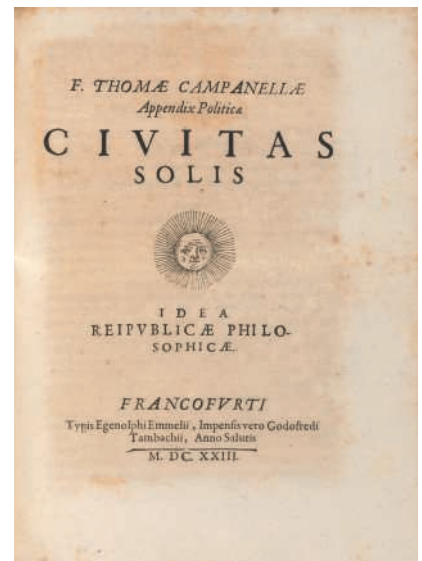
CAMPANELLA, Tommaso (1568-1639). *Astrologicorum Libri VII*. Frankfurt: Godefrid Tampach, 1630. [Bound with:] — *Realis philosophiae epilogisticae partes quatuor*. Frankfurt: Godefrid Tampach, 1623. [And:] *Apologia pro Galileo*. Frankfurt: Godefrid Tampach, 1622.

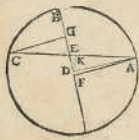
3 works in one volume, 4° (218 x 170mm). First work with woodcut on title, first and second works with woodcut diagrams and illustrations, second work with separate title of *Civitas Solis*, all with head- and tailpieces. (Some browning and spotting, sometime heavier, *Astrologicorum* with 2D3-2D4 cut at bottom corner, *Apologia* without final blank.) Contemporary vellum, new endpapers, manuscript titles on spine (rebacked, old spine partly relaid), modern box. *Provenance*: stamp removed from title.

A RARE COLLECTION OF WORKS BY CAMPANELLA, INCLUDING THE FIRST EDITION OF THE *REALIS* WITH THE FIRST PUBLICATION OF THE FAMOUS UTOPIA 'CITY OF THE SUN', with separate title and pp.415-464 describing an ideal theocratic philosophical society, where private property and classes have been abolished and life is strictly regulated by science. The VERY SCARCE ENLARGED SECOND EDITION of the *Astrologicorum*, first published the previous year in Lyon in only six books; it probably is the second issue with the pagination of book VII continued. FIRST EDITION of the *Apologia*, first issue with typographical title without the allegorical engraved surround found in some copies and without the extremely scarce errata leaf. This work contains the early defence of Galileo's espousal of the Copernican system. It was written at the height of the Copernican controversy in 1616, the year which saw the suspension of *De revolutionibus* and the initial censuring of Galileo. Campanella wrote it during his long period of imprisonment in Naples; he was later to remind Galileo that 'my writing alone is printed in your defence, and not that of others' (Ernst). Brunet I, 1520; Carli and Favaro 94 (*Realis*); Cinti 71 (*Apologia*); Drake, *Galileo at Work*, 260; cf. G. Ernst, 'Astrology and Prophecy in Campanella and Galileo', *Culture and Cosmos*, 21; Riccardi I, 217 (*Apologia*: 'rarissimo'); Wellcome I, 1238 (*Realis*).

£30,000-50,000

\$44,000-73,000
€40,000-66,000





e g. sic a e ad ec. Quibus igitur numeris a f vel g e data fuerint, habebimus in ipſem a e & e c, dabitur ex his tota a e c in eisdem. Sed ipſa ſubtendens a b e circumferentiam datur in partibus, quibus quæ ex centro d e b, quibus etiam ipſius a c dimidia a b, & reliqua e k. Coniungantur d a & d k, quæ etiam dabuntur in eisdem partibus, quibus d b, tanquam ſemiſis ſubtendens reliquum ſegmentum ipſius a b e à ſemicirculo. comprehenſum ſub angulo d a k & angulus igitur a d k datur comprehenſens dimidiam a b e circumferentiam. Sed & trianguli duobus lateribus datis & angulo e k d recto, dabitur etiam e d k, hinc totus ſub e d a angulus comprehenſens a b circumferentiam, qua etiam reliqua c b conſtabit, quorum expectabatur demonſtratio.

XV.

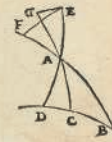
Trianguli datis omnibus angulis, etiam nullo recto, dantur omnia latera. Eſto triangulum a b c, cuius omnes anguli ſint dati, nullus autem eorum rectus. Aio omnia quoque latera eius dari. Ab aliquo enim angulorum ut a deſcendat per polos ipſius b c circumferentia a d, quæ ſecabit ipſum b c ad angulos rectos, ipſaſq; a d cadet in triangulum, niſi alter angulorum b uel c ad baſim obtuſus eſſet, & alter acutus, quod ſi accideret, ab ipſo obtuſo deducendus eſſet ad baſim. Completis igitur quadrantibus b a f, c a g, d a e, factiſq; polis in b c, deſcribantur circumferentia e f, e g. Erunt igitur & circa f g anguli recti. Triangulorum igitur rectum angulum habentium erit ratio dimidia quæ ſub duplo a e, ad dimidiam ſub duplo e f, quæ dimidia diametri ſphæræ ad dimidiam ſubtendens duplum anguli e a f. Similiter in triangulo a e g angulum rectum habente g, ſemiſis quæ ſub duplo a e ad ſemiſem, quæ ſub duplo e g, eandem habebit rationem, quam dimidia diametri ſphæræ ad dimidiam, quæ duplum anguli e a g ſubtendit. Per æquam igitur rationem dimidia ſub duplo e f ad dimidiam ſub duplo e g ratio-



nem habebit, quam ſemiſis ſub duplo angulo e a f ad ſemiſem ſub duplo anguli e a g. Et quoniam & f e, e g circumferentia datæ ſunt, ſunt enim reſidua, quibus anguli a & b differunt à rectis. Habebimus ergo ex his rationem angulorum e a f & e a g, hoc eſt, b a d ad c a d, qui illis ad verticem ſunt, datos. Totus autem b a c datus eſt. Per præcedens igitur Theorema etiam b a d & c a d anguli dabuntur.

Deinde per quintum, latera a b, b c, a c, c d, totumq; b c aſſequemur.

FINIS.



CANONSVBTEN
SARVM IN CIRCULO RE-
ctarum linearum.

627

COPERNICUS, Nicolaus (1473-1543). *De lateribus et angulis triangulorum, tum planorum rectilinearum tum sphaericorum, libellus eruditissimus & utilissimus...* Additus est canon semissium subtensarum rectorum linearum in circulo. Wittenberg: J. Lufft, 1542.

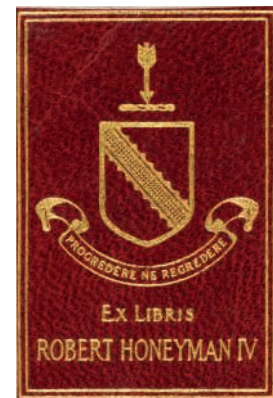
Small 4° (201 x 139mm). Title-page within woodcut border, woodcut diagrams in the text. (Faint marginal staining and finger-soiling.) Modern vellum-backed boards, contained in a modern red quarter morocco slipcase with cloth chemise (extremities faintly rubbed). *Provenance*: Hieronymus ?Schwisten (title inscription dated Nuremberg 1544) — ROBERT HONEYMAN (booklabel; sale at Sotheby's, 30 April 1979, lot 752, bought by Hitching on behalf of:) — British Rail Pension Fund (sale at Sotheby's, 27 September 1988, lot 174, to Cullen).

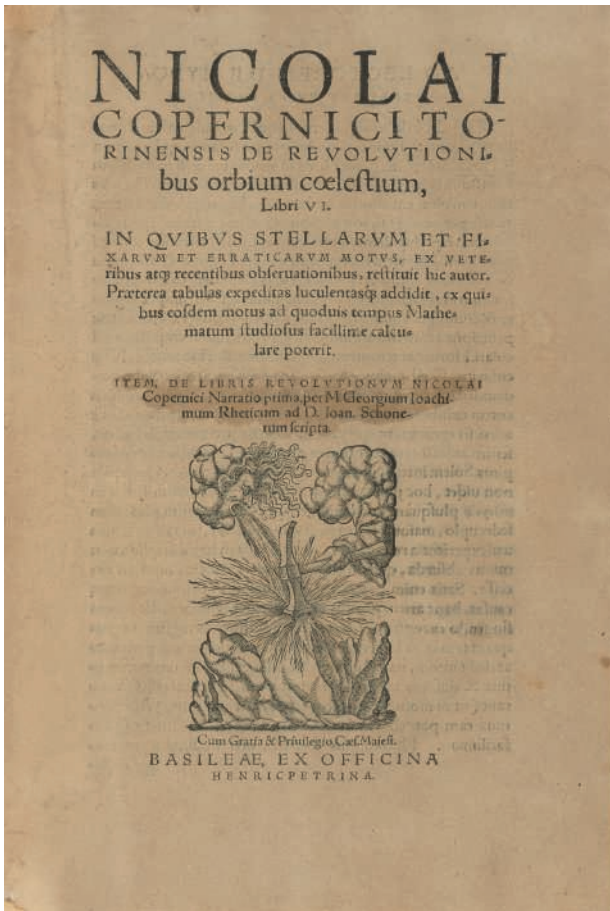
FIRST EDITION OF ANY PART OF *DE REVOLUTIONIBUS*. Apart from Copernicus' translation of Greek verses by Theophylact Simocatta into Latin prose, which was published in Cracow in 1509, this is the only work published by Copernicus before the death-bed publication of *De revolutionibus*. It comprises the section on trigonometry that appeared in *De Revolutionibus* and contains the first publication of Rheticus' trigonometric tables. The book was seen through the press by Rheticus, and includes a preface by Rheticus addressed to Georg Hartmann (1489-1545), the geographer and mathematician in Nuremberg. Rheticus himself added the table of half-chords subtended in a circle, which became the first table to give the cosine directly. EXCEPTIONALLY RARE: ONLY TWO OTHER COPIES HAVE SOLD AT AUCTION IN THE PAST 40 YEARS (ABPC/RBH). Adams C-2601; Baranowski, *Bibliografia Kopernikowska* 2; Burmeister, *Rheticus* 25; Stillwell, *Science* 160; Zinner 1795.

£100,000-150,000

\$150,000-220,000

€140,000-200,000





628

COPERNICUS, Nicolaus (1473–1543). *De revolutionibus orbium coelestium*. Basel: Heinrich Petri, 1566.

2 works in one volume, 4° (270 x 177mm). Woodcut diagrams, printer's device on title, a different device on final verso, woodcut historiated initials. (Tiny marginal wormtrack in final two gatherings, the final two leaves with wormholes filled, short marginal tear to d3, a few other tiny marginal tears, variable browning, spotting and staining throughout, Gingerich states that this copy has been 'washed from f. 169 on; f. 193 to end added from another copy to replace the censored *Narratio prima*.) Contemporary limp vellum (new endpapers, original vertical spine lettering faded, relettered horizontally at the top, rubbed, short splits at spine, lacking ties); modern half vellum box. *Provenance*: censor's ink annotation to text on c1r and c2r — Lange and Springer (sold in *Antiquariats-Katalog* 10, 1978) — Tenner (Heidelberg auction 5 May 1982, lot 564).

SECOND EDITION OF THE MOST IMPORTANT SCIENTIFIC PUBLICATION OF THE SIXTEENTH CENTURY AND A 'LANDMARK OF HUMAN THOUGHT' (PMM). *De revolutionibus* was the first work to propose a comprehensive heliostatic theory of the cosmos, according to which the sun stood still and the earth revolved around it. It thereby inaugurated one of the greatest ever paradigm shifts in the history of human thought. This edition is the first to contain Rheticus's *Narratio prima*, first published in an exceptionally rare edition at Gdansk in 1540 (see lot 87). The *Narratio* summarises and champions the Copernican heliocentric hypothesis, and records Rheticus's indefatigable efforts to persuade Copernicus to publish. The text of *De revolutionibus* follows the 1543 first edition, including Andreas Osiander's controversial unsigned preface, where he attempted to placate potential critics of the work by emphasizing its purely theoretical aspect. Petri added a prefatory recommendation by the noted astronomer Erasmus Reinhold (printed at the end of the index), stating that 'all posterity will gratefully remember the name of Copernicus, by whose labor and study the doctrine of celestial motions was again restored from near collapse' (Owen Gingerich's translation, *Eye of Heaven*, p.221). In his census of the 1543 and 1566 editions, Owen Gingerich located 317 copies of the second edition, making it only slightly less rare than the first; this is copy II.133. Adams C-2603; Cinti 48; Gingerich, *An annotated Census of Copernicus' 'De revolutionibus'* pp.136–8; Houzeau & Lancaster 2503; Taylor, *Mathematical Practitioners*, pp.184, 199 and 138; cf. PMM 70 for the first edition.

£50,000–80,000

\$74,000–120,000

€66,000–110,000



030

CORONELLI, Vincenzo Maria (1650-1718). *Orbis coelestis typus* [title across northern gores 4 and 5]. Venice: V.M. Coronelli, 1693.

A set of engraved 24 half-gores and two polar calottes for a 3½ft. diameter celestial globe, printed on thick paper (approx. 782 x 440mm; calottes 498 x 440mm). (Northern hemisphere: calotte with repaired closed tears to edges, gores 3, 4, 8 and 11 with closed tears repaired on versoes mostly in margins, gore 8 with long repaired tears with associated very minor loss; southern hemisphere: gore 3 with bottom 210mm replaced in facsimile, gores 9 and 10 with closed tears repaired on versoes mostly in margins, gore 11 with large paper repair on verso, gore 12 with marginal pinholes; some sheets with faint, insignificant marginal creasing, occasional scattered soiling, staining and spotting, mainly confined to margins.) Loose in a modern half leather case (extremities rubbed).

AN EXTREMELY RARE SET OF CORONELLI CELESTIAL GORES. Vincenzo Coronelli, a Venetian monk, is the most celebrated Italian globe maker. Born in Venice and apprenticed in the art of wood-cutting, he joined the Franciscan order of Conventional Friars Minor in 1665, and in 1671 entered the convent of S. Maria Gloriosa dei Friari in Venice. Around 1680 he made his first pair of manuscript globes for the library of Duke Ranuccio Farnese de Palma. These were noticed by the ambassador to the French King in the Cardinal Csar d'Estres, through whose offices Coronelli was commissioned to make a similar pair of globes for Louis XIV. He remained in Paris from 1681 until 1683 to complete the pair - the famous 'Marly' globes, named for the place in which they now reside - which were an enormous 15 feet in diameter and garnered him a reputation of international renown, not only as a globe-maker of no small skill and elegance, but also as the first major manufacturer outside the Netherlands to achieve any sort of success. The success and acclaim that these globes brought to Coronelli, encouraged him to make a large, but reduced-size, version at 3½ft. diameter. The production of his first printed globes began in 1688. A problem which beset Coronelli, aside from the initial lack of funds and means, was the scarcity of qualified engravers in Venice. In response to this problem, Coronelli enlisted the aid of Jean-Baptiste Nolin (1657-1725), engraver to the French King, whose work on the celestial gores was at that time, and for many years subsequently, unparalleled. Italian engravers worked on the terrestrial gores in Venice, while the celestial gores were fashioned in Paris after drawings produced by Arnold Deuvez. These globes proved extremely popular, and inspired Leiden professor Isaac Vossius to write to a friend in 1688: 'There is a Venetian monk in Paris who makes very handsome globes out of wood, measuring three feet in diameter and this at a reasonable price, the pair for sixteen pistols' (van der Krogt, 1993, p.301)

£30,000-50,000

\$44,000-73,000

€40,000-66,000

031

CORONELLI, Vincenzo Maria (1650-1718). [Bound set of gores for a celestial globe, diameter 3½ft.] Venice: 1698.

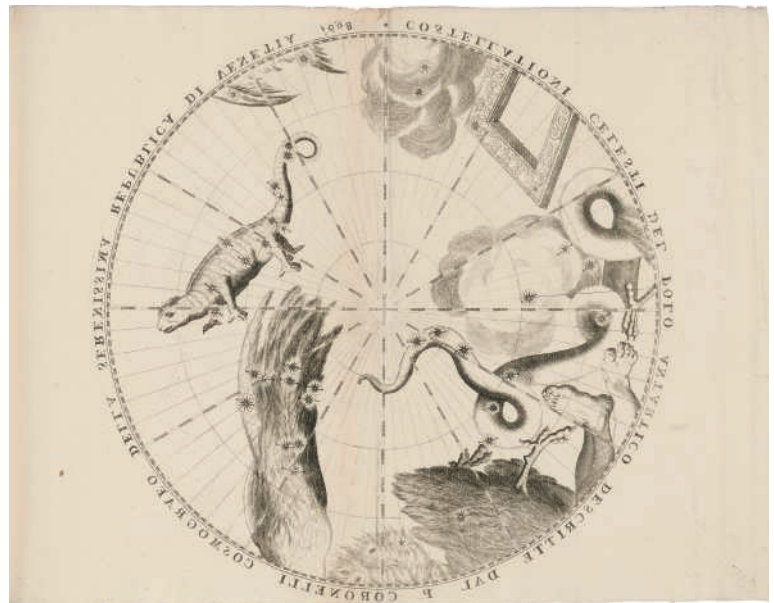
2° (386 x 239mm). 48 quarter-gores and 2 polar calottes, all printed in counterproof, all folded, together with engraved horizon ring and 4 polar calottes for a smaller 18½in. diameter globe on one folding sheet bound in at end, together with another sheet with 12 engraved moveable volvelle parts for a nocturnal. (Calottes and sheets at end slightly frayed at edges.) Old pasteboard, most gores uncut preserving many deckle edges (front hinge broken, stained and rubbed); modern vellum-backed box. *Provenance*: Sotheby's New York 11 December 2009, lot 17.

EXTREMELY RARE CELESTIAL GORES PRINTED IN COUNTERPROOF. By printing the gores in counterproof (a process in which a sheet of paper is pressed against a heavily ink print fresh off the copperplate) an image is produced that creates the celestial gores in convex. Whereas most celestial globes are made from concave gores to create a sphere to be seen from without the celestial sphere 'the God's-eye view', convex gores allow the viewer to see the constellations as they appear in the sky from a geocentric point of view.

£30,000-50,000

\$44,000-73,000

€40,000-66,000



032

DASYPODIUS, Conrad (1530-1600). *Heron mechanicus*. Strasbourg: Nicolaus Wyrion, 1580.

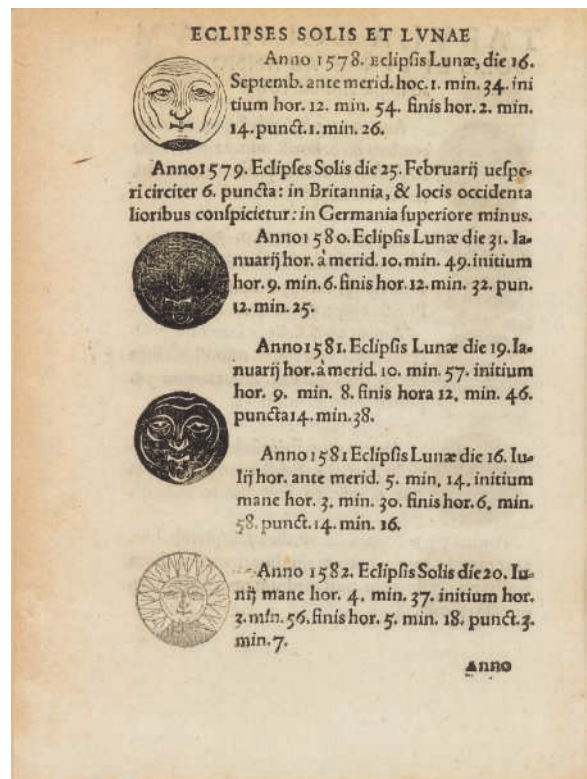
Small 4° (95 x 145mm). Large woodcut of the Strasbourg clock on title within border of type ornaments, 35 small woodcuts of solar and lunar eclipses, historiated woodcut initials. (Title with repairs along margins, gathering A with closed clean tears at top inner margin, touching text, lightly browned.) Modern vellum (new endpapers). *Provenance*: 'L. Archiepsc. Montisregal' Ludovico de Torres (1533-1583), created Archbishop of Monreale in 1573, or his nephew with the same name (1552-1609) created Archbishop in 1588 (inscription on title) — Father Paulus de Francis, 'magir et socius' (old inscription on title) — author's name deleted throughout.

RARE, FIRST AND ONLY EDITION. A description of the famous ingenious and accurate astronomical clock in the cathedral of Strasbourg. Designed by the mathematician Christian Herlin, it was finished after his death by his pupil and successor, Dasypodius who resumed construction of the clock with the help of Isaac and Josia Habrecht in 1571 and finished it in 1574. The clock featured a representation of the planets and marked the celestial movements right down to when each eclipse occurred. SCARCE, the last copy to be sold at auction was in 1967 according to RBH, no copies listed on ABPC. *BL STC German*, p.236.

£10,000-15,000

\$15,000-22,000

€14,000-20,000





033

DIDEROT, Denis (1713-1784) and D'ALEMBERT, Jean (1717-1783), editors. *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*. 'Paris' or 'Neuchâtel' [but Geneva: Gabriel Cramer for Charles Joseph Panckouke et al., 1771-1774]. 17 volumes [I-XVII]. — *Recueil de planches, sur les sciences, les arts libéraux, et les arts mécaniques*. Paris: Briasson, David, Le Breton, Durand, 1762-1772. 12 volumes [I-XI] with *Suite de Recueil de planches*. Paris: Panckouke, Stoupe, Brunet; Amsterdam: M.M. Rey, 1777 [XII]. — *Supplément à l'Encyclopédie*. Edited by Jean Baptiste René Robinet. Amsterdam: M.M. Rey, 1776-1777. 4 volumes [I-IV] — *Table analytique et raisonné des matières contenues*. Edited by Pierre Mouchon. Paris: Panckouke; Amsterdam: Marc-Michel Rey, 1780. 2 volumes [I-II].

35 volumes, 2° (395 x 245mm). Collation and contents as in Lough and Schwab Geneva folio edition with these exceptions: *Dictionnaire* [VII] foliated 248, 1-9; [XVII] with 4D4 signed Dddd ij. Engraved title-page by B.L. Prévost after C.N. Cochin in first volume and large folding engraved 'Tree of Knowledge' plate in vol. I of *Table*; 2,795 engraved plates from the Paris edition as described in Schwab and Lough (2,580 in *Planches*, 215 in *Suite des planches*, many folding) with two exceptions: vol. IV with 'DONT DEUX DOUBLES' in 'Forges' (instead of 'DONT TREIZE DOUBLES') and vol. VII with 'MARECHAL FERRANT' without the accent on the first 'E'. A complete set: the numbers of plates given on the title-pages total 3,129 because double, triple or quadruple folding plates are counted as 2, 3 or 4. (Variable light spotting, soiling, browning and creasing, few scattered rust holes, small tear at fold of large 'tree of knowledge' plate, occasional light dampstaining heavier in vol. XII of plates and vol. IV of text with marginal dampstaining affecting approximately final 200 leaves, without blanks called for by Schwab and Lough, vol. VII of *Planches* lacking 'Avis Aux Relieurs' leaf, half-title of vol. I of plates reinforced, without half-titles in vol. VIII and vols.

X–XVII of text and in vol. II of *Table*.) Near uniform contemporary speckled calf, text, table and plate volumes variably tooled on spine, gilt borders, spines gilt in compartments, gilt morocco lettering–pieces, marbled edges to *Table analytique* and red edges to other vols (some scuffing and light rubbing, extremities a little rubbed, some touches of restoration, some joints splitting and chipped, vol. IV of text dampstained with back cover restored and new endpapers). *Provenance*: removed stamps on titles of plate volumes.

THE GENEVA EDITION OF THE TEXT AND THE PARIS EDITION OF THE PLATES. ONE OF THE MOST SPLENDID PRODUCTS OF THE ENLIGHTENMENT AND ONE OF THE GREAT LANDMARKS OF WESTERN INTELLECTUAL HISTORY IN A CONTEMPORARY BINDING. ‘A monument in the history of European thought; the acme of the age of reason; a prime motive force in undermining the *Ancien régime* and in heralding the French Revolution; a permanent source for all aspects of eighteenth-century civilization’ (PMM). ‘The greatest encyclopedia of science, which had widespread effect in establishing uniformity of terminology, concept, and procedure in all fields of science and technology’ (Grolier/Horblit). The majority of entries were written by Diderot and D’Alembert; other collaborators included Baron d’Holbach, Rousseau, Voltaire, Montesquieu, Buffon, Marmontel, Condorcet, Necker and Turgot. The first seven volumes of the *Encyclopédie* were published in Paris under a royal privilege; when this was withdrawn in 1759 printing continued clandestinely, and the last ten volumes were issued under the false imprint of Samuel Faulche, Neuchâtel. In 1770 Panckoucke attempted to reprint the work in Paris but was opposed by the French government, and instead printed his new edition in Geneva imitating the original imprints. Panckoucke had hoped to re-use the copperplates made for the first edition, but most had to be redone. The supplemental volumes and *Table analytique* were published in one edition only. Grolier/Horblit 25b; John Lough, *Essays on the Encyclopédie*, London 1968; PMM 200; Schwab, Rex, and Lough, *Inventory of Diderot’s Encyclopédie*, I (1971), VII (1984) [*Studies on Voltaire and the Eighteenth Century* 80, 223].

(35)

£15,000–20,000

\$22,000–29,000

€20,000–26,000

634

DIGGES, Thomas (c.1546–1595). *Alae seu scalae mathematicae*. London: Thomas Marsh, 1573.

Small 4° (201 x 146mm). Full-page woodcut on verso of title, depicting the constellation of Cassiopeia, full-page woodcut of Lord Burghley’s arms on A2r and Digges’s arms on recto of final leaf, woodcut diagrams. (Small wormtrack in title, touching one or two letters on recto, closed in the following 2 leaves, inner gutter of title repaired, a few tiny wormholes in first few leaves, browned throughout, light spotting at beginning and end.) Modern vellum. *Provenance*: erased inscription on title.

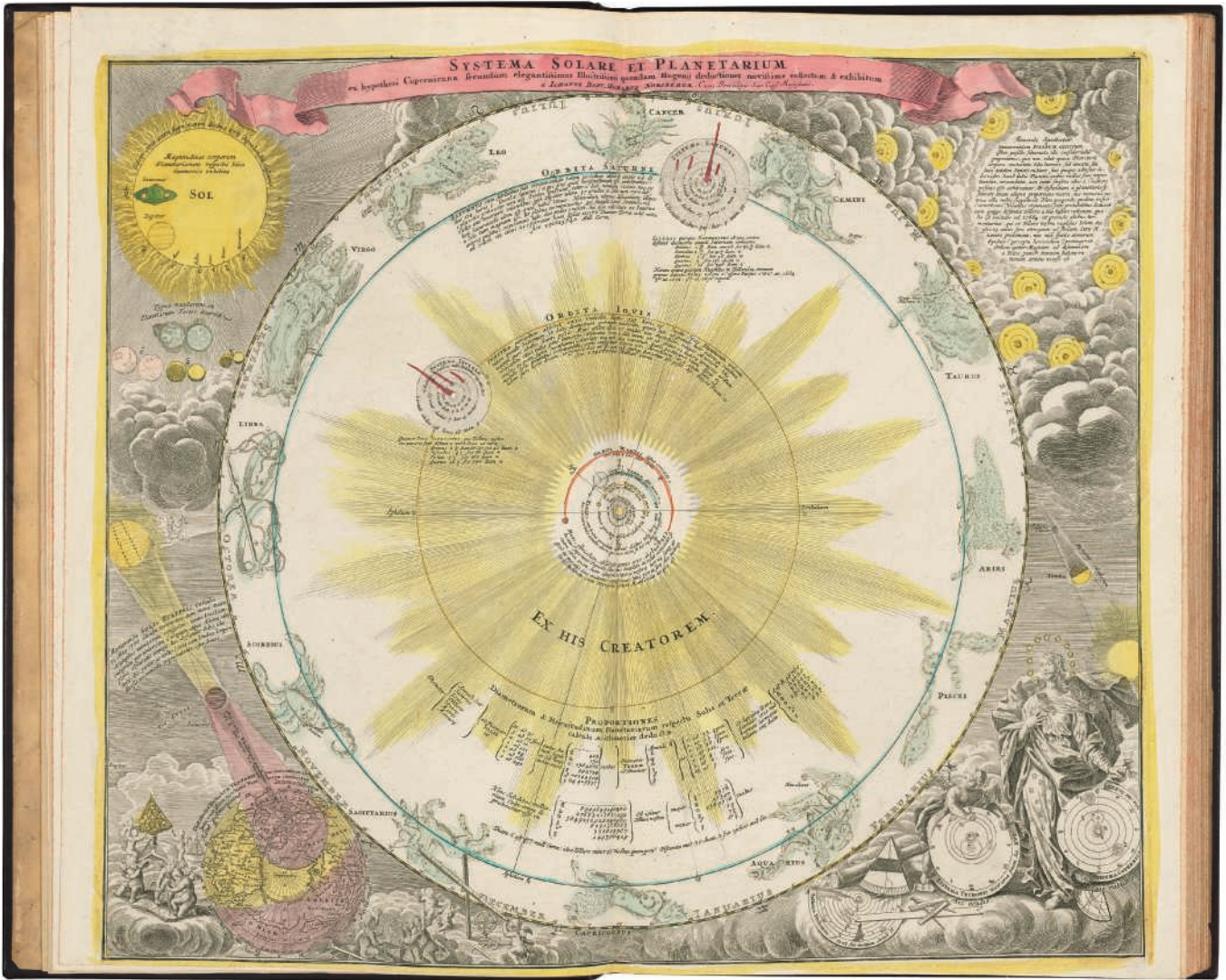
FIRST EDITION. The work was prompted by the ‘new star’ of 1572, a phenomenon which astounded Europe and became the subject of an outpouring of astronomical and astrological work. ‘Addressed to a European audience of astronomers, *Alae* was Digges’ only Latin publication and offered an analysis and improvement of the mathematical and instrumental techniques available for the study of the new star. Recent radio astronomy has shown that Digges’ observations were the most accurate then made. Moreover, he concluded that the new star was indeed a celestial body rather than a meteorological phenomenon, thus challenging the interpretations offered by contemporary Aristotelian natural philosophy. Digges’ cosmological ambitions went beyond his claims concerning the new star. In *Alae* he condemned the “monstrous” planetary astronomy of Ptolemy and wrote approvingly of Copernicus (*Alae*, sigs. A4v, 2A3r, 2A4v, L2v). But he did not wholeheartedly endorse the Copernican heliocentric system, in which the sun rather than the earth is stationed at the centre of the universe. Writing only shortly after the appearance of the new star, Digges initially hoped that its changing brightness might provide concrete observational evidence to support or modify the Copernican doctrine’ (DNB). Houzeau and Lancaster 2694; STC 6871.



£10,000–15,000

\$15,000–22,000

€14,000–20,000



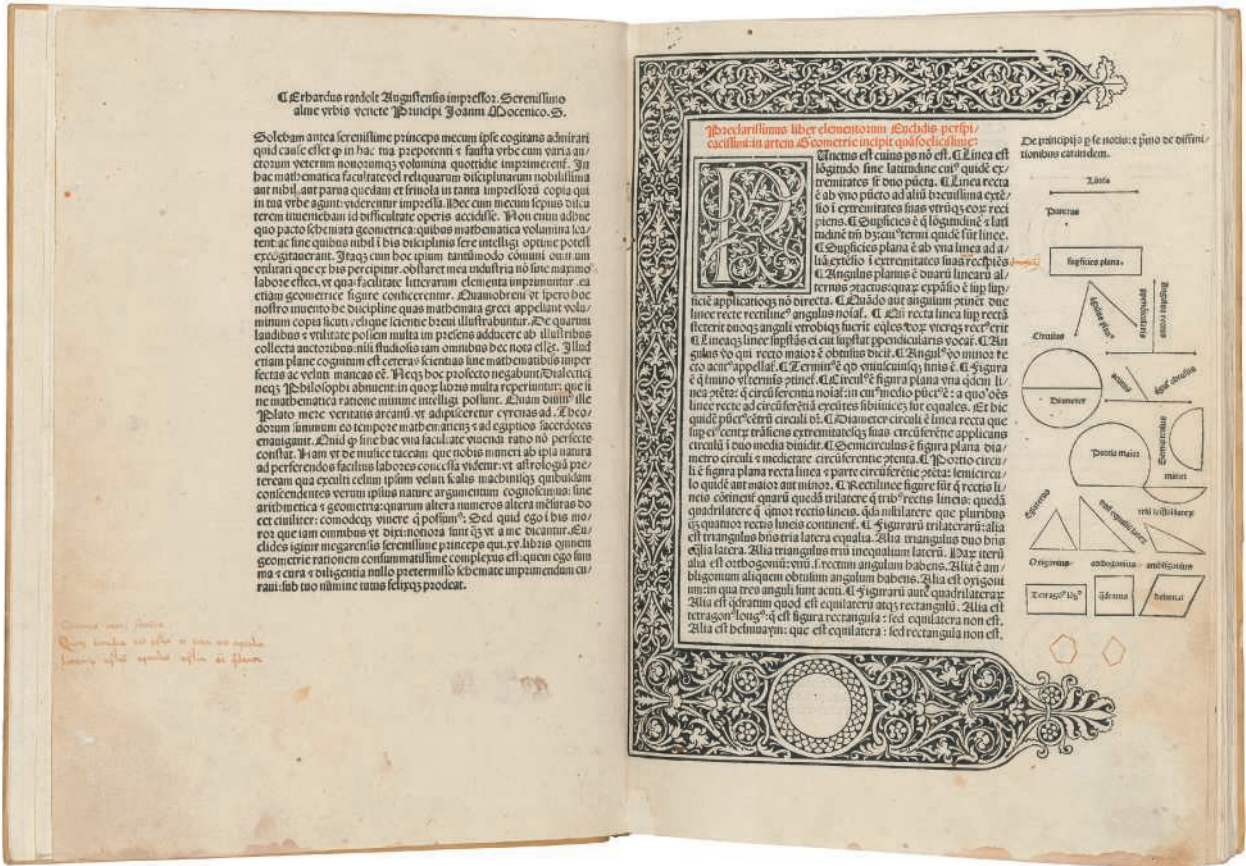
035

DOPPELMAYR, Johann Gabriel (1671–1750). *Atlas coelestis in quo mundus spectabilis*. Nuremberg: Homann's Heirs, 1742. 2° (520 x 319mm). Additional engraved allegorical title by J.C. Reinsperger after J.J. Preisler, engraved title-page with vignette, index, 30 double-page engraved plates, partially hand-coloured, mounted on guards. (Lower margin of plate 13 cropped, affecting border.) Modern calf gilt, slipcase.

FIRST EDITION OF DOPPELMAYR'S IMPORTANT ASTRONOMICAL WORK. The plates depict celestial charts with diagrams, tables and views of observatories and were intended as an introduction to the fundamentals of astronomy. 'Besides being a star chart and a selenographic map, the Atlas includes diagrams illustrating the planetary systems of Copernicus, Tycho, and Riccioli; the elliptic theories of Kepler, Boulliau, Seth Ward, and Mercator; the lunar theories of Tycho, Horrocks, and Newton; and Halley's cometary theory.' (DSB IV, p.166).

£12,000–18,000

\$18,000–26,000
£16,000–24,000



636

EUCLIDES (fl. c. 300 B.C.). *Elementa geometriae*. Translated from Greek or Arabic into Latin by Adelard of Bath. Edited by Johannes Campanus. Venice: Erhard Ratdolt, 25 May 1482.

Chancery 2° (287 x 209mm). Collation: a¹⁰ b¹⁻⁸ (a1r blank, a1v printer's address to Doge Giovanni Mocenigo, a2r text, r7v colophon, r8 blank). 137 leaves (of 138, without final blank). 45 lines and headline. Heading on a2r printed in red. Woodcut white-on-black vine three-quarter border opening text (Redgrave border 3, perhaps by Bernhard Maler), woodcut 11- and 5-line white-on-black initials, numerous woodcut text diagrams. Variant settings conform to GW main entry. Types: 3:91G, 7:92G, 7b:100R, 6:56G. (Small wormholes, somewhat heavier at beginning and end, a few marginal repairs, affecting a few letters in one leaf.) Modern flexible vellum. *Provenance*: several early annotations, also to a few diagrams, several additional diagrams, indicating a contemporary reader studying and correcting the text of the first several propositions.

FIRST EDITION of a work which has 'exercised an influence upon the human mind greater than that of any other work except the Bible' (DSB 4, p.415). The *Elements* were of such importance even in antiquity that Euclid became known simply as 'the Writer of the Elements' or 'the Geographer'. A brilliant compilation and refinement of earlier mathematical knowledge, it remained a standard textbook for more than two millennia. One of the most famous geometric proofs — 'Pythagoras's theorem' — is due to Euclid, and it is stated as proposition 47 in Book I. The 'decisive influence of Euclid's geometrical conception of mathematics is reflected in two of the supreme works in the history of thought, Newton's *Principia* and Kant's *Kritik der reinen Vernunft*' (DSB p.425). Books I–XIII are accepted as genuine, while book XIV is considered the work of Hysicles and book XV by Isidorus Milesius.

The *Elementa* is not only 'ONE OF THE GREAT CLASSICS IN THE HISTORY OF SCIENCE [BUT ALSO] A MASTERPIECE OF EARLY TYPOGRAPHICAL ABILITY AND INGENUITY' (Bühler, p.102). It is also the first dated book with diagrams (Stillwell). HC *6693; BMC V, 285; Flodr 170 Eucl.1; GW 9428; Klebs 383.1; Norman 729; Redgrave 26; Sander 2605; PMM 25; Goff E-113.

£50,000–80,000

\$74,000–120,000
€66,000–110,000

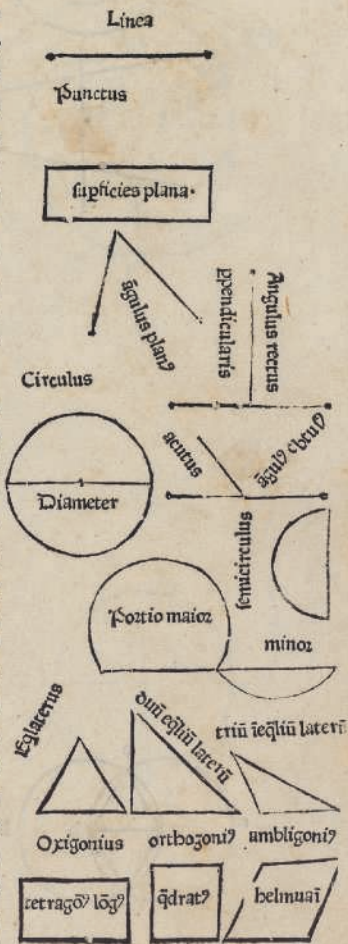


Preclarissimus liber elementorum Euclidis perspicacissimi: in artem Geometrie incipit quæ felicissime:



Lineatus est cuius pars non est. Linea est longitudo sine latitudine cuius quidem extremitates sunt duo puncta. Linea recta est ab uno puncto ad aliud brevissima extensio in extremitates suas utrumque eorum recipiens. Superficies est que longitudo sine latitudine tantum habet: cuius termini quidem sunt linee. Superficies plana est ab una linea ad aliam extensio in extremitates suas recipiens. Angulus planus est duarum linearum alternus contactus: quarum expansio est super superficie applicatioque non directa. Quando autem angulum continet due linee recte rectilineus angulus nominatur. Quando recta linea super recta steterit duoque anguli utrobique fuerit equeles: eorum uterque rectus erit. Lineaque linee superstitas ei cuius superstitat perpendicularis uocatur. Angulus uero qui recto maiore obtusus dicitur. Angulus uero minor recto acutus appellatur. Terminus est quod uniuscuiusque finis est. Figura est que terminis continetur. Circulus est figura plana una quodam linea contacta: que circumferentia nominatur: in cuius medio punctus est: a quo omnes linee recte ad circumferentiam exeuntes sibi invicem sunt equales. Et hic quodam punctus centrum circuli dicitur. Diameter circuli est linea recta que super eum centrum transiens extremitatesque suas circumferentiam applicans circulum in duo media dividit. Semicirculus est figura plana diametro circuli & medietate circumferentiae contacta. Portio circuli est figura plana recta linea & parte circumferentiae contacta: semicirculo quidem aut maior aut minor. Rectilinee figure sunt que rectis lineis continentur: quare quedam trilatera que tribus rectis lineis: quedam quadrilatera que quatuor rectis lineis. quedam multilatera que pluribus que quatuor rectis lineis continentur. Figurarum trilaterarum: alia est triangulus huiusmodi tria latera equalia. Alia triangulus duo habens equalia latera. Alia triangulus trium inequalium laterum. Harum itaque alia est orthogoniū: unum scilicet rectum angulum habens. Alia est amblygonium aliquem obtusum angulum habens. Alia est oxigoniū: in qua tres anguli sunt acuti. Figurarum autem quadrilaterarum: Alia est quadratum quod est equaliterum atque rectangulum. Alia est tetragonum longum: que est figura rectangula: sed equaliterum non est. Alia est helmuaym: que est equaliterum: sed rectangula non est.

De principiis per se notis: & primo de definitionibus earundem.



037

EUCLIDES (fl. c.300 B.C.). *Elementa geometriæ*. Translated from Greek or Arabic into Latin by Adelard of Bath (fl. 1st half 12th century), revised by Johannes Campanus of Novara (d. 1296). Vicenza: Leonardus Achates de Basilea and Gulielmus de Papia, 13 May 1491.

Super-chancery 2° (307 x 207mm). Collation: a¹⁰ b-r⁸ (a1 blank, a2r *Preclearissimus liber elementorum*, incipit: *Punctus est cuius pars non est*, r9v colophon, r10 blank). 136 leaves (without either blank but with an early flyleaf at each end). Types 7:114R, 6:88R, 10:74G. 50-51 lines (proofs) and headline. a2r with three-sided woodcut animal border and matching initial P, heading printed in red, all other woodcut initials white-on-black. Numerous woodcut and type-ruler diagrams in the margins. (Two patched-over wormholes in margins of quire a, some browning to quire o.) 18th-century half vellum over pasteboard, manuscript title on spine, uncut (recased with new endpapers).

SECOND EDITION, MUCH RARER THAN RATDOLT'S FIRST EDITION OF 1482, giving the standard medieval recension of the text. The *editio princeps* was not published until 1533 (Basel: Johann Herwagen). Written in thirteen books, Euclid's *Elements* is said to have 'exercised an influence upon the human mind greater than that of any other work except the Bible' (DSB). Ratdolt brilliantly solved the technical problems of relating, if not integrating, illustrations to text, and the Vicenza printers understandably copied his idea, setting short lines to provide adequate space for the diagrams in the right-hand margin. Few copies have appeared at auction in recent times but they include the Honeyman, Duarte and Shuckburgh copies. THIS IS A HANDSOME DECKLE-EDGED COPY, 14mm. taller than the 'large' Shuckburgh copy. HC *6694; GW 9429; BMC VII, 1033; IGI 3723; Sander 2606; Klebs 383.2; Goff E-114.

£40,000-60,000

\$59,000-88,000

€53,000-79,000

038

FLAMSTEED, John (1646-1719). *Historiæ Coelestis Britannicæ*. Edited by James Hodgson. London: H. Meere, 1725.

3 volumes, 2° (396 x 248mm). Pagination: 8, 40, 420 (the last 8pp. misnumbered), [2] (errata); [4], 573, [1], 70, [2] (errata); [4], 164, [2] ['Ad lectorem'], 76, 83, [1], 103, [1]. Engraved frontispiece portrait by G. Vertue after T. Gibson, 8 engraved plates (5 in vol. 1, 2 in vol. III) and one full-page illustration, engraved headpieces by L. du Guernier after J.B. Catenaro. (A generally clean copy, some browning varying in degree, quires A-O of vol. II wormed at bottom margin.) Contemporary panelled calf (rebacked, some chipping to covers). *Provenance*: Arthur Frank (bookplate tipped into vol. II).

FIRST COMPLETE EDITION of Flamsteed's astronomical observations and star catalogue, in which he calculated with unprecedented accuracy the positions of 3000 stars, having 'eliminated all uncertainties caused by parallax, refraction, and latitude' (DSB). Flamsteed, astronomer royal from 1675 to 1719, long refused to publish, despite much urging by Halley, Newton and others. In 1712 Halley, ignoring Flamsteed's objections, published a portion of the work himself in an edition of 400 copies; the astronomer recovered 300 of these in 1715 and burned them, or, as he put it, 'made a sacrifice of them to Heavenly Truth' (quoted in ODNB). Thirteen years later this posthumous edition was published by his executors, pursuant to his will. Like the Macclesfield and the Royal Institution copies, this copy does not contain an errata leaf at the end of vol. III. VERY RARE. Brunet II, 1280; Lowndes II, 805.

(3)

£25,000-35,000

\$37,000-51,000

€33,000-46,000



FLUDD, Robert (1547-1637). Works, comprising:

Volume I: *Utriusque cosmi maioris scilicet et minoris metaphysica, physica atque technica historia*. [i.e. Vol. 1 (*Macrocosmi*), part 1.] Engraved title of the Macrocosmus incorporating a Vitruvian Man, double-page engraved folding plate 'Integrae naturae speculum artisque imago', engraved illustrations in the text, that of the primordial world on p.41 folding. – *De Naturae Simia*. [i.e. Vol. 1, part 2.] Engraved title of an ape in the centre of a wheel of arts and sciences, folding engraved plate of a musical temple, 4 double-page plates of military formations, engraved and woodcut text-illustrations. Oppenheim: Hieronymus Gallerus for Johan Theodorus de Bry, 1617-1618 [but, the second edition, Frankfurt: Caspar Rötelius for de Bry, 1624].

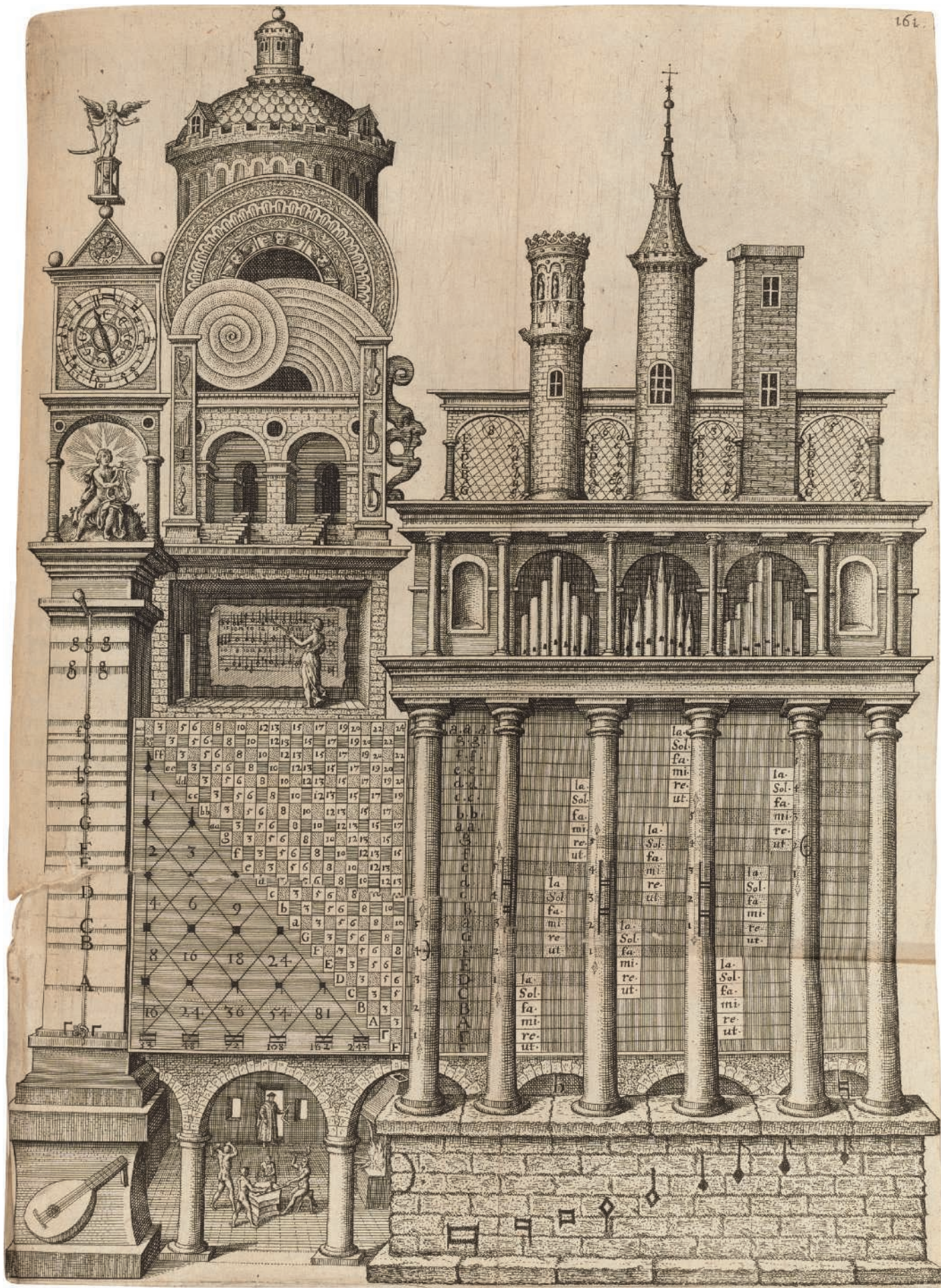
Volume II: *De Supernaturali, naturali, praternaturali et contranaturali microcosmi historia*. [i.e. Vol. 2 (*Microcosmi*), part 1, section 1.] Oppenheim: Hieronymus Gallerus for de Bry, 1619. Engraved title incorporating a Vitruvian Man, 2 double-page engraved folding plates 'Catoptrum Meteorographicum' and of the Diapason, neither of which present in the Macclesfield (Maggs cat. 1429/80) or Royal Institution (Christie's 1 December 2015, lot 230) copies. – *De technica microcosmi historia*. [i.e. Vol. 2, part 1, section 2, portions 1-7]. Title to section 2 with large engraved vignette of a naked man standing on a circle with representations of the seven portions 'De technica microcosmi' (misbound between b4 and c1), with 7 further portion titles, 6 of which with large engraved vignettes. – *De Praeternaturali utriusque mundi historia*. [i.e. Vol. 2, part 2. Frankfurt: Erasmus Kempffer for de Bry, 1621.] One double-page engraved plate 'Causarum Universalium Speculum' (misbound at the beginning of vol. 2, pt 1), engraved and woodcut text-illustrations, one full-page. – *Anatomiae amphitheatrum. De Anatomia triplici*. [i.e. Vol. 2, part 3]. Frankfurt: Erasmus Kempffer for de Bry, 1623. Half-title (not present in the Macclesfield or Royal Institution copies), additional engraved title with portrait of de Bry on verso, engraved and woodcut text-illustrations; [the work continued, with continuous pagination, as:] *Monochordum mundi symphoniacum*. [i.e. Vol. 2, part 4]. Frankfurt: Erasmus Kempffer for de Bry, 1623 [the first folio edition thus]. Woodcut title device and a few text diagrams – *Philosophia sacra et vere Christiana seu Meteorologica Cosmica*. [i.e. Vol. 2 part 5]. Frankfurt: in Officina Bryana, 1626. Title within engraved frame of 8 sections, engraved text-illustrations, one of which folding. [Bound with:] – *Veritatis proscenium... seu Demonstratio quaedam analytica*. Frankfurt: Erasmus Kempffer for de Bry, 1621.

Volume III: *Medicina Catholica, seu mysticum artis medicandis sacrarium*. [i.e. Vol. 3, part 1]. Frankfurt: by Caspar Rötelius for Wilhelm Fitzer, 1629. Engraved text-illustrations. This bound after: – *Integrum morborum mysterium, sive Medicinae Catholicae* [i.e. Vol. 3, part 2, section 1]. [Frankfurt: Wolfgang Hofmann in officina Wilhelm Fitzer, 1631]. Double-page engraved plate 'Hostilis monumenti salutis invadendi typus', engraved and woodcut text-illustrations. – *καθολικον medicorum κατοπτρον*. [i.e. Vol. 3, part 2, section 2]. Anno: 1631. Engraved plates 'Horae diurnae' and 'Causarum universalium speculum', this latter folding, engraved text-illustrations, one of an astrological circle of crises folding, engraved vignette of an astrologer casting a horoscope for a boy on fly-title to 'Ouromantia, hoc est divinatio per urinam' (p. 233), and of a man holding a urine specimen on fly-title to 'Ouromantia physiologica' (p. 255), double-page folding typographical table 'Caput X' with woodcut diagram. [Bound with:] – *De Sophiae cum moria certamen*. [i.e. part 1]. [Frankfurt: Wolfgang Hofmann for William Fitzer] Anno: 1629. Engraved folding plate of the Diapason, a repeat of that found in vol. 1, part 1, section 1. [And:] – *Summum Bonum*. [i.e. part 2] [Frankfurt: Wolfgang Hofmann for William Fitzer] Anno: 1629. Title with engraved emblem of the rose that gives honey to the bees. [Bound with:] – *Pulsus seu nova et arcana pulsuum historiae*. [i.e. Vol. 3, part 3]. [Frankfurt: Wolfgang Hofmann in officina Wilhelm Fitzer, 1631.] Title with engraved vignette of a hand from the clouds taking a pulse from a fore-arm, woodcut and engraved text-illustrations. [With:] – *Clavis philosophiae et alchymiae fluddanae*. Frankfurt: [Wolfgang Hofmann for] W. Fitzer, 1633. Title with engraved emblem of the rose that gives honey to the bees.

16 works in 3 volumes, 2° (305 x 183mm). Illustrated throughout [see details under each title]. (Bound without the final fourth part of the *Medicina Catholica* entitled *Medicamentosum Apollinis oraculum*, 1630, and without the *Phylosophia Moysaica* and *Responsum ad Hoplocrismaspongum*, both published later in Gouda by Peter Rammazenus, 1638; lacking A2 from vol. II, pt1, four preliminary leaves from vol. II, pt 2, and the half-title 'Aer Arca Dei...' from vol. II, pt 4, with early ink manuscript note to this effect on verso of the engraved title; *Integrum morborum mysterium* lacking the engraved title with portrait of author and with gatherings B-D4 repaired and remargined, folding plate 'Causarum universalium speculum' torn at creasefold but without loss; *Pulsus* without the folding engraved plate of a single-stringed instrument demonstrating the Diapason; some titles and plates trimmed close just into images, some folding plates remargined, without some blanks, browning and spotting, sometimes heavy, some short tears, occasional marginal dampstaining, some minor worming at beginning of vol. I and to final part at end of vol. III.) Contemporary calf, gilt spines, red morocco gilt spine labels. (extremities rubbed, small split and associated hole to fourth spine compartment of vol. I, some rubbing, sometime refurbished). Provenance: early ink ownership inscription deleted on verso of first title in vol. I — early ownership inscriptions on titles overwritten by: — J.H. Cohaus, MD (ink ownership inscriptions on titles) — Johann Anton, Freiherrn von Graes of Loburg and Diepenbrock (ownership inscriptions dated 1744 and 1748 on titles).

A RARE, UNIFORMLY-BOUND SET OF HERMETIC WORKS BY FLUDD, richly illustrated with designs attributed to de Bry, Merian and Fludd. The *Macrocosm* and *Microcosm* volumes, Fludd's masterpieces, include the rare *De Praeternaturali utriusque mundi historia* (i.e. the second part of volume 2) which is seldom found bound with the others. Fludd sought a new understanding of nature based on Christian principles and interpreted the Genesis as a divine alchemical process. He believed the eternal truths of the Scriptures and the mysteries of the ancient occultist carried far more weight than the evidence of the senses and that humans are linked to divinity through nature. The *Macrocosm* is 'a presentation of Renaissance Magia and Cabala, with the addition of Alchymia as developed by Paracelsus and the developments introduced by John Dee into these traditions... [it is] a Rosicrucian philosophy, a Renaissance philosophy brought up to date' (Yates, *The Rosicrucian Enlightenment*, p. 80). The *Veritatis proscenium* is Fludd's reply to Kepler's criticism of *Microcosm*. Caillet 4033, 4036, 4042; Duveen p.222-3; Fischer and Haberlandt pp.47-48; Houzeau & Lancaster 2965-2969; Wellcome 2324-2332. The number of plates varies between copies, and different copies are seldom identical in make-up. This set is sold not subject to return.

(3)



040

GALILEI, Galileo (1564–1642). *Le operazioni del compasso geometrico, et militare*. Padua: in the house of the author by Pietro Marinelli, 1606. [Bound with:] Galileo GALILEI. *Difesa contro alle calunnie & imposture di Baldessare Capra*. Venice: Tomaso Baglioni, 1607.

2 works in one volume, 4° (246 x 170mm). Woodcut device on titles and at end of second work, woodcut diagrams and initials, second work with final blank. (Tiny tear at top gutter of A1 in first work and small repair to margin of H1 in second work, a few leaves with faint dampstaining, somewhat heavier in second work.) Contemporary calf, single fillet border, author's name and title in gilt, gilt edges (spine chipped at foot, joints cracked, a few tiny wormholes, a little rubbed, front pastedown renewed); modern box. *Provenance*: Samuel Verplanck Hoffman (1866–1942, astronomer; bookplate; sold, Christie's London, 12 November 1975, lot 51, £9,000 to Perman) — [sold, Sotheby's London, 27 September 1988, lot 187].

EXTRAORDINARILY RARE FIRST EDITION OF GALILEO'S FIRST PRINTED WORK AND THE FIRST PUBLISHED WORK ON AN ANALOGUE CALCULATOR.

Privately issued in an edition of only 60 copies for presentation to patrons and buyers of the compass, Galileo may have issued the *Operazioni del compasso* in order to establish his sole priority as the inventor of the 'geometrical and military compass' or sector, a calculating and observation device that he had begun manufacturing in 1597. It was based on the proportional compass, an instrument first developed by Commandino prior to 1568, but Galileo's version included numerous additions and improvements that rendered it the most useful mathematical instrument of its period and even beyond a calculating device: Galileo's compass remained unsurpassed until the advent of the slide rule in the mid-19th-century.

The success and popularity of Galileo's instrument naturally made it attractive to imitators, and Galileo deliberately omitted any illustration of the compass in his treatise as a deterrent to unauthorized copying. Nevertheless, Galileo's design was copied, most notably by Baldassare Capra, who published a work entitled *Usus et fabrica circini cuiusdam proportionis* (1607) claiming that he himself was the inventor of the compass, and accusing Galileo of plagiarism. Galileo took legal action against Capra and won: all copies of Capra's book were suppressed, and Galileo published the present *Difesa contro alle calunnie & imposture di Baldessare Capra* (1607), exonerating himself in the affair.

Galileo's compass consisted of a pointed sector, made from a pair of pivoted arms, which could be converted to an observation instrument by the addition of a quadrant. The front faces of the arms were engraved with a scale of logarithmically based 'lines of numbers' by which an operator could compute the results of any arithmetical multiplication or division to within an accuracy of 0.1. Supplementary scales, including squares, cubes, roots, and densities of metals and stones, were also added. Historian of science Stillman Drake, author of the definitive modern translation of *Operazioni del compasso*, noted how Galileo's compass revolutionized and democratized practical mathematics in the same way that the pocket calculator has done in our own time. Galileo kept producing compasses until at least 1610, and this treatise of the compass was reprinted several times during his lifetime. At the very end of his life, Galileo finally authorized a large engraving illustrating his invention (included in the 1640 edition of the *Operazioni del compasso*), thereby ending the virtual monopoly on its manufacture that he had been careful to preserve.

Samuel Verplanck Hoffman studied and taught astronomy at Johns Hopkins University, and he was a collector of astrolabes and a member of the New York Historical Society; one of his most prized possessions was the astrolabe used by Samuel de Champlain on his early American explorations.

According to ABPC/RBH ONLY 3 OTHER COPIES HAVE SOLD AT AUCTION IN THE LAST 30 YEARS. Owen Gingerich confirmed the authenticity of the present copy in a email dated 30 May 2006, accompanying this lot. Bedini, *Science and Instruments in Seventeenth-Century Italy* I, pp. 262–68; Carli and Favaro 23; Cinti 16; not in Dibner *Heralds* or Norman.

£250,000–350,000

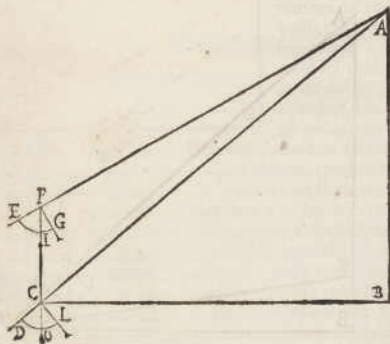
\$370,000–510,000

€330,000–460,000



DEL QUADRANTE PER

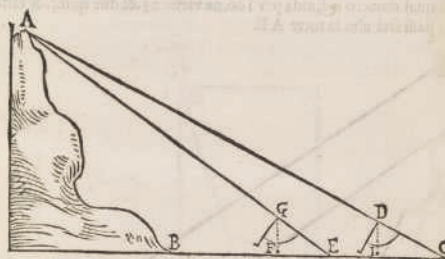
Il terzo modo di misurar' una simile Altezza, farà con l'alzarsi, & abbassarsi; come volendo misurar l'altezza A B. co situendo lo Strumento in qual che luogo elevato da terra, come faria nel punto F. tragaraderemo secondo la costa E F. il punto A. notando i punti G I tagliati dal filo, quali siano, per essempio 65. dipoi scendendo al basso, & uenendo perpendicolarmente sotto'l punto F. come faria nel punto C. tragaraderemo la medesim' altezza secondo la costa D C. notando i punti L O. quali saranno più de gl'altri come v.g. 70. dipoi prendasi la differenza trà questi due numeri 65. & 70. che è 5. & quante volte essa è contenuta nel maggior de i detti numeri, cioè in 70. (che vi farà contenuta 14. uolte) tante uolte diremo l'altezza B A. cõtener la distanza C F. la quale misureremo, potendolo noi fare comodamente, & così uerremo in cognizione di tutta l'altezza A B.



& volen

MISVRAR CON LA VISTA. 26

ET volendo noi misurar un'Altezza, la cui radice nõ si uedeffe, come faria l'Altezza del monte A B. sendo nel punto C. tragaraderemo la sommità A. notando i punti I. tagliati dal perpendicolo D I. i quali siano, per essempio, 20. di poi accostãdoci verso il monte 100. passi innanzi, uenẽdo nel punto E. tragaraderemo l'istessa sommità, notando i punti F. i quali siano 22. il che fatto deuonfi multiplicare trà loro questi due numeri 20. & 22. fanno 440. & questo si diuida per la differenza delli medesimi numeri, cioè per 2. ne uiene 220. & tanti passi diremo esser' alto il monte.



Il computo si trouerà sopra lo Strumento pigliãdo il minor numero de i punti tagliati, rettamente sopra le linee Aritmetiche, & applicandolo poi trasuersalmete alla differenza delli due numeri de i punti, pigliando in oltre trasuersalmente l'altro numero de i punti il quale misurato rettamente ci darà l'altezza cercata: come se, per essempio, i punti tagliati fussero stati 42. & 58. preso 42. rettamente, buttiti trasuersalmente alla differenza de i detti numeri, cioè al 16. non potendo, al suo doppio triplo quadruplo, &c. Sia al quadruplo, che è 64. & preso poi il 58. ò il suo quadruplo cioè 232. & misurato rettamente ci darà 152. e un quarto, che è il proposito.

Possia.

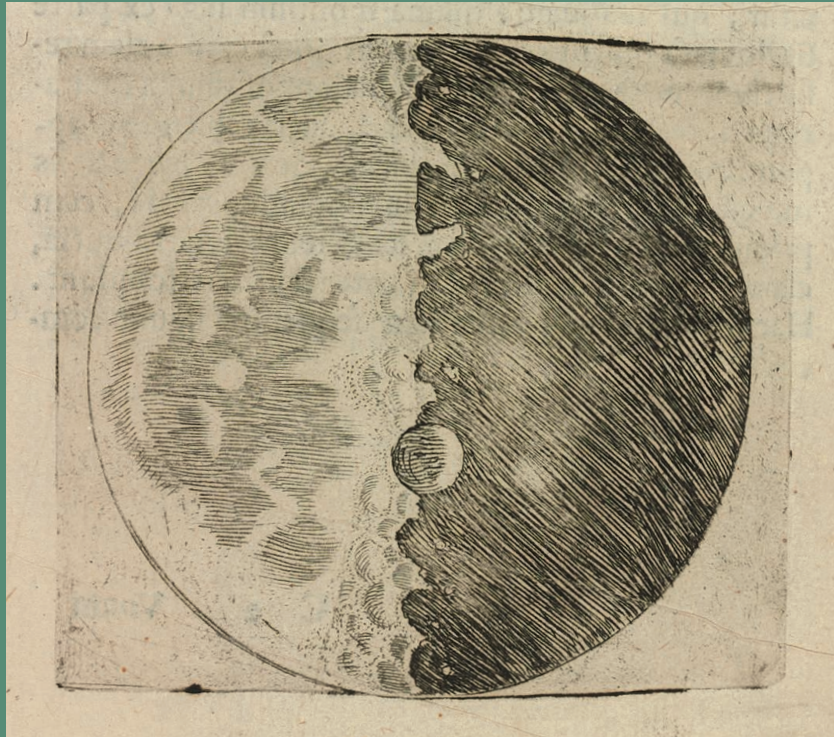
PLEIADVM CONSTELLATIO.



Quòd tertio loco à nobis fuit obseruatum, est ipsius-
met LACTEI Circuli essentia, seu materies, quam Per-
spicilli beneficio adeò ad sensum licet intruere, vt & alter-
cationes omnes, quæ per tot sæcula Philosophos exercua-
runt ab oculata certitudine dirimantur, nosque à verbosis
disputationibus liberemur. Est enim GALAXYA nihil
aliud, quam innumerarum Stellarum coæternam confi-
tarum congeries; in quamcumq; enim regionem illius Per-
spicillum dirigas, statim Stellarum ingens frequentia se se
in conspectum profert, quarum complures satis magna, ac
valde conspicuae videntur, sed exiguarum multitudo pror-
sus inexplorabilis est.

At cum non tantum in GALAXYA laetus ille candor,
veluti albicantis nubis spectetur, sed complures confimilis
coloris areolæ sparsim per æthera subfulgeant, si in illarum
quamlibet Specillum conuertas Stellarum constipatarum
cæcum





041

GALILEI, Galileo (1564-1642). *Sidereus nuncius magna, longeque admirabilia spectacula pandens*. Venice: Tommaso Baglioni, 1610.

4° (220 x 168mm). Baglioni's woodcut device on title, 5 half-page etchings in text showing the lunar surface and phases, 3 woodcut text diagrams, 3 woodcut star maps including one full-page, a single woodcut star in margin of D2, 65 one-line typographical diagrams showing the varying positions of Jupiter and its moons, woodcut headpieces and initials. (Title with two small repaired wormtracks on bottom margin, small rust stain and three small stamp marks, first gathering and E2-E3 expertly rehinged, three tiny wormholes on D3, some light marginal spotting and soiling, quire-guards in most gatherings, two small stains at inner margin of C1.) Modern red boards, matching slipcase. *Provenance*: Glisenti (pencil inscription on title).

FIRST EDITION OF THE WORK THAT HAS 'OVERTHROWN ALL FORMER ASTRONOMY' (Sir Henry Wotton). THE FOUNDATION OF MODERN ASTRONOMY AND THE FIRST ACCOUNT OF ASTRONOMICAL DISCOVERIES MADE WITH THE TELESCOPE.

After learning from Paolo Sarpi in 1609 of the invention by Hans Lippershey of a device for making distant objects appear closer, Galileo set out to construct his own instrument. Within a few months he had improved his first nine-power instrument to one of about thirty-power, the practicable limit for a telescope of that type (with plano-convex objective and plano-concave eyepiece). He first turned his telescope to the heavens in early January 1610 'with startling results. Not only was the moon revealed to be mountainous and the Milky Way to be a congeries of separate stars, contrary to Aristotelian principles, but a host of new fixed stars and four satellites of Jupiter [which he named the Medicea Siderea in honor of Cosimo II de' Medici] were promptly discovered. Working with great haste but impressive accuracy, Galileo recited these discoveries in the *Sidereus nuncius*, published at Venice early in March 1610' (DSB). Galileo's discoveries, which won him instant fame, did not prove that Copernicus was correct, but that the Aristotelian-Ptolemaic view of the universe was false. Nowhere in the *Sidereus nuncius* did Galileo explicitly express his private views in support of heliocentrism; nevertheless, the work was immediately the object of virulent attacks, which questioned the reality rather than the implications of his observations. 'The reliability of the telescope, rather than the philosophical or theological plausibility of the Copernican system, was the main target of Galileo's adversaries and the subject of his replies in the period immediately following the publication of the *Sidereus nuncius*' (M. Biagioli, *Galileo Courtier*, Chicago 1993, p.95). Galileo's defence against these attacks was to legitimize his discoveries by linking them to his Medici patrons, not only through the dedication of his work to Cosimo II and his naming of the 'Medicean stars', but more pointedly through his use of the Medicean diplomatic network to distribute telescopes and copies of his work to the European princes and cultural elite.

This copy is without the pasted cancel slip correcting 'Cosmica' to 'Medicea' in the heading on B1r often found; after examination of 83 copies Paul Needham believes that the works that travelled north of the Alps at an early date were without this amendment in the dedication (Nick Wilding, *Galileo's Idol*, Chicago 2014, p.109). Carli and Favaro 30; Cinti 26; Dibner *Heralds* 7; Grolier/Horblit 35; Cf. Marco Piccolino, Nicholas J. Wade, *Galileo's Visions*, p. XIV; Norman 855; PMM 113 ('Some of the most important discoveries in scientific literature').

£200,000-300,000

\$300,000-440,000

€270,000-390,000



042

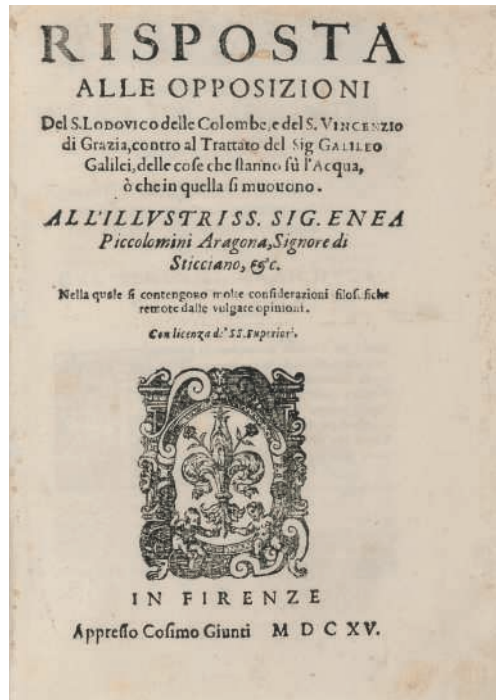
GALILEI, Galileo (1564–1642). *Istoria e dimostrazioni intorno alle macchie solari e loro accidenti*. Rome: Giacomo Mascardi, 1613.

4° (224 x 162mm). Printer's woodcut device on title, engraved portrait of Galileo, 38 full-page engravings of sunspots, 5 full-page engravings of Jovian satellites, one engraving and 8 woodcut and typographic diagrams in text. (Lacking A3–A4 containing an address to the reader from Angelo De Filiis, without blank A1, title lightly soiled.) Green morocco by B. Vera, gilt spine and turn-ins, green edges, cloth slipcase. *Provenance*: 'N.18' (inscription on title).

FIRST EDITION OF GALILEO'S FIRST PUBLISHED ENDORSEMENT OF THE COPERNICAN MODEL, 'Export' issue without the supplement of Scheiner's letters to Welser. Galileo wrote the *Istoria e dimostrazioni* in the form of letters to Marcus Welser of Augsburg, arguing that sunspots appeared on the surface of the sun and were not tiny satellites of it. Based on observations of their motion, Galileo concluded that the sun rotated on a fixed axis. The work also includes Galileo's first written account of his observations of the phases of Venus and the mysteries of Saturn. His specific endorsement of the Copernican model foreshadowed many of his later theories and their political and religious consequences: 'I tell you that this planet also, perhaps no less than horned Venus, agrees admirably with the great Copernican system on which propitious winds now universally are seen to blow...' (Stillman Drake's translation). The issue with Scheiner's letters and that without were published at the same time; evidently one was for the Italian market where there would be no copyright dispute, and the other issue for export. Since Scheiner was then teaching at Ingolstadt, the printer Mascardi felt free to publish his letters in Italy, but north of the Alps privileges would be infringed. Cinti 43; Dawson 2587; Carli and Favaro 60; Riccardi I, 509 ('Raro'); Stillman Drake, *Galileo at Work* 198; Waller 12046.

£15,000–25,000

\$22,000–37,000
€20,000–33,000



043

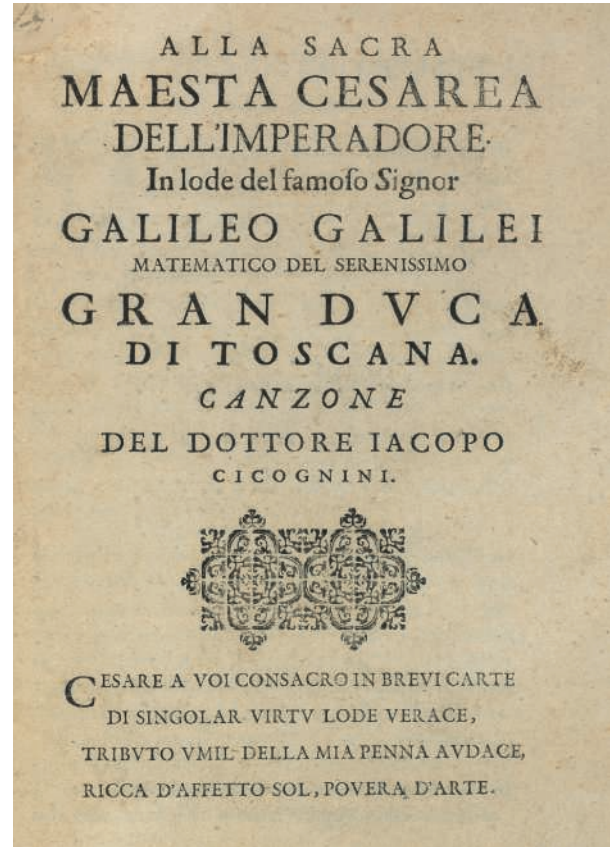
[GALILEI, Galileo (1564–1642)] — CASTELLI, Benedetto. *Risposta alle opposizioni del S. Lodovico delle Colombe, e des S. Vincenzio di Grazia, contro al trattato del Sig. Galileo Galilei, delle cose che stanno su l'acqua o che in quella si muouono ... Nella quale si contengono molte considerazioni filosofiche remote dalle vulgate opinioni*. Florence: Cosimo Giunti, 1615.

8° (206 x 149mm). Woodcut printer's device on title, large device on verso of final leaf, historiated initials. (Offsetting in lower margin of K3r, lightly spotted.) Contemporary vellum (recased). *Provenance*: bookseller's label on front pastedown.

FIRST EDITION of Galileo's principal text on the controversy over floating bodies. Like several of his polemics of his period, it appeared under the name of a colleague, in this case his pupil and friend Castelli. This work was written as a reply to two attacks by Colombe and Grazia on Galileo's 1612 treatises on floating bodies. 'Using the concept of moment and the principle of virtual velocities, Galileo extended the scope of the Archimedean work beyond purely hydrostatic considerations'. Galileo's position involved philosophic principles, and was regarded as a challenge to the authority of Aristotle. Galileo in the present reply to his academic critics enlarged both the scientific reasoning behind his position and presented a vigorous philosophical defence of that position. In the second replying to Grazia, Galileo states that he made use of two basic principles, 'that equal weights moved with equal speed are of like power in their effects, and that greater heaviness of one body could be offset by greater speed of another' (Stillman Drake). This copy contains the rare two additional leaves completing the errata and giving the registration and printer's device, not recorded by Cinti. Carli and Favaro 66; Cinti 51; Riccardi I, 289.

£10,000–15,000

\$15,000–22,000
€14,000–20,000



046

GALILEI, Galileo (1564-1642) and Buonardo SAVI [Urbano D'AVISO, (b. 1618)]. *Trattato della sfera di Galileo Galilei, con alcune pratiche intorno a quella, e modo di fare la figura celeste, e suoi direttiioni, secondo la via rationale.* Rome: Nicolò Angelo Tinassi, for Domenico Grialdi, 1656.

12° (126 x 71mm). Additional engraved title, 2 folding engraved plates and 2 folding letterpress tables, woodcut initials and head-pieces, a diagram and tables in text, errata at end, with the final blank. (3 small holes in engraved title, some mainly light browning or spotting, heavy in gatherings L & M.) Contemporary vellum, manuscript title on spine (top front hinge weak, extremities lightly rubbed, pastedowns and endpapers lightly wormed.)

FIRST EDITION OF THIS RARE EARLY WORK BY GALILEO, written in the 1590s but published posthumously. The text originates in lectures given by Galileo at Padua in the late 1590s. The subject of these lectures was probably Sacrobosco's *De Sphaera*, the most common teaching tool on astronomy at that time. It is unsurprising, therefore, that in this text Galileo adhered to the conventional Ptolemaic model, as described by Sacrobosco, in which a static earth is orbited by the sun and other planets. The editor of this volume was Urbano D'Aviso, whose name appears in an anagram on the title. This copy conforms to the collation in Cinti, with a frontispiece, 2 folding tables and 2 engraved plates. Carli and Favaro 252; Cinti 133; Riccardi I, 519.

£10,000-15,000

\$15,000-22,000
€14,000-20,000

047

[GALILEI, Galileo (1564-1642)] — CICOGNINI, Jacopo (1577-1631). *In Lode del famoso Signor Galileo Galilei.* Florence: Batista Landini, 1631.

4° (230 x 168mm). 5ll. Printer's ornament on title. (Title slightly soiled.) Modern patterned boards, uncut.

A PIECE OF ADVANCE PUBLICITY FOR GALILEO'S *DIALOGO*, published by Giovanni Batista Landini, who was to publish Galileo's important work the following year. Cicognini's stanzas praise Galileo in extravagant terms: he is compared to Vespucci in his revelations of a New World. In his address to the reader Landini writes that the poet had wanted him to include the verses in the *Dialogo*; however, the requests of 'tanti Signori virtuosi' had persuaded him to issue the verses before publication of the book, so eager were they to read them. VERY RARE. No copy in the BL or BnF. Only two auction sales recorded in on-line ABPC. Not in Cinti.

£12,000-18,000

\$18,000-26,000
€16,000-24,000



048

GALILEI, Galileo (1564-1642). *Dialogo. Dove ne i congressi di quattro giornate si discorre sopra i due massimi sistemi del mondo Tolemaico, e Copernicano.* Florence: Giovanni Batista Landini, 1632.

4° (214 x 154mm). Additional etched title by Stefano della Bella, showing Aristotle, Ptolemy and Copernicus disputing, with the errata leaf and the final blank, italic type, woodcut diagrams, initials, head- and tailpieces, with the printed correction slip pasted in margin of F6v. (Final blank torn with some loss but repaired, some mainly light spotting, some browning.) Contemporary vellum, manuscript label on spine (lightly soiled), chemise and morroco-backed slipcase. *Provenance*: 'ex libris Petri Pieri' (inscription on front endpaper) — Franklin Institute Library, Philadelphia, P.A. (library label) — Gustavus Wynne Cook (1867-1940, American banker, businessman and amateur astronomer; bookplate on chemise).

FIRST EDITION OF GALILEO'S CELEBRATED DEFENSE OF THE COPERNICAN VIEW OF THE SOLAR SYSTEM. Galileo's formal use of the dialogue allowed him to explore his Copernican theories fully within the rubric of the 'equal and impartial discussion' required by Pope Urban VIII. The work 'was designed both as an appeal to the great public and as an escape from silence... it is a masterly polemic for the new science. It displays all the great discoveries in the heavens which the ancients had ignored; it inveighs against the sterility, wilfulness, and ignorance of those who defend their systems; it revels in the simplicity of Copernican thought and, above all, it teaches that the movement of the earth makes sense in philosophy, that is, in physics... The *Dialogo*, more than any other work, made the heliocentric system a commonplace' (PMM). Pope Urban VIII was not so swayed, and immediately convened a special commission to examine the book and make recommendations. In casting the Pope as the simple-minded Aristotelian Simplicius, Galileo brought upon himself arrest, trial by the Inquisition and life imprisonment. The sentence was commuted to permanent house arrest, while the printing of any of his works was forbidden. The *Dialogo* remained on the index until 1832. Gustavus Wynne Cook had his own observatory and owned a giant telescope that he wanted to use for a survey of the universe. Carli and Favaro, 128; Cinti 89; Dibner *Heralds*, 8; Grolier/Horblit 18c; Norman 858; PMM 128; Riccardi I, 511; Wellcome 2647a.

£40,000-60,000

\$59,000-88,000

€53,000-79,000



049

GALLUCCI, Giovanni Paolo (1538-c.1621). *Theatrum mundi, et temporis*. Venice: Giovanni Battista Somasco, 1588.

4° (244 x 170mm). Sagittarius device on title. 144 full-page woodcuts, of which 50 with volvelles, folding letterpress table at end. (Title and preliminaries waterstained at lower corner, some mainly marginal light soiling, lacking one moving part?) Contemporary limp vellum, manuscript title on spine (recased with new endpapers, fore-edge not flush, lacks ties). *Provenance*: Jesuit House of Naples (inscription on title).

FIRST EDITION, FIRST ISSUE of Gallucci's scientifically new celestial atlas. Mortimer notes that the cuts in the first four books are mostly circular diagrams and dials, and calls for fifty-one of them to have volvelle parts. The cuts in book five are illustrations of forty-eight constellations, with the imagined figure drawn around the stars which compose it. The block for the illustration of Cepheus was omitted in the printing of signature Nn and supplied on a separate leaf between Mm4 and Nn1 with duplicate page numbering. Gallucci brought scientific accuracy to representations of the stars. His atlas included the first star map to make use of stellar coordinates; prior to this the imaging of the constellations was really an architecture of mnemonic devices, making the placement of stars dependent on their recognizable pattern in relation to others. Adams G-168; Houzeau and Lancaster 2725; Mortimer *Italian* 206; Riccardi I, 568.

£12,000-18,000

\$18,000-26,000

€16,000-24,000



050

GALLUCCI, Giovanni Paolo (1538-c.1621). *Speculum Uranicum in quo vera loca tum octavae sphaerae tum septem planetarum mira facilitate ad quod libet datum tempus ex prutenicarum ratione colliguntur*. Venice: Damianus Zenarus, 1593.

2° (410 x 275mm). Title with engraved border by Giacomo Franco incorporating Zenarus's dragon device, 17 large circular woodcut diagrams, 16 with attached volvelles with a total of 36 moving parts only (of 39), woodcut headpieces. (Without the folding table 'Canon Sexagenarius' bound-in at the end, and without the leaves 'De harum paginarum usu' found in some copies; closed tear on A4 touching text, occasional scattered spotting, staining and light soiling, small heavier stain on verso of K2 and recto of K3.) Back and sides made from a 14th-century vellum music sheet, modern half morocco box (extremities of music sheet lightly rubbed and chipped, light soiling). *Provenance*: Bartolomeo Pernicelli (17th-century Jesuit benefactor; ownership inscription on title) — erased ownership inscription on title and stamp on final leaf.

FIRST EDITION. Named after Urania, muse of astronomy, this rare work helps chart, with numerous volvelles, the movements of the heavenly bodies by the methods of Regiomontanus. Published soon after the papal bull of 1586 forbidding astrology, Gallucci nonetheless asserts the importance of the rational, scientific investigation of the heavens. Houzeau and Lancaster 12742; La Lande 125; Riccardi I, 570; Weidler p. 410.

£12,000-18,000

\$18,000-26,000

€16,000-24,000

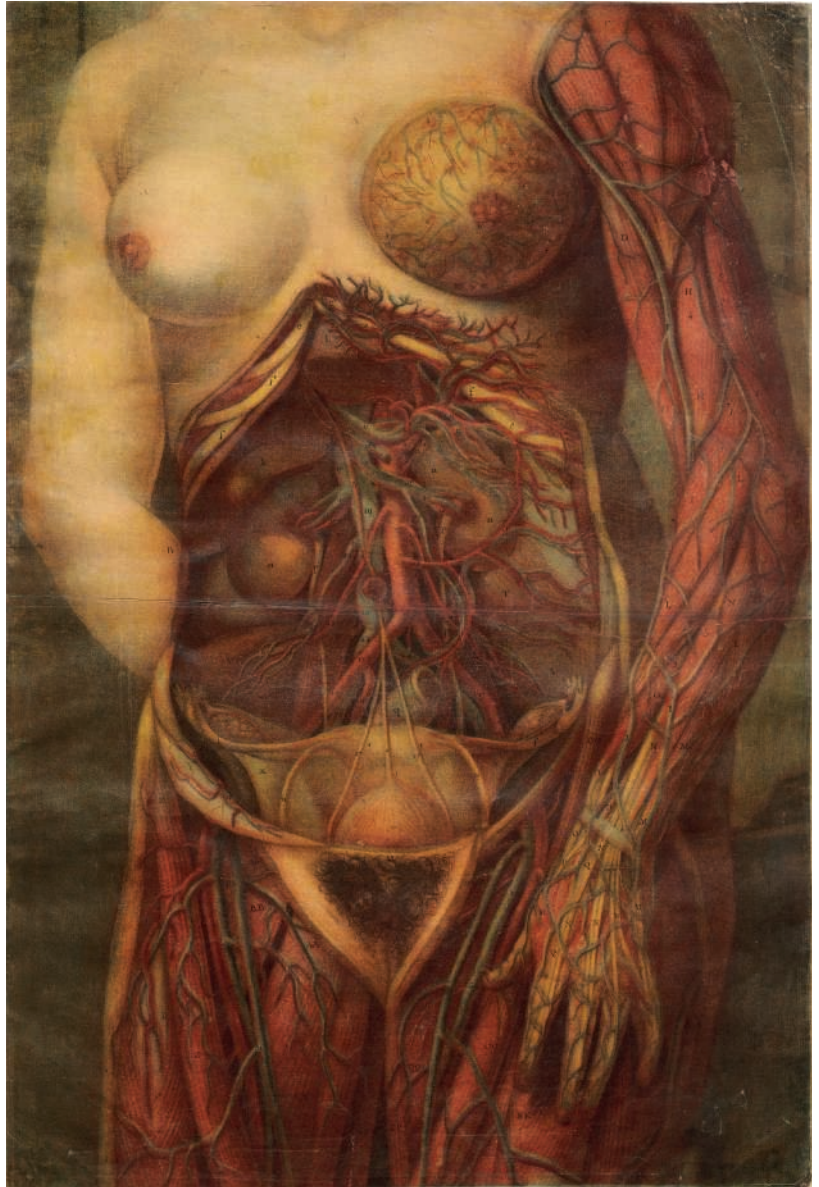
051

GAUTIER D'AGOTY, Jacques (1717-1786). *Myologie complete en couleur et grandeur naturelle, composée de l'Essai et de la Suite de l'Essai d'anatomie, en tableaux imprimés*. Paris: Gautier, Quillau, and Lamesle, 1746 [-1748]. 2 parts, broadsheets (418 x 300mm). Collective title in red and black, title to the 'Essai d'Anatomie' dated 1745, dedication, two advertisement leaves. 20 varnished, colour-printed mezzotints each with accompanying leaf of text, all window-mounted in an album (765 x 530mm). (Title and preliminaries spotted, dedication leaf with slight tear at margin, first plate with staining at margin.) [Bound with:]

Anatomie de la tête, en tableaux imprimés. Paris: Gautier, Duverney and Quillau, 1748. Broadsheets (554 x 394mm). Title in red and black, two dedication leaves, two approbation and advertisement leaves. 8 varnished, colour-printed mezzotints mounted on five leaves, each with accompanying leaf of text, also window-mounted. (First two leaves of text and first leaf of plates torn at margin, some marginal repairs.) [and:]

Anatomie generale des visceres en situation, de grandeur et couleur naturelle, avec l'angeologie, et la neurologie de chaque partie. [Paris: Gautier, 1752]. Broadsheets (475 x 318mm). 13 leaves of explanatory text, the first with drop-head title. 18 varnished, colour-printed mezzotints, of which 12 designed to form four life-size human figures. All window-mounted. (A few marginal stains and tears, some creasing to plates and text.)

Together 3 works in one volume. Near-contemporary green and white vellum, red edges (rebacked, tears and repairs to covers); modern green cloth slipcase. *Provenance*: Librairie Thomas Scheler, Paris (label).



GAUTIER'S THREE WORKS REPRESENT A DRAMATIC ADVANCE IN ANATOMICAL ILLUSTRATION. The life-size plates were engraved and printed in four colours in a process invented by Leblon and elaborated by Gautier, who had a 30-year privilege to use the process in France. The varnished versions of his images, which he offered at an additional charge, possess a painterly quality previously unattempted in anatomical illustration. Gautier's first project was the production of eight prints of the face, neck, head, tongue and larynx, which he issued in 1745, followed one year later by a second group of twelve mostly larger prints showing muscles of the pharynx, torso, arms and legs. A year later he issued the two works together under the general title *Myologie complete*. The images were from cadavers dissected by Joseph Guichard Duverney, lecturer in anatomy at the Jardin du Roi. Gautier's work on the anatomy of the head includes several finely detailed images from dissections made by Pierre Tarin, another collaborator for a brief period. The king's surgeon, Mertrud, provided dissections for the first three plates of the *Anatomie Générale* but after this Gautier himself took over the dissections, and apparently wrote all the descriptions in addition to preparing the plates. These were designed in such a way that four spectacular human figures could be formed by combing three plates together (1-3; 4-6; 10-12, and 16-18). 'Perhaps Gautier achieved nothing finer in his art than the moulding in mezzotint of that first full-length female figure, forming the first three of the *Anatomie Générale*' (Franklin p. 46). The immense size of the present album means that no plates have required folding. Wellcome calls for 24ll. in the *Myologie* but in this copy there are 25. Wellcome again calls for 24ll. in the *Anatomie de la tête*; whereas Blake calls for 20p. (or 10ll); this copy appears complete with 13ll. NLM/Blake, p.169; Choulant-Frank, pp. 270-74; Franklin, *Early Colour Printing*: 1977, 43-44; Wellcome III, p. 97; not in Norman.

£50,000-80,000

\$74,000-120,000

€66,000-110,000

CAP. XII.

Quomodo verticitas existit in ferro quouis excocto
magnete non excito.



Actenus naturales & ingenitas causas, & acquiritas per lapidem potentias declarauimus: Nunc verò & in excocto ferro lapide non excito, magneticarum virtutum causæ rimandæ sunt. Admirabiles nobis magnes & ferrum promunt & ostendunt subtilitates. Demonstratum est antea sæpius, ferrum lapide non excitum in septentiones ferri & meridiem; sed & habere verticitatem, id est proprias & singulares polares distinctiones, quemadmodum magnes, aut ferrum magnete attritum. Istud quidem nobis mirum & incredibile primum videbatur: Ferri metallum ex vena in fornace excoquitur, effluit ex fornace, & in magnâ massam indurefcit, massa illa diuiditur in magnis officinis, & in bacilla ferrea extenditur, ex quibus fabri rursus plurima componunt instrumenta, & ferramenta necessaria. Ita variè elaboratur & in plurimas similitudines eadem massa transformatur. Quid est igitur illud quod



052

GILBERT, William (1544-1603). *De magnete, magneticisque corporibus*. London: Peter Short, 1600.

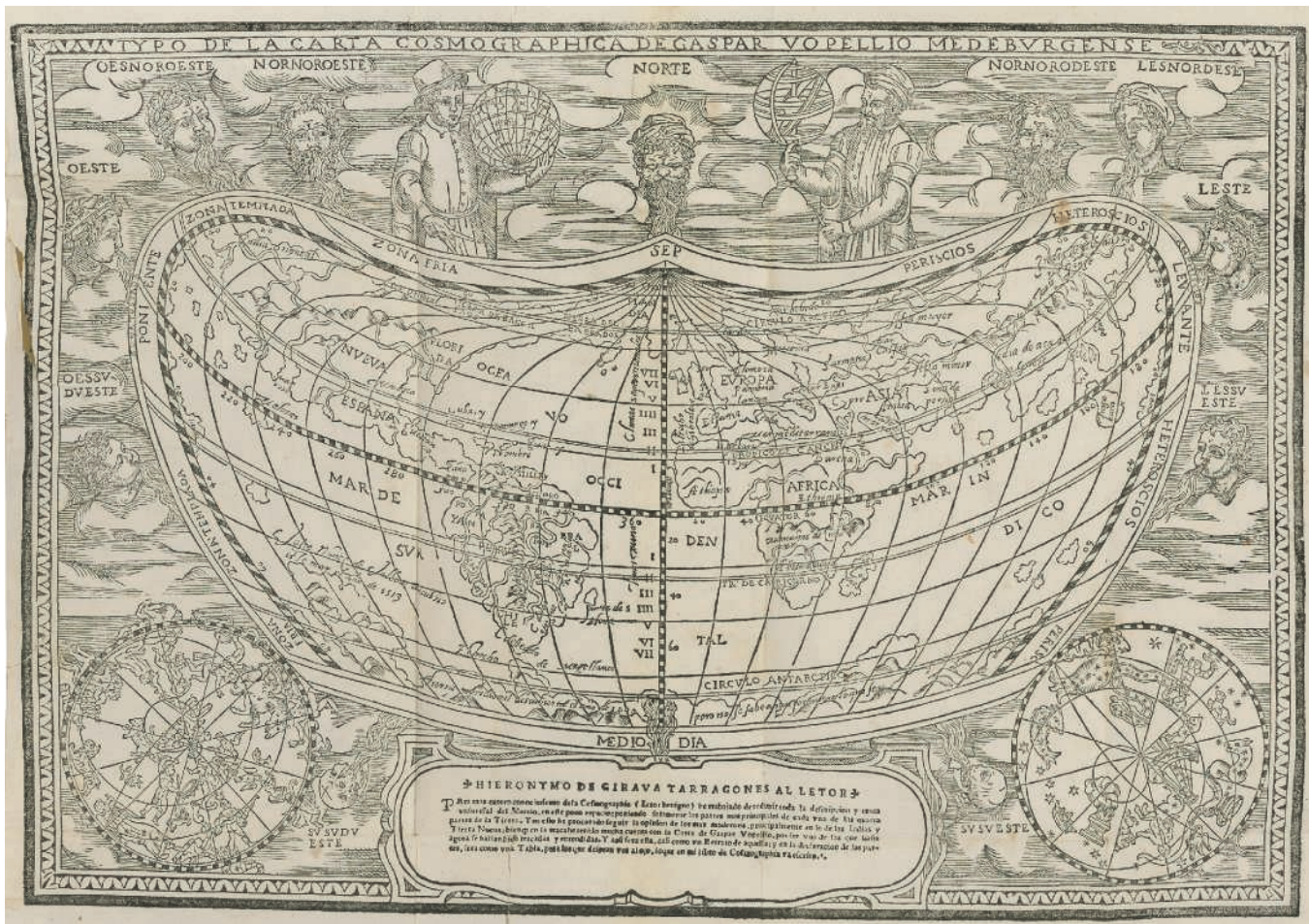
2° (280 x 188mm). Woodcut title device and large woodcut arms on verso, 87 woodcuts in text of which 4 full-page and one folding, decorative woodcut initials and head- and tailpieces. (Some small burn holes sometimes affecting text, occasional light spotting and some small stains, light waterstaining to bottom corner of final 20 leaves and tiny clean tear at fold of folding plate.) Modern binding reusing old vellum (few small wormholes, some rubbing to extremities and light soiling). *Provenance*: removed ownership inscription on title.

FIRST EDITION OF THE FIRST GREAT SCIENTIFIC BOOK PRINTED IN ENGLAND. 'Gilbert coined the terms "electricity", "electric force" and "electric attraction" and may rightly be considered the founder of electrical science' (PMM); further, he 'provided the only fully developed theory dealing with all five of the then known magnetic movements and the first comprehensive discussion of magnetism since the thirteenth-century *Letter on the Magnet* of Peter Peregrinus' (DSB). *De magnete* exemplifies pre-Baconian experimental philosophy by supporting new theories with empirically-derived experimental evidence, and these experiments were described in sufficient detail for the reader to recreate them. Gilbert also described his scientific instruments in great detail, including new ones such as the 'versorium': the first instrument to be used for the study of electric phenomena. Gilbert observed that the earth was a gigantic magnet and provided a physical basis for the Copernican theory. His work was cited by Digby, Boyle, Kepler and Huygens, and Galileo drew on Gilbertian magnetism to support his belief in a Copernican heliocentric cosmology in his *Dialogo*. *Dibner Herald* 54; *Grolier Science* 41; Norman 905; PMM 107; Wellcome 2830.

£10,000-15,000

\$15,000-22,000

€14,000-20,000



053

GIRAVA, Hieronimo (d.1556). *Dos Libros de Cosmographia*. Milan: G.A. Castiglione and C. Carron, 1556.

4° (230 x 167mm). Woodcut title, folding world map, text-illustrations and diagrams, 'man in the moon' device on recto of final leaf. (World map with short splits at folds and with two short tears just into image, occasional faint staining.) Contemporary calf, small gilt lozenge-shaped foliate device within blind-stamped panel with small gilt cornerpieces, gilt edges (rubbed and crazed, some tiny patches of worming to covers, lacking ties). *Provenance*: JOHN EVELYN'S COPY (deleted press marks in Evelyn's hand on flyleaf and in margin of title, booklabel; sold, Christie's 30 November 1977, lot 637, bought by Ludworth, on behalf of) — British Rail Pension Fund (sold, Sotheby's 27 September 1988, lot 66, to Cullen).

FIRST EDITION WITH THE GREAT CORDIFORM MAPPEMUNDE BY VOLPELLIO. The map, rarely found with the book, is similar in design to that of Vadianus, but varies in some details. It shows not only the coast of New Spain extending westward and joining Asia, but also Labrador extending northeastward joining Greenland which in turn is attached to Scandinavia. It notes that the Mar de Svr (Pacific Ocean) was discovered by Balboa in 1513. The volume is divided into two books, in the second of which are several very important chapters concerning America, including accounts of Tierra del Labrador, Tierra de Baccallaos, Florida, Nueva Espana, and Peru which includes all of South America. To this is annexed a table giving the longitudes from the meridian of Tenerife of all the most important towns, ports, rivers and islands in the American continent. Following the cosmographical part of the work is a section on navigation, giving full practical instructions for finding latitude by day or night by the inclination of the sun and moon, and mentioning Gemma Frisius's method of determining longitude by time difference. Girava continues with a discourse on the compass, and concludes with tables showing the degrees of longitude which could be arrived at by the number of miles travelled along different lines of latitude. The book is printed throughout in italics, being the second book printed by Castiglione in this type. VERY RARE — ONLY TWO COPIES HAVE SOLD IN THE PAST 30 YEARS AT AUCTION: the Frank S. Streeter copy (Christie's New York 16 April 2007, lot 228, and previously sold by an anonymous owner, Sotheby's London, 23 April 1987, lot 185) and the present copy. Alden & Landis 556/21; Borba de Moraes I, 299 ('extremely rare'); Palau 102633; Sabin 27504 (1570 edition only); Shirley 101; Wagner *Northwest Coast* II, 279.

£60,000-90,000

\$88,000-130,000

€79,000-120,000



056

HEVELIUS, Johannes (1611-1687). *Cometographia, totam naturam cometarum ... exhibens... cum primis vero, cometae anno 1652, 1661, 1661 & 1665.* Gdansk: Simon Reiniger for the author, 1668.

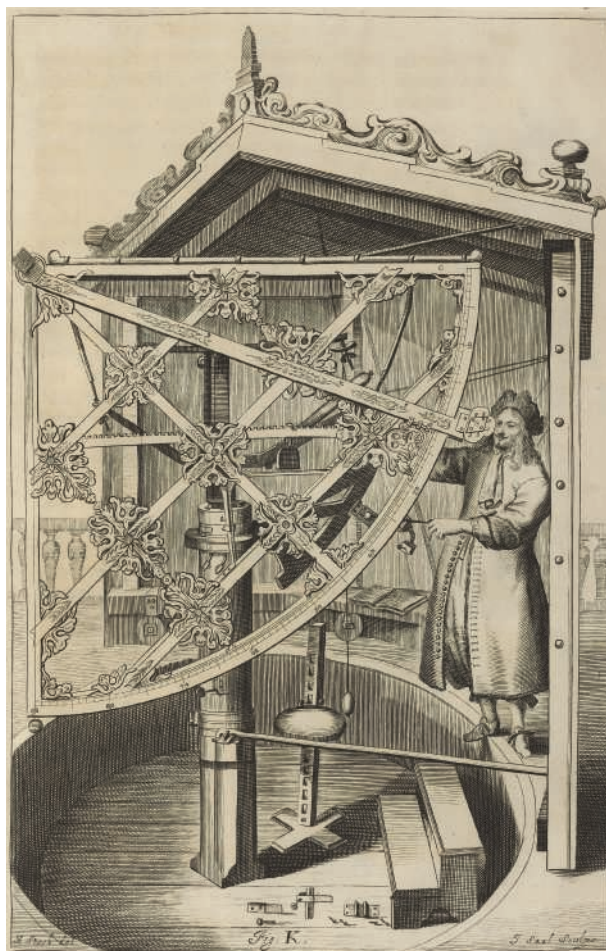
2° (367 x 224mm). Half-title, engraved frontispiece, 38 engraved plates (4 double-page and folding) numbered A-OO, engraved illustrations throughout, woodcut and engraved initials, head- and tailpieces. (Without initial blank, half title mounted on a stub, some short tears without loss to half-title associated with a paper flaw, plate Z with closed marginal tear with old paper repair, plate OO irregularly cut at margin and folded.) Contemporary vellum (rebacked, rubbed at extremities with some associated tiny splits). *Provenance:* Heinrich Wilhelm von Starhemberg (1593-1675; noted bibliophile, ownership in margin of frontispiece).

'THE SECOND GREAT WORK BY HEVELIUS ... [its] introductory engraving is doubly interesting; it depicts Hevelius sitting at a table with a cometary orbit shown as a conic section combined with a spiral, the sun at the focus of the former. By contrast, a figure of Aristotle holds an illustration of some linear and sublunary cometary paths. Below is a valuable illustration of Hevelius' house and observation platform' (DSB). The first part of the work is devoted to the comet of 1652, while later portions of the work are devoted to judging comets' parallax, their physical composition, origin and material, as well as proposing that they moved in a parabolic motion. BL *STC German XVIIc.*

£30,000-50,000

\$44,000-73,000

€40,000-66,000



057

HEVELIUS, Johannes (1611–1687). *Machinae coelestis pars prior; organographiam, sive instrumentorum astronomicorum omnium*. Danzig: Simon Reiniger for the author, 1673.

Volume I only (of II), 2° (345 x 220mm). Half-title, additional allegorical engraved title by Adolf Boÿ after Jeremias Falck, 30 engraved plates of astronomical instruments, of which 5 double-page mounted on guards, by Isaak Saal after Andreas Stech, dedicatory letter to Louis XIV with engraved allegorical head- and tailpiece and engraved initial with royal insignia, woodcut initials and tail-pieces, type-ornament head-pieces. (Engraved title remargined at bottom margin, engraved title, title and B1-B2 mounted on stub, some light occasional soiling and browning, few small stains, small repair in bottom margin of Z4, plate X tipped in and cut to margins, plate AA with old crease, few tiny wormholes in final 3 leaves of index.) Contemporary vellum, manuscript title on spine (some tiny wormholes, spine ends lightly split and chipped, corners lightly bumped). *Provenance*: David P. Wheatland (1898–1993; Harvard Collection release stamp) — unidentified monogram bookplate on verso of title — removed plate on endpaper.

FIRST EDITION of the first volume of *Machinae coelestis*. The work describes the astronomical apparatus of Hevelius's observatory at Gdansk, which was, until the fire of 1679, 'the best equipped in Europe at the time' (Dibner). Hevelius was a highly skilled designer, fabricator, and engraver of instruments, and the techniques for manufacturing a wide array of instruments are given in detail. These designs — particularly those for telescopes — were of 'very great interest to his contemporaries' (DSB VI, p.326). The second volume of the *Machinae coelestis*, largely devoted to observational data, is extremely rare due to a fire on 26 September 1679 which destroyed the observatory, the printing press, Hevelius's house, and most of the copies of volume II which had just been printed. Estimates of the number of extant copies vary and only 15 can be traced around the world: Norman states that 'fewer than 100 copies of the second volume survive'; Brunet (describing it as 'très-rare') notes that Joseph de Lalande knew of only 34 copies; and *Heralds* asserts that 'scarcely a dozen copies ... survived the fire'. Perhaps for the same reason, copies of the first volume are also rare. Brunet III, 149; BL *German* 1601–1700, H-1030; Dibner, *Heralds* 10; Norman 1068 (volume I only).

£30,000–40,000

\$44,000–59,000
€40,000–53,000



658

HEVELIUS, Joannes (1611–87). *Prodromus astronomiae ... catalogus stellarum fixarum ... tabula motus lunae liberatorii* [part II:] *Firmamentum sobiescianum, sive uranographia*. Danzig: Johannes Zacharias Stoll, 1690.

2 parts in one volume. *Prodromus* with additional engraved double-page frontispiece by C. de la Haye after A. Stech depicting the author, Ptolemy, Tycho Brahe, Ulugh Beg, the landgrave of Hesse and Riccioli seated around a table with Urania in the centre in pt. I, half-title, engraved portrait of Hevelius by Lambert Visscher after A. Stech and one plate, *Firmamentum* with double-page engraved frontispiece by C. de la Haye after A. Stech, 2 large engraved folding plates depicting the hemispheres and 54 double-page engraved star plates at end. (Portrait and second engraved title misbound at beginning of the book, portrait with ink stain in margin, first plate of hemispheres with clean marginal tear, repaired on verso with adhesive tape, both hemisphere plates lightly browned, occasional light spotting, last 2 plates a little creased.) Houzeau and Lancaster 12781.

[Bound before:]

HEVELIUS. *Annus climactericus sive rerum uranicarum*. Danzig: for the author by David Friedrich Rhetius, 1685. Half-title with large engraved vignette, 7 plates, including one folding, one engraved headpiece, woodcut initials. (Upper margin of L4 torn away, large repair, lower corner of one plate with marginal repair, lightly spotted).

2 works in one volume, 2° (396 x 233mm). 18th-century boards (spine worn, quite rubbed, front and back hinges broken). *Provenance*: Library of the Duke of Sachsen-Meining (scored stamp on verso of first title).

FIRST EDITIONS. *Prodromus* was published posthumously, with an introduction by Hevelius' widow Elisabeth. 'It is a catalogue of 1,564 stars arranged alphabetically under constellation names and by stellar magnitude within constellations. Latitude, longitude, right ascension, and declination are given (the latter pair of coordinates being often miscalculated even though two assistants were employed to verify calculations). John Flamsteed, another of Hevelius' many correspondents, was later to reprint the catalogue, with a different arrangement... Hevelius named eleven new constellations formed of stars not included in earlier groupings; seven of these names are still used... Illustrating the constellations of Hevelius' catalogue was a volume of fifty-six plates, possibly engraved in part by Hevelius himself. Contemporary globes, such as those by G.C. Eimmart, and Gerhard and Leonhard Valck, often acknowledge Hevelius as their source' (DSB). The 54 star plates in this copy are very clean and attractive. The other work in this volume, *Annus climactericus* deals mainly with planets and comets.

£20,000–30,000

\$30,000–44,000

€27,000–39,000



059

HOBBS, Thomas (1588-1679). *Leviathan, or the Matter, Forme, and Power of a Common-Wealth Ecclesiasticall and Civill*. London: printed [by Roger Norton and Richard Cotes] for Andrew Crooke, 1651.

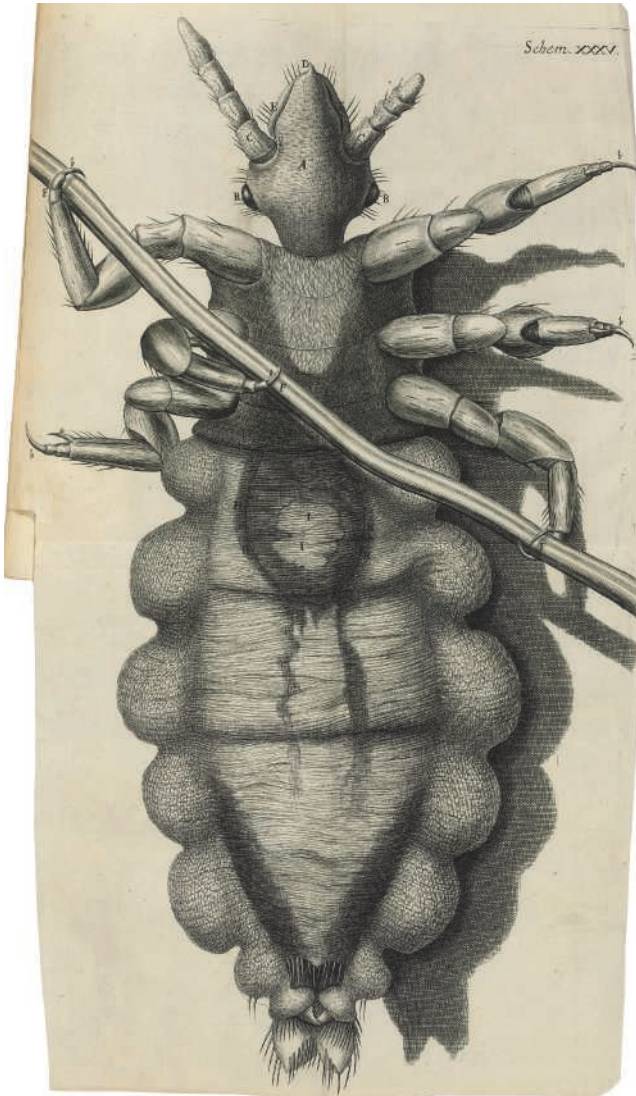
2° (278 x 176mm). Engraved frontispiece, folding letterpress table. (Frontispiece repaired at inner margin, frontispiece and title both slightly browned and soiled at margins, some mainly marginal soiling of text, marginal stains towards end, Aaa recto with tear into bottom line.) Contemporary blind-panelled calf, spine with raised bands and red morocco label (upper joints cracked, spine and corners restored, new endpapers). *Provenance*: occasional marginalia in a contemporary hand.

FIRST EDITION, FIRST ISSUE, with head ornament on title, after which further printing was prohibited by the Licensers. Norton printed through to quire 2B, and Cotes the rest. Born in the year when the threat of the Spanish Armada produced national panic, Hobbes came to articulate his own fears of social and political chaos in the aftermath to the Civil War. Paradoxically, his carefully reasoned theories, involving the surrender of the individual will, aroused widespread antipathy. From the book's first publication until his death he was surrounded by controversy and colloquially dubbed the 'Monster of Malmesbury'. In 1666 his works were publicly burned at Oxford. Hobbes's beliefs became far easier for the 18th century to accept. From a modern perspective, however, it is clear that *Leviathan* provided a crucial interpretation of civil strife as the product of human passions and a disastrous loss of reason. Macdonald & Hargreaves 42; PMM 138; Wing H-2246.

£15,000-20,000

\$22,000-29,000

€20,000-26,000



060

HOOKE, Robert (1635–1703). *Micrographia: or some Physiological Descriptions of Minute Bodies made by Magnifying Glasses*. London: John Martyn and James Allestry for the Royal Society, 1665.

2° (302 x 198mm). Title printed in red and black with engraved arms of the Royal Society. 38 engraved plates, by and after the author and possibly also Christopher Wren, of which 11 folding, woodcut head-pieces and five-line initials. (Some plates trimmed close to platemark with 5 plates cropped just into image or plate number, as in the copy described by Horblit *Science*, plates 2 and 13 are titled in manuscript 'Schem. 2' and 'Schem. 13', and plate XVI is bound after XXI; in addition this copy has plate I bound after plate II; F3 with some marginal staining, otherwise a fresh, crisp copy.) Modern calf, antique style, preserving old red morocco gilt spine label (extremities faintly rubbed). *Provenance*: erased stamp on title, plate XXIX and in margin of Kk3r.

'THE MOST INFLUENTIAL WORK IN THE HISTORY OF MICROSCOPY, CONTAINING THE DISCOVERIES MADE WITH HOOKE'S NEWLY PERFECTED COMPOUND MICROSCOPE ... *Micrographia* was not only the first book devoted entirely to microscopical observations, but also the first to pair its descriptions with profuse and detailed illustrations, and this graphic portrayal of a hitherto unseen world had an impact rivalling that of Galileo's *Sidereus nuncius* ... his famous and dramatic portraits of the flea and louse, a frightening eighteen inches long, are hardly less startling today than they must have been to Hooke's contemporaries' (Norman). The 28-page preface gives a description of the newly-perfected compound microscope, and 'contains many reflections on human faculties and the importance of scientific discoveries in general' (Keynes). Although the main emphasis is on plants and insects, the written 'Observations' that follow range from 'The Point of a Needle' and 'Edge of a Razor' (nos. 1–2) to 'The Fixt Stars' and 'The Moon' (nos. 59–60), and include almost everything except a unifying theory.

Newton read the book diligently in his mid-twenties; his notes on it survive at Cambridge, and there is no doubt that Hooke's examination of the phenomena of colours in thin, transparent films led him directly to the experiments which became the foundation for Book Two of the *Opticks*. In his last observation, Hooke conjectured that the moon might have a gravitating principle like the Earth's; his book also marks the first scientific use of the word 'cell'. Although Keynes states that the plates are 'mostly folding', many of the folds are only short flaps, and the number of folding plates varies from copy to copy, depending on the whim of the binder. Dibner *Heralds* 187; Garrison–Morton 262; *Heirs of Hippocrates* 599; Horblit *Science* 50; Keynes *Dr. Robert Hooke* 6; Norman 1092; PMM 147.

£20,000–30,000

\$30,000–44,000

€27,000–39,000



Capit. cccc.

Uterica minor. Dyaoco. Uterica altera...

corpus adurat. Sunt om ambo uno...

Operaciones

- 1. Ait. Emplastrum eius cum raphano...



Capit. ccccii.

Uterica maior. Dyaoco. Uterica altera...

Operaciones

Uterica maior. Dyaoco. Uterica altera...



Capit. ccccvi.

Uterica maior. Dyaoco. Uterica altera...

Operaciones

- 1. Salicis. Uterica maior. Dyaoco. Uterica altera...



Capit. ccccviij.

Uterica maior. Dyaoco. Uterica altera...

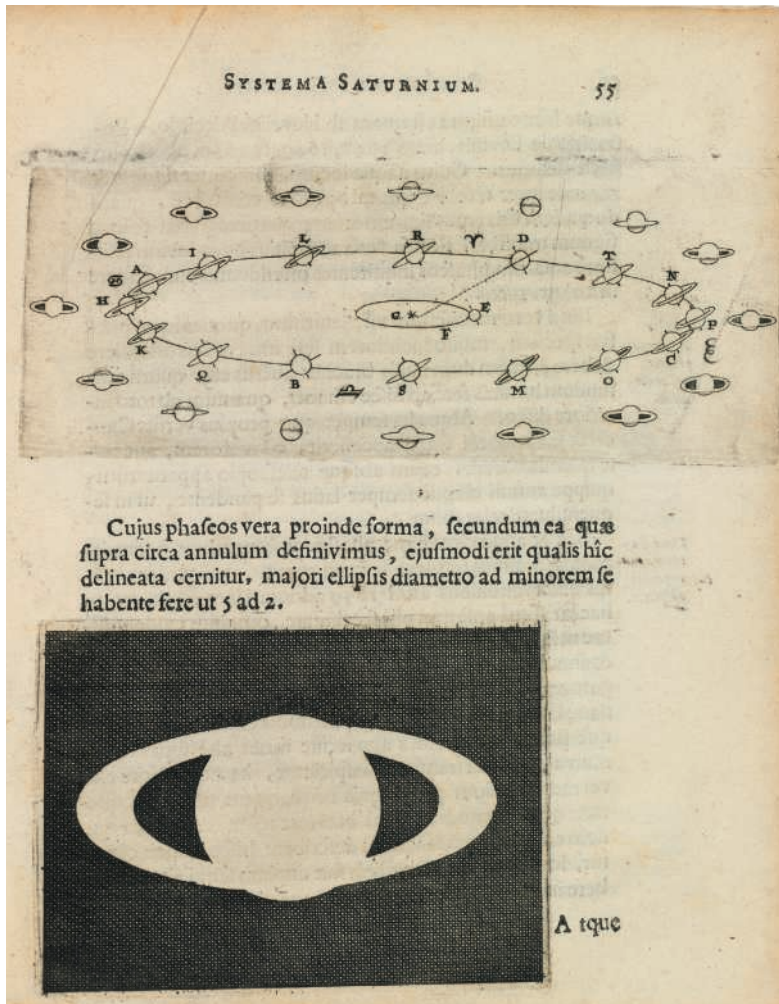
661 [H]ORTUS SANITATIS. De Herbis et Plantis, de Animalibus et Reptilibus, de Avibus et Volatilibus, de Piscibus et Natatilibus, de Lapidibus et in terre...

Median 2° (307 x 204mm). Title within woodcut border printed in red and black, full-page woodcut of skeleton on K1v, 4 small woodcuts on K1r, small cut of woman with physician holding urine flask on GG1r, and 1066 woodcut illustrations in text of plants, animals, minerals, and genre scenes...

THE LARGEST HERBAL AND MEDICAL WOODCUT BOOK PUBLISHED UNTIL THAT TIME. The fourth Strasbourg edition, a reprint using most of the blocks of the earlier Johann Prüss editions, first published in 1491. The human skeleton woodcut was the best representation of its type before Vesalius.

£20,000-30,000

\$30,000-44,000
£27,000-39,000



062

HUYGENS, Christiaan (1629–1695). *Systema Saturnium, sive de causis mirandorum Saturni phaenomenon, et comite ejus planeta novo*. The Hague: Adrian Vlacq, 1659.

4° (194 x 152mm). One folding engraved plate, 11 engraved illustrations, 8 woodcut diagrams, and woodcut initials. (Some leaves very lightly browned, a little light spotting.) Contemporary vellum, manuscript title on spine (lightly soiled).

FIRST EDITION OF THE FIRST FULL ANNOUNCEMENT OF HUYGENS' DISCOVERY OF THE RING AND SATELLITE OF SATURN. The mystery of Saturn's 'arms' had puzzled astronomers in the decades following Galileo's observation in 1610 of the planet's oval shape. Starting in the 1650s, Huygens and his brother Constantijn acquired great skill in the grinding and polishing of spherical lenses, and the telescopes that they built were the best of their time. In 1655, using their first greatly improved telescope, Huygens spotted a satellite of Saturn, later named Titan. Although still unable to physically make out the cause of Saturn's odd and variable shape, Huygens theorized that it was due to a single flat ring, whose inclination to the line of sight varies. 'He arrived at this solution partly through the use of better observational equipment, but also by an acute argument based on the use of the Cartesian vortex (the whirl of "celestial matter" around a heavenly body supporting its satellites)' (DSB). In 1656 Huygens presented his theory in a one-sentence anagram included in Pierre Borel's *De vero telescopii inventore* (see lot 18), thus securing priority of the discovery. The *Systema Saturnium* contains as well 'many other observations on the planets and their satellites, all contributing to an emphatic defense of the Copernican system' (Norman), and an observation and illustration of the Orion nebula. Dibner *Heralds*, 9; Norman 1136.

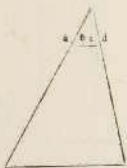
£30,000–50,000



\$44,000–73,000
 €40,000–66,000

c Quilibet pyramidis radiose omnibus radios in indivisibili concurrere.

Propositio.
Si enim conus pyramidis habet latitudinem ego dimidiam per tres partes quarum prima sit a. b. secunda b. c. tertia c. d. ergo radius cuius terminus est a. b. non concurrat tunc cum radio cuius terminus est c. d. quod falsum est quia lineae concurrentes necesse est sine medio fore. necesse est huiusmodi ratione concurras ultimam fieri in puncto mathematico. **xxi.**

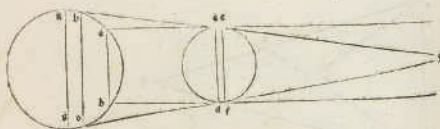


u Luminoso concavo lumen efficacius recipitur in centro.

Lumen res est quae ad omni concavo puncto perpendicularares radii qui sunt cetero fortiores consistunt in centro pro quo virtutes corporum et essentia in centro et iuxta ipsum efficacius emanant. Hinc est quod ibi confortius dicitur habitatio hominis. cuius est plerumque quoniam sicut simpliciter. **xxij.**

o Sphaeroluminosum sphaerolum luminat speram minores, similiter et chiliandrum plus quam dimidium.

Si enim maior est diameter luminosi quam sit diameter opaci radii cadentes super extrema diametri opaci si omnia a terminis diametri luminosi h. g. b. c. a. si fuerit aequae distantes essent lineae a terminis diametri opaci cadentes tunc in corpore luminoso quam opaco et utrobique rectos angulos faceret cum diametro et per consequens essent aequales diametri corporum equalium quod est impossibile. conuenit ergo ab aliquo arca minor quam sit emissa peria uerbi gratia ab a. b. ad punctum c. b. ut sit in e. necesse est ab o puncto superiori puenire ultra. c. et per consequens quanto opaci est propinquus luminoso tanto lumen distans quod demonstratur sic ut supra ex. iij. a superficie luminosa porrigeret pyramides in omni parte medi obiecti. Et igitur minus sit opacum luminoso et per consequens iter pyramides luminosae concludibile necessario illustratur plus medietate. Si enim pyramides latera sua extremis diametri c. d. applicaret sequerentur duo inconuenientia utriusque enim angulos rectos constitueret sicut patet per. x. et per consequens essent aequales diametri corporum unequalium. a. luminosi et corporis opaci quod



est contra hypothesis et trigonorum. c. d. s. plus quam duo reorof contineret. et ex hoc patet quod sol illuminat plus quam medietatem lune. **xxij.**

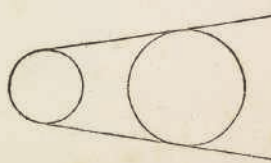
u Sphaerolum minoris luminoso minorum umbram sicut equalis equalis et maioris esse maiorem.

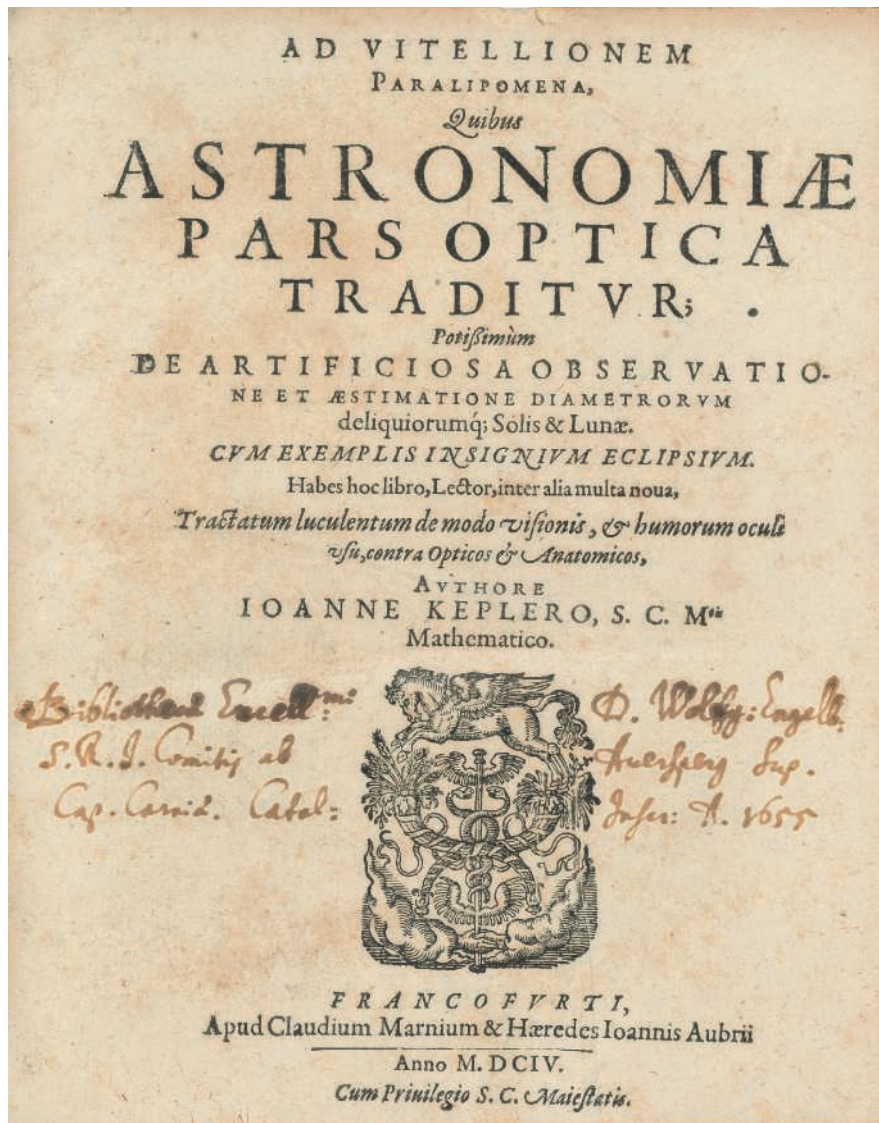
Hoc patet ex praemissa quoniam si luminosum maius est quam umbrosum illuminat plus quam medietatem si equalis medietatem praecise si minus minus medietatem et loquor de umbrosis proiectis in plano et dico etiam quantum ad latitudinem umbrae. **xxij.**

u Sphaerolum sphaerolum luminoso minus umbram proicere pyramidalen equalen columniales maius curtam et euerlam pyramidem infinitam.

Ratio huius propositionis sumitur ex praebitis quoniam ex. xxij. patet quod umbrosum luminoso minus ut terra sole illuminatur plus quam medietatem ergo radii a luminoso cadentes in umbrosum aequae distantes esse non possunt. tunc enim arcuum non in extremis diametri sed in extremis cordae alioquin minoris cordae semicirculi. ergo anguli necesse non erunt in contactu sicut patet ex. xx. iij. euclidis ergo cum radii a maiori magnitudine descendunt necesse est illos angulos esse maiores quos constituit radii ex parte cordae praedictae a luminoso reuoluiti conuenit igitur necessario ad partes illas ut docet quarta penultima euclidis. Et hoc si equalis sibi sint umbrosum et luminosum radii cadunt necessario in extrema et in euerlam umbrosi et per consequens aequae distantes erunt nunquam concurrentes. si etiam in infinitum producantur. Si ergo maius fuerit umbrosum necesse est umbram esse contrarie dispositionis cum prima istarum trium quare euerla erit et curta pyramides infinitae secundum longitudinem quam figuram calae cordae appellatur dico tamen lunam et umbrosum esse super idem planum. **xxij.**

u Sphaeram esse lumen diminutum. Sicut patet ex quarta quoniam opacum impedit transitum lucis directum et principale si tamen secundarium quod arcuiter reuoluit se diffusit. Ita hoc autem differt umbra a tenebris





064

KEPLER, Johannes (1571–1630). *Ad vitellionem paralipomena, quibus astronomiae pars optica traditur... de modo visionis, & humorum oculi usu, contra opticos & anatomicos*. Frankfurt: C. Marnius & Heirs of J. Aubrius, 1604.

4° (195 x 157mm). Woodcut device on title, one engraved plate showing various anatomical sections of the eye, numerous woodcut diagrams in the text, 2 of which full-page, and two folding printed tables. (Staining and browning throughout, extremely heavy to about two-thirds of the text-block, minor worming in gutter of gathering 3E4 spreading to following 3 gatherings and affecting folding tables.) 19th-century binding reusing 12th-century vellum manuscript leaves, preserving earlier manuscript paper spine label (extremities rubbed, ties lacking), slipcase. *Provenance*: Wolfgang Engelbert, Graf von Auersperg (1641–1709;: 1655 inscription) — Counts of Auersperg, Fideicommissbibliothek zu Laybach (bookplate; by descent to) — Senhora Johana Auersperg de Mailhos and Senhor German Mailhos, of Montevideo, Uruguay (sale, Sotheby's London, 14 June 1982, lot 200).

FIRST EDITION of Kepler's first important optical work and a highly significant book in the history of ophthalmology. Kepler was responsible for introducing the terms 'prism,' 'lens,' 'meniscus,' and many others into the field of optics. The first part deals with human vision and the functions of the eye, the crucial role played by the retina, the process of refraction and the first scientifically correct explanation of myopia. The second part is divided into six sections, which 'include not only a discussion of parallax, astronomical refraction, and his eclipse instruments but also the annual variation in the apparent size of the sun. Since the changing size of the solar image is inversely proportional to the sun's distance, this key problem was closely related to his planetary theory; unfortunately, his observational results were not decisive' (DSB). Caspar 18; Cinti 13; Garrison p. 260; Hirschberg 308; Krivatsy 6343; Zinner 3993.

£10,000–15,000

\$15,000–22,000

€14,000–20,000



065

KEPLER, Johannes (1571-1630). *De stella nova in pede serpentarii, et qui sub eius exortum de novo iniit, Trigono Igneo*. Prague: Paulus Sessius, 1606. 2 parts. — *De stella tertii honoris in cygno, quae us que ad annum M.DC. fuit incognita*. Prague: Paulus Sessius, 1606. — *De Jesu Christi servatoris nostri vero anno natalitio*. Frankfurt: Wolfgang Richter, 1606.

4 parts in one volume, 4° (197 x 160mm). 3 part-titles, woodcut printer's device on general title, one double-page engraved plate, woodcut diagrams in text, final blank leaf. (Small marginal chip to leaf)?(2 due to paper flaw, browned throughout as usual.) Near contemporary mottled calf gilt (rebacked, preserving original spine, extremities rubbed).

Provenance: Jean-Baptiste Colbert (gilt arms on covers [Olivier 1296 (fer 1)], and inscribed 'Bibliothecae Colbertinae' at head of title; no. 10317 in the Catalogue of the Bibliotheca Colbertina, Paris, 1728; sold at Sotheby's 1 September, 1984, lot 651).

FIRST EDITION of Kepler's detailed description of the nova of October 1604, commissioned by Emperor Rudolph II, observing the nova's colour, brightness, its distance to the earth and other phenomena. His 'extensive collection of observations and opinions appeared in a longer work... A subtitle announced it as: "a book full of astronomical, physical, metaphysical, meteorological and astrological discussions, glorious and unusual." That it was. Early chapters described the nova's appearance, astrological significance, and possible origin' (DSB). The nova was subsequently named Kepler's Nova or Kepler's Star. Two variants of the title-page are recorded, the above with the imprint: *Typis Pauli Sessii, impensis Autoris*. No definitive priority has been established but correspondence by Kepler (quoted by Caspar) suggests that the present title-page is the second corrected version, which was Kepler's preferred issue, and is much scarcer. Caspar 27; Cinti 17; Houzeau & Lancaster 2843; Zinner 4097.

£30,000-50,000

\$44,000-73,000

€40,000-66,000



066

KEPLER, Johannes (1571–1630). *Astronomia nova* ἀπυλογητος, seu physica coelestis, tradita commentariis de motibus stellae martis, ex observationibus G.V. Tychonis Brahe. [Heidelberg: E. Vögelin], 1609.

2° (384 x 248mm). Dedication to Emperor Rudolph II, folding letterpress synoptic table, approximately 300 woodcut text diagrams (many repeated), woodcut initials, head- and tailpieces. First three and final blank leaves removed. Without the engraved portrait inserted in a few copies. (Very short marginal tear to title, final gathering repaired at gutter, variable staining throughout, occasional minor worming.) Modern vellum, preserving [?]original red morocco gilt spine label (extremities lightly rubbed); slipcase.

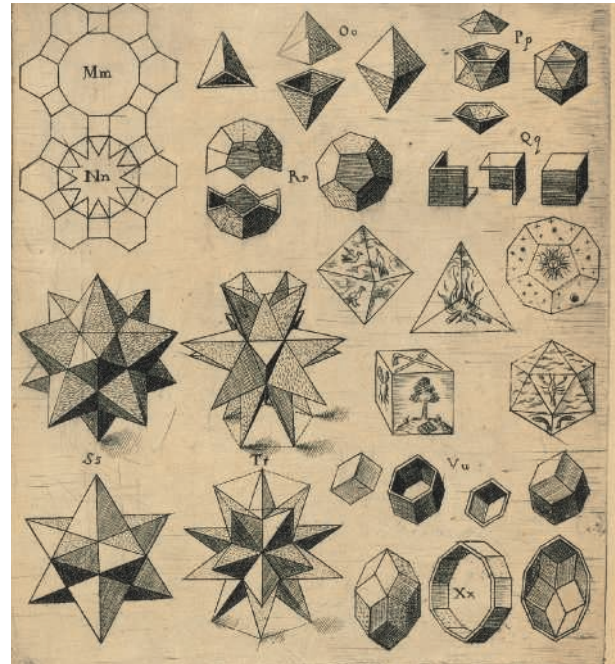
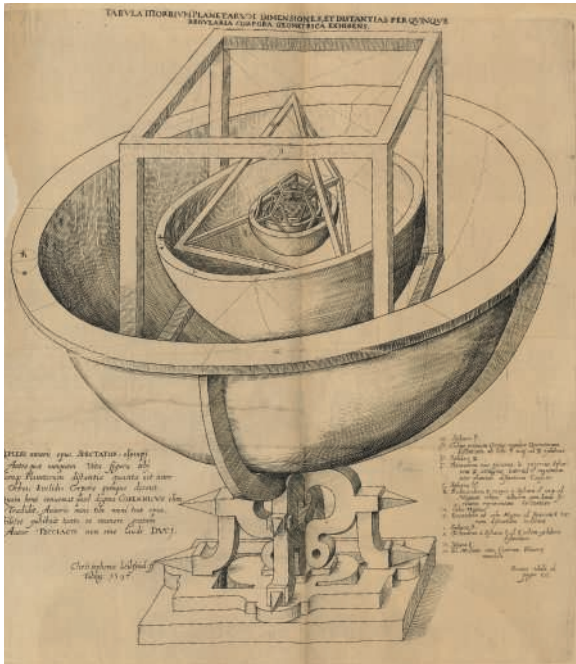
FIRST EDITION OF KEPLER'S MOST IMPORTANT WORK, A CORNERSTONE OF MODERN ASTRONOMY, containing the first enunciation of the first two laws of planetary motion: the law of elliptical orbits, and the law of equal area (the radius vector drawn from the sun to a planet describes equal areas in equal times). In 1599, expelled from Graz along with other Protestant teachers, Kepler spent three months with Brahe at his Benatky Castle observatory in Prague. There, 'by Divine Providence,' as Kepler later viewed it, Tycho assigned him to come up with a theory of Mars. Kepler had expected this task to be the work of a few weeks; instead he pursued it, with some interruptions, for the next five years. The mass of systematic and accurate observational data collected by Brahe, who died in 1601, forced Kepler, through its own 'inexorable logic,' to elaborate an entirely new astronomical system. He presented his revolutionary conclusions in the aptly titled *Astronomia nova*. 'Copernicus had shown the sun to be the centre of the universe round which the earth and planets revolve, but his description of their movements was still strongly influenced by ancient conceptions of order and harmony. It was Kepler's aim to determine the true movements of the planets and the mathematical and physical laws controlling them' (PMM). As Kepler phrased it, his goal was 'to replace a theology or metaphysics of the heavens with a philosophy or physics of the heavens,' and to show that 'the celestial machine is like a clockwork' (Caspar). 'Copernicus had referred planetary motions to the center of the earth's orbit, but Kepler referred them to the sun itself, therefore paving the way for a real center of force and making possible the Newtonian celestial mechanics' (Dibner).

The work was finished in 1605, but publication was delayed, partly due to a lack of imperial financial support, but also because of a dispute with Tycho Brahe's heirs, who had been short-changed by the Emperor of a promised sum for Tycho's manuscripts, and who thus had a vested interest in Brahe's data. In 1607 Kepler had had the wood blocks cut in Prague, and in 1608 he sent the text to be printed by E. Vögelin in Heidelberg. The absence of an imprint was due to the fact that the edition was not intended for commerce: the Emperor held the rights to its distribution, since Kepler had written it in his post of court astronomer and it had been printed at imperial expense. Kepler however thought otherwise, his salary being long in arrears, and he sold his copies to the publisher. Although the size of the printing run is not recorded, Kepler later stated that only 'a few copies' had been printed (Caspar p. 55). Caspar 31; Dibner *Heralds* 9; Grolier/Horblit 57; Houzeau and Lancaster 11830; Norman 1206; PMM 112.

£120,000–180,000

\$180,000–260,000

€160,000–240,000



(detail)

067

KEPLER, Johannes (1571–1630). *Harmonices mundi libri V*. Linz: Johann Planck for Gottfried Tampach, 1619. [Bound with:] — *Prodomus Dissertationum Cosmographicarum, continens Mysterium Cosmographicum de admirabili proportione orbium coelestium*. [And:] — *Pro suo opere Harmonices Mundi Apologia*. Frankfurt: Erasmus Kempfer for Godefrid Tampach, 1621–1622.

3 parts in one volume, 2° (*Harmonices* 325 x 205mm; *Prodomus* and *Pro suo opere Harmonices* 345 x 210mm). *Harmonices*: general title in second state with typographic ornament and with the text beginning ‘Accessit nunc...’, 5 section titles, with the dedication to King James of England *2r–*4r (later suppressed by Kepler and absent from a few copies), errata leaf at end; 6 engraved plates, numerous woodcut diagrams and illustrations in text after W. Schickard, woodcut musical notation in Book III. (Title with marginal tear where stamp removed, but without loss, B3 with a minor marginal repair, light even browning throughout.) *Mysterium Cosmographicum* and *Pro suo opere Harmonices*: one folding engraved and 4 woodcut plates, woodcut diagrams. (Without final blank, closed marginal tear to F1, engraved folding plate with paper repairs to verso and mounted on a stub, very short tear in one woodcut plate near fold, light even browning throughout.) Modern binding of vellum-backed decorative boards, gilt spine, uncut. *Provenance*: evidence of stamps removed from title and final leaf of first work — Fr. Johannes ?Ere (washed 17th-century presentation inscription to Society of Jesus on final verso of third work, with ?associated woodcut crucifixion booklabel).

FIRST EDITION OF KEPLER’S MAJOR COSMOLOGICAL TREATISE, BOUND WITH THE SECOND EDITION OF KEPLER’S MOST IMPORTANT WORK. When Kepler originally published *Prodomus Dissertationum Cosmographicarum, continens Mysterium Cosmographicum* as a defence against Fludd in 1596, it ‘was the first unabashedly Copernican treatise since *De Revolutionibus* itself ... Kepler argued that the sun’s centrality was essential, for the sun itself must provide the driving force to keep the planets in motion ... although the principal idea of the *Mysterium Cosmographicum* was erroneous, Kepler established himself as the first, and until Descartes the only, scientist to demand physical explanations for celestial phenomena. Seldom in history has so wrong a book been so seminal in directing the future course of science’ (DSB). Three years later, Kepler was already at work on the *Harmonices*, an exposition of his theory of the harmony of the universe, and the work which describes the third law of planetary motion. However, his 1599 drafts were delayed by the grief that consumed him over the next few years with the death of two of his children. He sought solace in his work on the *Harmonices*, and all of his previous work and the insights into the working of the cosmos that he had gained in the intervening decades served as material for this, his life’s work. ‘Certainly for Kepler this book was his mind’s favorite child. Those were the thoughts to which he clung during the trials of his life and which brought light to the darkness that surrounded him... his *Harmonices* appears as a great cosmic vision, woven out of science, poetry, philosophy, theology, mysticism...’ (Caspar, p. 290, quoted in DSB). Kepler attempted to discern God’s archetypal laws of the universe in four areas: geometry, music, astrology and astronomy. He conceived of a universal harmony as the embodiment of certain simple geometrical proportions relating these different aspects of the cosmos. In Book V, ‘on the harmony of celestial motion,’ Kepler refined the theory expounded in his *Mysterium cosmographicum*, and in the course of his investigations, ‘Kepler hit upon the relation now called his third or harmonic law’ (DSB). In this he related the magnitude of the planetary orbits to their periods of revolution around the sun, and established that the square of a planet’s periodic time is proportional to the cube of its mean distance from the sun, i.e. THE FIRST PUBLICATION OF THE DISCOVERY OF THE THIRD LAW OF PLANETARY MOTION. *Harmonices*: Caspar 58; Houzeau and Lancaster 11832; Norman 1207. *Mysterium Cosmographicum* and *Pro suo opere Harmonices*: Caspar 67–68; Houzeau and Lancaster 2841 and 11833. All three works: *Milestones of Science* 115. See PMM 112.

£70,000–100,000

\$110,000–150,000

€92,000–130,000



068

KEPLER, Johannes (1571–1630). *Tabulae Rudolphinae, quibus astronomicae scientiae, temporum longinquitate collapsae restauratio continentur*. Ulm: Jonas Saur, 1627.

4 parts in one volume, 4° (321 x 210mm). Engraved allegorical frontispiece of the Temple of Urania by George Celer after Kepler, a few woodcut diagrams, including a full-page of diagrams on k3v, woodcut initials and head- and tailpieces. This copy includes the 4-leaf 'Sportula genethiacis missa' (q4) issued in 1629. (Title and engraved title on guard, a few leaves lightly browned, 'Sportula' heavily browned, b3 with long closed tear causing loss of a few letters, light waterstaining at end, lightly spotted.) 19th-century calf-backed boards (joints split at head and tail of spine, quite rubbed). *Provenance*: Paris, Oratorians (title inscription) — Dom. S. Aloys Jersiens' (stamp on endpaper and verso of title) — 'Ecole Sainte Genevieve' (stamp on title).

FIRST EDITION, third issue. 'THE CHIEF VEHICLE FOR THE RECOGNITION OF HIS ASTRONOMICAL ACCOMPLISHMENTS' (DSB). On his deathbed in 1601, Tycho Brahe urged Kepler to complete his long-projected astronomical tables, to be based on Tycho's mass of observations and named after their patron Rudolph II. Kepler worked on these for years, with frequent interruptions. 'In excusing the long delay in publication [Kepler] mentioned in the preface not only the difficulties of obtaining his salary and of the wartime conditions but also "the novelty of my discoveries and the unexpected transfer of the whole of astronomy from fictitious circles to natural causes, which were most profound to investigate, difficult to explain, and difficult to calculate, since mine was the first attempt"' (DSB). The greatly improved accuracy of Kepler's tables over previous planetary tables was due in part to his discovery of the laws of planetary motion, but also to the 'happy calamity', as he put it, of his initiation into Napier's logarithms. Kepler created his own logarithmic tables (published in 1624), and used them for the complex calculations required to determine planetary orbits. The superiority of his tables 'constituted a strong endorsement of the Copernican system, and insured the tables' dominance in the field of astronomy throughout the seventeenth century' (Norman). Caspar 79; Houzeau & Lancaster 12754; Norman 1208; Shirley 335; Zinner 5063.

£10,000–15,000

\$15,000–22,000

€14,000–20,000



069

KIRCHER, Athanasius (1602–80). *Mundus Subterraneus*. Amsterdam: Joannes Jansson and Elizeus Weyerstraet, 1665.

2 volumes in one, 2° (440 x 270mm). Vol. I with engraved additional title by Theodor Dirck Matham after Joannes Paul Schor, engraved vignette on title, portrait of Pope Alexander VII and of the author, vol. II with engraved title by Anthony Heeres Siourtsma after C. van de Passe, 19 engraved plates of which 10 double-page, 2 double-page and folding and 7 full-page, 64 engraved illustrations of which one full-page and 2 on separate sheets, ALL FINELY COLOURED IN A CONTEMPORARY HAND, 7 tables, numerous woodcut illustrations, mostly coloured. (Some mainly marginal spotting and faint staining to bottom margin sometime heavier, few small tears to margins and occasional browning.) Contemporary calf, gilt fillet borders with gilt tooled corner decorations, spine decorated in gilt, endpapers sometime renewed (some light rubbing), modern box. *Provenance*: B. Powis (gift inscription on title 'to his young friend' dated 1822 to:) — Charles James Berridge Aldis (1808–1872, physician).

A MAGNIFICENT COPY, FINELY COLOURED IN A CONTEMPORARY HAND OF THE FIRST EDITION OF 'PERHAPS KIRCHER'S MOST POPULAR WORK IN HIS DAY AND BEST KNOWN IN OURS' (Merrill). The work is based on Kircher's visit to Sicily in 1637–38 in which he witnessed the eruptions of Etna and Stromboli. His observations of these volcanoes led him to conclude that the centre of the earth is a massive internal fire for which the volcanoes are mere safety valves. The work is not only geological and Kircher continues with fantastic speculations about the interior of the earth, its hidden lakes, rivers of fire and strange inhabitants. It includes discussions about the moon, the sun, eclipses, ocean currents, meteorology, hydraulics, minerals and fossils, poisons, metallurgy and mining, alchemy, herbs, astrological medicine, distillation and fireworks. EXTREMELY RARE WITH THE CONTEMPORARY COLOURING: only one other coloured work by Kircher is recorded as having sold at auction on ABPC/RBH (the first Dutch edition of *Toonneel van China*. Amsterdam, 1667). Merrill 17; Dorbon-Aine 2387 ('un des plus importants ouvrages du Kircher'; 1678 edition); Duveen p. 322 (1678 edition); Ferguson I, 467 (calling for 14 plates in vol. I ad 7 in vol. II); Caillet II, 5783 ('Le plus curieux des nombreux ouvrages de ce savant').

£60,000–90,000

\$88,000–130,000

€79,000–120,000



AMSTERODAMI,
 Apud Joannem Janssonium et Elizeum Weyerstraten.
 Jo. Paul. Schor delin. Romae. 1664. Theod. Matham sculpsit.



070

LUCRETIUS CARUS, Titus (?96–55 B.C.). *De rerum natura*. Verona: Paulus Fridenperger, 28 September 1486.

Median 2° (331 x 203mm). Collation: a–m⁸ (a1 blank, a2r text, m7v–8 blank). 96 leaves, 40 lines (41 lines after quire b). Type: 1:112R. 2– to 4–line Initial spaces, the first with guide-letter. (Repairs along inner margin of leaves of first and final quire, some neat repairs in lower inner margin of most leaves, small wormhole in text from l1, turning into 3–4 in last 4 leaves, closed in the last leaf of text.) Old wooden boards (rebacked in calf, lacking clasps). *Provenance*: Viscount Mersey, Bignor Park (book label) — sold, Christie’s, 16 December 1991, lot 139.

SECOND EDITION, and the only book signed by Fridenperger, printer at Verona. ‘Democritus, a Greek living ca. 400 B.C. first proposed a theory of structure of matter based on the a–tom (not divisible) as the fundamental particle in nature. Lucretius’ text ... is the result of observation, report and conjecture rather than experimental investigation’ (Dibner, *Heralds* 74). HCR 10282; GW M19142; CIBN L–256; Klebs 623.2; BMC VII 953; Bod–inc L–182; Goff L–333.

£8,000–12,000

\$12,000–18,000

€11,000–16,000

071

MAIER, Michael (1568–1622). *Atalanta fugiens, hoc est, emblemata nova de secretis naturae chymica*. Oppenheim: Hieronymus Galler for Johann Theodor de Bry, 1618.

Small 4° (193 x 146mm). Engraved title and 50 emblems by Matthias Merian the elder, each emblem accompanied by one of the 50 pieces of music, the ‘fugues’ mentioned on the title–page, portrait of the author on p.11. (Without final blank, evenly browned throughout, one or two letters of 2 lines of text on G4r illegible through small abrasion, a few margins with a small light waterstain, occasional offsetting from plates.) Contemporary panelled calf (rebacked), in a calf backed case. *Provenance*: Michael Wodhull, 15 May 1782 (book–collector and translator (1740–1816); inscription and some bibliographical notes on front endpaper and pastedown) — Gilbert R. Redgrave, May 1891 (inscription on front endpaper, stating this is the Wodhull copy from Thenford House, Banbury, 1885; Gilbert’s bookplate on rear pastedown).

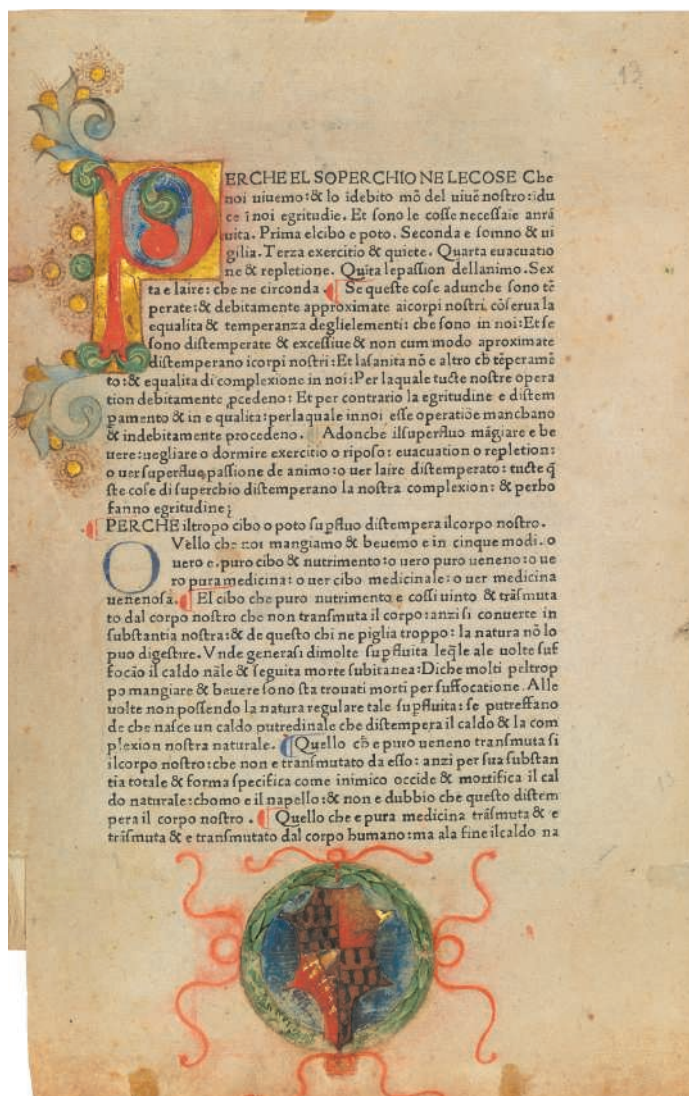
FIRST EDITION, second issue (only the date altered from 1617), ONE OF THE MOST FAMOUS WORKS IN THE HISTORY OF ALCHEMICAL LITERATURE, MICHAEL WODHULL’S COPY. Maier was a celebrated alchemist and physician at the court of the Emperor Rudolph II in Prague. ‘The *Atalanta Fugiens* is generally regarded as Maier’s rarest work and it is also the most sought after, for the splendid engravings which belong to the finest samples of Hermetical illustration’ (Duveen, attributing the engravings to Theodore de Bry). Duveen p.381; Ferguson II, p.62; Landwehr *German* 409; Wellcome I, 3980.

£15,000–25,000

\$22,000–37,000

€20,000–33,000





672

MANFREDIS, Hieronymus de (d. 1492). *Liber de homine*, in Italian: *Libro del perchè*. Bologna: Ugo Rugerius and Dominus Bertochus, 1 July 1474.

Chancery 2° (253 X 192mm). Collation: [1-2⁶ 3-8⁸ 9-10⁶ 11-15⁸] (1/1r blank, 1/1v author's dedicatory address to Giovanni Bentivoglio, a/2r tabula, 2/6v blank, 3/1r text, 15/5r colophon, 15/5v-8 blank). 111 (of 112, without a final blank) leaves. 40 lines, double column in table.

Type: 1:98R. One large contemporary illuminated initial in red with burnished gold from Northern Italy, illuminated coat-of-arms in lower margin: quarterly, 1 and 3: nebuly *sable* and *argent*, 3 and 4: per bend indented *or* and *gules*, initials and paragraph marks in red or blue. (Gutter of first and second leaf partly repaired, lightly spotted, occasional light marginal soiling.) 17/18th-century calf, flat spine gilt in compartments (lightly rubbed). *Provenance*: unidentified coat-of-arms (on first leaf of text) — one or two marginalia in manuscript (cropped) — stamp removed from a2.

FIRST EDITION of this early work on dietetics, written in question-and-answer form. Manfredi's encyclopedic work on all matters concerning health opens with a chapter devoted entirely to food, followed by a second chapter on wine. It is written by the great Professor of Medicine and Astrology at the University of Bologna as a series of questions, to each of which he gives one or more replies, and goes on to discuss sleep, exercise, the emotions, disease, the voice, and parts of the body. The final quire has been described as 15⁶⁻¹ (BMC), but the copy described by Pellechet makes it clear that the final quire consists of 8 leaves, of which the last three are blank. RARE; only one other copy (imperfect) recorded at auction in over 40 years. HR 10689; GW M20557; C 2623; Klebs 653.1; Osler(IM) 59; Pell 7558 (7466); CIBN M-74; IGI 6111; Bod-inc M-061; BMC VI 805; Simon, *Bacchia* 71; Vicaire 556; Goff M-191.

£25,000-35,000

\$37,000-51,000
€33,000-46,000



073

MARCOLINI DA FORLI, Francesco (c.1500–1559). *Le Sorti intitolate giardino di pensieri*. Venice: Francesco Marcolini, 1540.

2° (316 x 214mm). Large woodcut on title depicting a group of men and women in the ‘Garden of Thoughts’ by Giuseppe Porta after Salviati, portrait of Marcolini on title verso within architectural border, 100 woodcuts comprising 50 representing abstract qualities, virtues and vices, 50 of philosophers, and numerous smaller woodcuts of playing cards. (Occasional light soiling.) Contemporary calf, covers with wide border composed of gilt and blind fillets enclosing decorative corner pieces and side panels infilled with various gilt foliate, star and dotted tools, enclosing central scalloped panel with trefoils and very small fleur de lis decorations, surrounding a central device of intertwined strap work, edges gilt, gauffered and decorated, modern box (rebacked preserving old spine).

FIRST EDITION OF THE MOST CELEBRATED BOOK OF GAMES OF FORTUNE OF THE SIXTEENTH CENTURY. The source for the title scene, in which the figures in the foreground have a pack of cards and a copy of Marcolini’s book, has been found in a design by Francesco Salviati engraved by Marco Dente. Giuseppe Porta was a pupil of Salviati’s and took his professional name from his master. Servolini suggests that the portrait of Marcolini is by Titian, noting the resemblance between it and the Titian portrait of Ariosto copied in *Lena* (Venice: Francesco Bindoni and Maffeo Pasini, 1535). The answers of the philosophers in the second part were put into *terzine* by Lodovico Dolce. Brunet III, 1407–1408; Casali *Annals* 54; Mortimer *Italian* 279; Sander II, 4321.

£15,000–20,000

\$22,000–29,000
€20,000–26,000



074

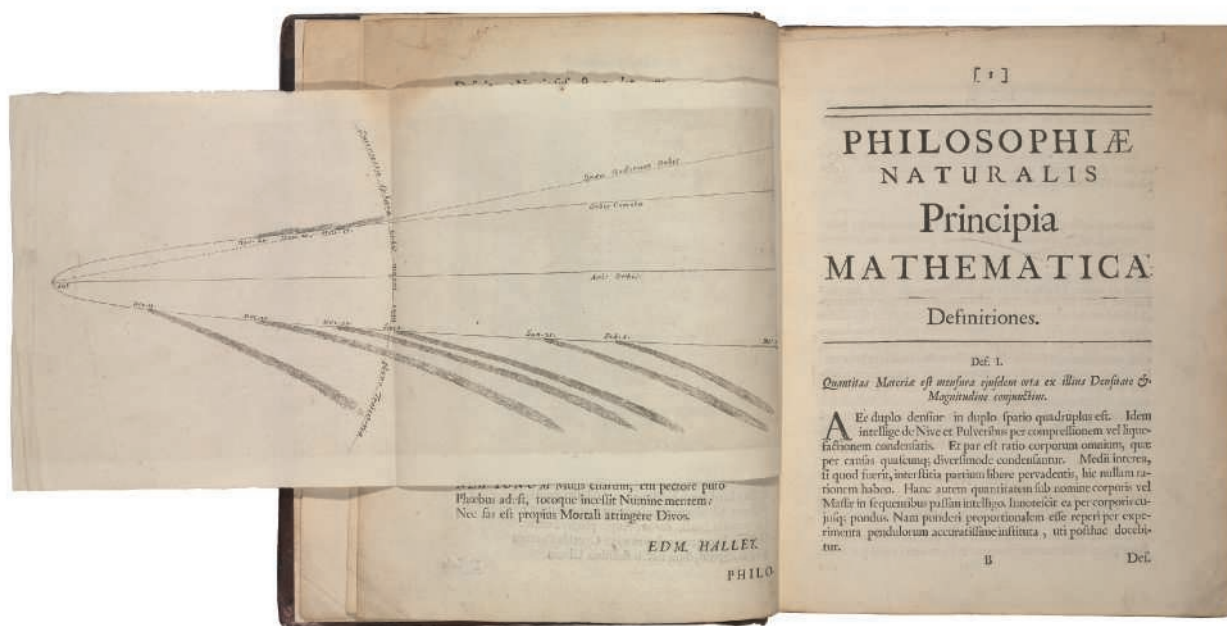
MÜNSTER, Sebastian (1489–1552). *Cosmographie universalis lib. VI*. Basel: Heinrich Petri, 1550.

2° (318 x 206mm). Roman and italic types, Prester John’s account in Hebrew on penultimate leaf. Title within historiated woodcut border, woodcut portrait of Münster on verso; 14 double-page woodcut maps, including 2 world maps, the first by David Kandel, showing the New World, and one map of the Americas; 41 double-page town views, including 3 panorama views on full fold-out sheets, approximately 970 woodcut text illustrations, from a variety of sources, including approximately 75 views and plans, of which about 10 full-page. (Gathering of contents signed *6 misbound between 2.2 and 3.1, short tear to l8 just into text, tiny hole to folding view of Vienna, a few short tears at creasefolds on folding views, occasional light browning.) Old calf, red edges (rebacked, perhaps preserving original gilt spine). *Provenance*: semi-erased inscription on recto of title seemingly connected with the erasure of large inscriptions on p1, B2, B7, X4, Y1, Kk4, Kk6, Mm1, Vv3, GG1, NN2 and smaller erasures on several other leaves — early ink marginalia — ink inscription dated 1768 on verso of title recording ownership of a house of the Pauline Fathers under the priorship of Bartholomaeus Orlaus — University of Hungary (stamp on verso of title with duplicate sale stamp).

FIRST LATIN EDITION. This Latin edition and the German edition, both published in the same year by Münster’s son-in-law Heinrich Petri, were the first of Münster’s works to contain town views. The map of the modern world, ‘Typus Orbis Universalis,’ also first appeared in this edition, replacing the Ptolemaic world map used in previous editions (cf. Shirley 77). Adams M-1908; Alden and Landis 550/27; Burmeister 86; Sabin 51379; Shirley 92.

£10,000–15,000

\$15,000–22,000
€14,000–20,000



075

NEWTON, Sir Isaac (1642–1727). *Philosophiæ naturalis principia mathematica*. Edited by Edmond Halley (1656–1743). London: Joseph Streater for the Royal Society [at the expense of Edmond Halley], to be sold by various booksellers, 1687.

4° (240 x 187mm). Title in first state, uncanceled; P4 a cancel correcting the orientation of the diagram on verso; errata inserted at the end as cancel 3O4. Folding engraved plate of cometary orbit inserted after A4, woodcut and typographical diagrams. (Top corner of title and some other leaves expertly reinforced, light occasional soiling, faint waterstaining to final leaves, a few light scattered stains, tiny repair to corner of G3, tiny paper flaw on X1 touching 5 letters and at top margin of 3*1 and 3*4 resulting in small loss at top edge, clean tear with no loss to 2W3, gathering 3F browned.) Contemporary sprinkled calf, sides ruled in blind, sprinkled edges (rebacked, extremities rubbed, flyleaves renewed), modern box. *Provenance*: '10 May 1804 /I' (inscription on verso of title) — THOMAS CARLYLE (1795–1881, historian; bookplate) — Gustavus Wynne Cook (1867–1940, American banker, businessman and amateur astronomer; book label) — pencil corrections and annotations.

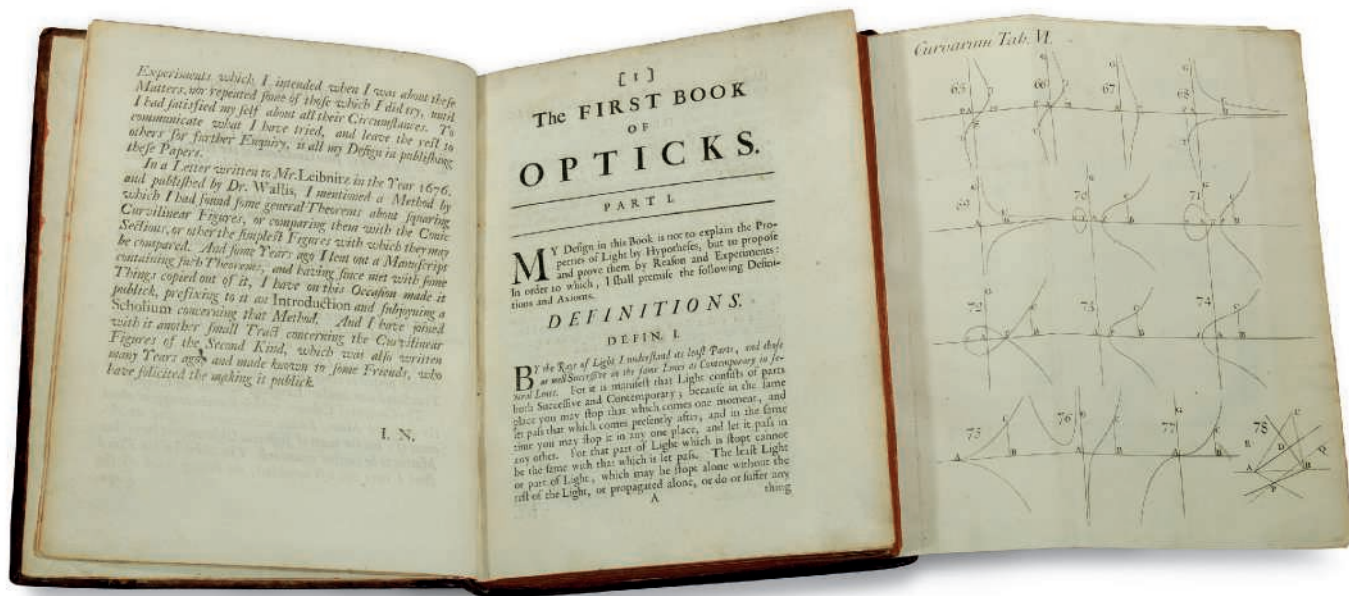
'THE GREATEST INTELLECTUAL STRIDE THAT IT HAS EVER BEEN GRANTED TO ANY MAN TO MAKE' (EINSTEIN). FIRST EDITION OF 'THE GREATEST WORK IN THE HISTORY OF SCIENCE' (PMM); the English issue (two-line imprint). The *Principia* elucidates the universal physical laws of gravitation and motion which lie behind phenomena described by Newton's predecessors Copernicus, Galileo and Kepler. Newton establishes the mathematical basis for the motion of bodies in unresisting space (the law of inertia); the motion of fluids and the effect of friction on bodies moving through fluids; and, most importantly, sets forth the law of universal gravitation and its unifying role in the cosmos. 'For the first time a single mathematical law could explain the motion of objects on earth as well as the phenomena of the heavens... It was this grand conception that produced a general revolution in human thought, equalled perhaps only by that following Darwin's *Origin of Species*' (PMM). Newton's scientific views were not seriously challenged until Einstein's theory of relativity and Planck's quantum theory, but his principles and methods remain essential for the solution of many scientific questions. Halley encouraged Newton to write the *Principia* and Newton acknowledges his contribution in the preface: 'Mr. Edmund Halley not only assisted me with his pains in correcting the press and taking care of the schemes, but it was to his solicitations that its becoming public is owed; for when he had obtained of me my demonstrations of the figure of the celestial orbits, he continually pressed me to communicate the same to the Royal Society...' (translated by Andrew Motte). Halley also bore the cost of printing, the Royal Society's funds having been depleted, and was instrumental in its distribution. The printing history of the *Principia* is well documented, owing particularly to the researches of A.N.L. Munby and W. Todd. Most notable are the two states of the title-page: one with a 2-line imprint, as here, and one with a 3-line imprint naming the bookseller Samuel Smith, each reflecting domestic versus foreign distribution of the work. This issue was distributed in Britain by Newton and Halley through a number of unnamed booksellers. The printing of the edition was divided between two compositors working concurrently, one setting the first two books, the other setting the third. A number of stop-press corrections have been listed by William Todd without indicating any priority.

The present copy belonged to the renowned Victorian historian and philosopher Thomas Carlyle and to the amateur astronomer Gustavus Wynne Cook. Cook had his own observatory and owned a giant telescope that he wanted to use for a survey of the universe. Babson 10; Grolier *Science* 78 ('the most influential scientific publication of the seventeenth century'); Koyr and Cohen, *Isaac Newton's Principia*, Cambridge: 1971–2; Norman 1586 (3-line imprint title); PMM 161; Wallis 6; Wing N-1048.

£200,000–300,000

\$300,000–440,000

€270,000–390,000



676

NEWTON, Sir Isaac (1642-1727). *Opticks: or, a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light*. London: for Samuel Smith and Benjamin Walford, 1704.

4° (238 x 186mm). Title printed in red and black. 19 folding engraved plates. (Title lightly soiled, small wormhole in outer corner of title and following few leaves repaired, lower outer corner of gatherings Dd-Qq browned and paper a little brittle, also affecting 2 plates, corner of Mm1 repaired, 4 plates at end with small light waterstain, occasional light finger-soiling.) Contemporary panelled calf (rebacked with old spine relaid, corners repaired).

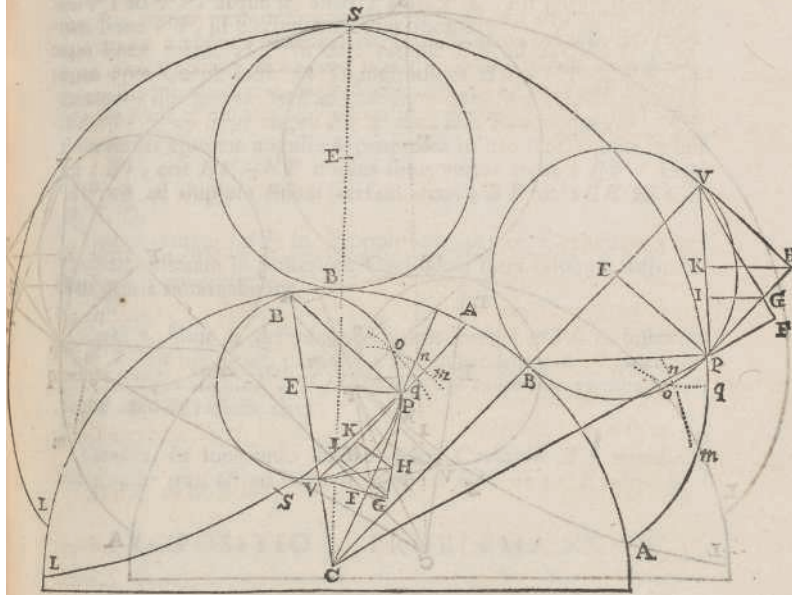
FIRST EDITION, containing Newton's fullest account of his discoveries and theories concerning light and colour. Newton's invention of the reflecting telescope at the beginning of the 1670s brought him to the attention of the Royal Society, resulting in his election to membership in 1672. At the same time Newton began experiments with prisms and other lenses, and the first of these were published in a letter to the Royal Society in 1672. Criticism and further experiments refined Newton's theories, resulting ultimately in the *Opticks*. Newton is thought to have delayed publication of the *Opticks* until after the death of his chief critical colleague, Robert Hooke, in 1703, although the year of its publication may just as well be seen as a response to the appearance in 1703 of work on the same subject by George Cheyne (DSB, p. 56). Of Newton's more important discoveries in the *Opticks* are his analysis of white light as a compound of many pure colours; interference effects; discovery of periodicity (which led to wave theory); and his full explanation of the rainbow. 'For over a century, [the *Opticks*] remained a work of great authority, "supreme" in Andrade's words, "as a record of experiment and scientific deduction from experiment"' (PMM). The first edition is also important as it contains Newton's first mathematical papers in print, added to assert Newton's priority to the discovery of the calculus over Leibnitz. Babson 132; Dibner *Heralds* 148; Grolier/Horblitt 79b; Norman 1588; Wallis 174; PMM 172.

£30,000-50,000

\$44,000-73,000

€40,000-66,000

Sit ABL Globus, C centrum ejus, BP Rota ei insitens, E centrum Rotæ, B punctum contactus, & P punctum datum in perimetro Rotæ. Concipe hanc Rotam pergere in circulo maximo ABL ab A per B versus L , & inter eundem ita revolvi ut arcus AB , PB sibi invicem semper æquentur, atque punctum illud P in perimetro Rotæ datum interea describere Viam curvilineam AP . Sit autem AP Via tota curvilinea descripta ex quo Rota Globum tetigit in A , & erit Viæ hujus longitudo AP ad duplum



finem versus arcus $\frac{1}{2}PB$, ut $2CE$ ad CB . Nam recta CE (si opus est producta) occurrat Rotæ in V , junganturque CP , BP , EP , VP , & in CP productam demittatur normalis VF . Tangant PH , VH Circulum in P & V concurrentes in H , secetque PH ipsam VF in G , & ad VP demittantur normales GI , HK .
Centro

077

NEWTON, Sir Isaac (1642-1727). *Philosophiæ naturalis principia mathematica. Editio secunda*, edited by Roger Cotes (1682-1716). Cambridge: [printed by Cornelius Crownfield at the University Press], 1713.

4° (238 x 185mm). Title with engraved device, folding engraved plate of the cometary orbit, woodcut diagrams in text. (Small stain on title, circa 60 leaves and folding plate lightly waterstained, a few light marginal spots.) Contemporary calf gilt, single fillet on sides, spine decorated gilt in compartments with floral and foliate designs, black morocco lettering-piece (front joints cracked but cords firmly holding, very lightly rubbed). *Provenance*: G.W. Chad, 26 June 1800 (signature on title) — Sir Willoughby Jones, Baronet, Cranmer Hall, Norfolk (bookplate and inscription 'purchased at sale of G.W. Chad's books, July 1874').

The second edition, EXPANDED AND CORRECTED. Published twenty-six years after the first, this second edition of Newton's *Principia* was printed at the Cambridge University Press, which Richard Bentley had recently revived. Edited by Roger Cotes, it contains his important preface in which he attacks the Cartesian philosophy 'and refutes an assertion that Newton's theory of attraction is a *causa occulta*' (Babson). There is also a second preface by Newton, and substantial additions, the chapters on the lunar theory and the theory of comets being much enlarged. About 750 copies of this edition were printed. Babson 12; Wallis II, 8; ESTC T93210.

£9,000-12,000

\$14,000-18,000

€12,000-16,000



078

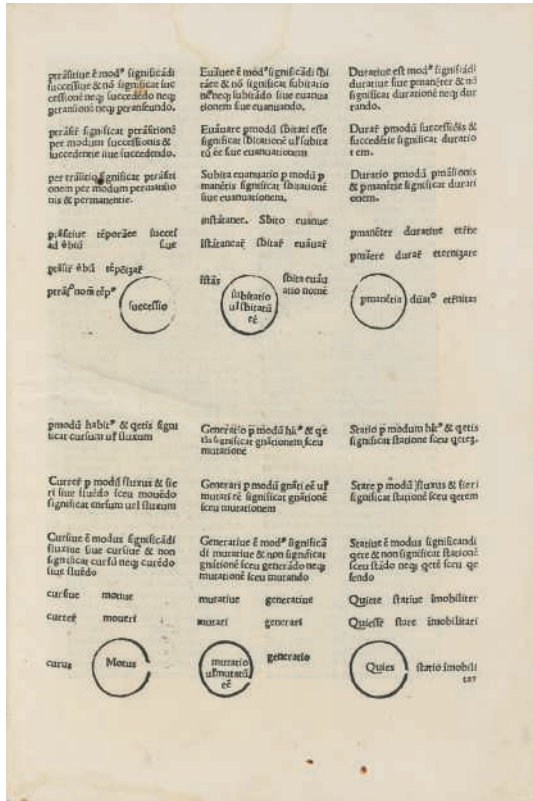
NEWTON, Sir Isaac (1642-1727). *The Method of Fluxions and Infinite Series; with its Application to the Geometry of Curve-Lines*. Translated by John Colson (1680-1760). — John COLSON. *A Perpetual Comment upon the foregoing Treatise*. London: Henry Woodfall for John Nourse, 1736.

4° (246 x 190mm). Engraved frontispiece, woodcut diagrams, woodcut initials, head-and tailpieces, errata on [T]2r. (Frontispiece and title lightly spotted, one or two spots throughout.) Contemporary sprinkled calf (skilfully rebounded with old spine relaid, upper corners repaired, lightly rubbed). *Provenance*: St Peter's College Library (booklabel on pastedown) — South-West Essex, Technical College and School of Art (stamp on title, B3, P1, 2D3, 2R1, 2X2) — two shelf marks in manuscript (title).

FIRST EDITION. Newton's *Methodus Fluxionum* was originally prepared in 1671, but remained unpublished until this English translation by John Colson. In it he presents a method of determining the magnitudes of finite quantities by the velocities of their generating motions. At the time of its preparation, it was Newton's most complete exposition of the fundamental problem of the calculus, in which he presented his successful general method. Newton prepared this treatise for the use of learners just before his death and entrusted the Latin manuscript to Henry Pemberton, who never published it. The original text was not published in Latin until 1779. Babson 171; Norman 1595; Wallis 232.

£20,000-30,000

\$30,000-44,000
€27,000-39,000



679

NOGAROLUS, Leonardus (d. between 1482–92). *Liber de obiecto intellectus*. Vicenza: Leonardus Achates de Basilea, 1497.

Collation: a-b⁶ c⁴ d⁴ (a1r title, a1v author's dedication to Antonius Salernitanus and Sanctorus Siculus, a2r text, d4v colophon). 21 leaves. 54 lines, double column. Types: 11:170G, 6:88R. Two woodcut white-on-black initials, P (altered from R) and Q from the large set. Typographical table with printed circles on a6r. Blind bearer type visible at foot of a1r-v. As called for by BMC, the signature on b3 has been corrected from a3 by overstriking. The Friedlaender copy (Christie's NY, 23 April 2001, lot 12, also bound with these same works) contained a circular diagram of the Ptolemaic universe with letterpress text as a single leaf at the end; it is not otherwise recorded and is also not present in the British Library, Munich or Freiburg-im-Breisgau copies.

[Bound with:]

NOGAROLUS. *De beatitudine*. Vicenza: Henricus de Sancto Ursio, Zenus, 29 November 1485.

Collation: a⁸ b-c⁶ d-e⁸ (a1r blank, a1v author's dedication to Cardinal Auxias de Podio, a2r text, e8r colophon, e8v blank). 36 leaves. 53 lines, double column. Types 5:120G, 4:80G. 10- and 4-line initial space, with printed guide-letter. As noted in BMC, on a5v an omitted line of text was stamped in at the foot of the second column using an unidentified gothic type.

[Bound with:]

NOGAROLUS. *De mundi aeternitate*. Edited by Ludovicus Zuffatus. [Vicenza]: Henricus de Sancto Ursio, Zenus, 31 January 1486.

Collation: a¹⁰ b-k⁶ l-m⁸ (a1 blank, a2r text, m7v colophon and register, m8 blank). 80 leaves. 54 lines, double column. Types: 5:120G, 4:80G. 2- to 9- line initial spaces, some with printed guide-letter. Blank space on h3r preceded by the legend 'Vide figuras'. As noted by BMC, these types were used only in the present edition and in the same printer's edition of Nogarolus' *De beatitudine*. The sheets of *De beatitudine* are listed in the first column of the register to this edition of *De mundi eternitate*.

3 works in one volume, super-chancery 2° (312 x 208mm). Title written at top of first blank leaf of 2nd and 3rd works, one contemporary ms. correction in 3rd work. (One or two small wormholes, minor marginal wormtrack [repaired in II: d-e] in latter two works.) Contemporary Italian half goatskin over wooden boards, tooled in blind with knot tools and small circles and a palmette border, catchplates retained on lower cover, front cover lettered in manuscript, a pair of original flyleaves at each end (a little wear and worming, repairs at spine, rear flyleaves lightly stained).

FIRST EDITION and the only incunable edition of each work. The first work is the last dated book from the first press at Vicenza, established in 1474. A TALL, FRESH COPY, retaining some deckle edges and sharp impressions. I: RARE; no copy in America. H *11896; BMC VII, 1034; BSB-Ink. N-212; Freiburg/Sack 2605; IGI 6924; not in Goff. II: HC *11895; BMC VII, 1045; BSB-Ink. N-210; CIBN N-151; IGI 6923; Vatican N-77; Goff N-261. III: HC *11894; BMC VII, 1045; BSB-Ink. N-211; CIBN N-151; IGI 6922; Vatican N-78; Goff N-262.

£10,000–15,000

\$15,000–22,000

€14,000–20,000

080

PACIOLI, Luca (c.1445-1514). *Divina proportione. Opera a tutti gl'ingegni perspicaci e curiosi necessaria. Ove ciascun studioso de philosophia: prospective picture sculptura: architectura: musica: e alter mathematice.* Venice: Alessandro and Paganino de' Paganini, June 1509.

3 parts in one, 4° (288 x 203mm). Title printed in red and black with white-on-red woodcut initial D, with blank E10, 87 woodcut plates at end, including 23 depicting letters, the final plate depicting a genealogical tree printed in red and black, diagrams in margin of text, white-on-black woodcut initials with criblé, knotwork, floral or ornithological ornament. (Title a little soiled with 2 minor marginal repairs, faint dampstaining and very occasional light spotting, small wormtrack in inner margin of E3-a4, plate 'G' lightly stained, few plates with minor marginal repair and small stain.) 18th-century vellum, yellow edges (lightly soiled). *Provenance:* manuscript annotation in margin of b2 and c9 in different hands — unidentified signature at bottom of title — erased ?inscription on free endpaper — Gian Giacomo Trivulzio (bookplate, book-label and 3 other small stamps, 'Duplicate' stamp at end) — Ladislao Reti (1901-73, one of the foremost authorities on Leonardo da Vinci; bookplate).

FIRST EDITION OF THIS FUNDAMENTAL WORK. A FRESH AND CRISP COPY.

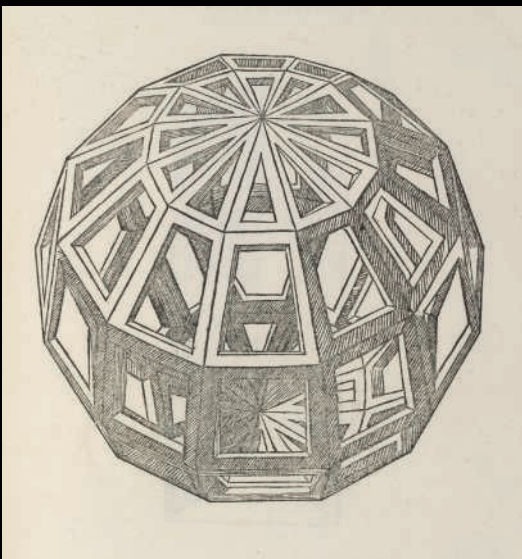
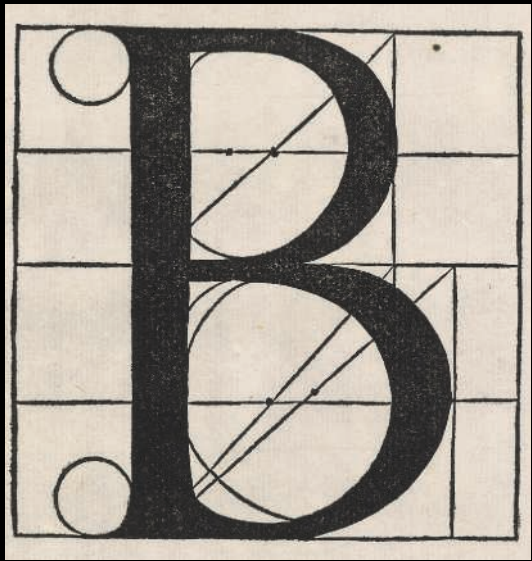
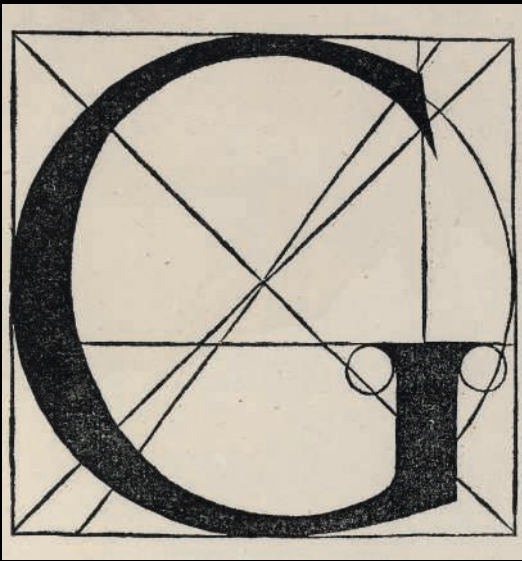
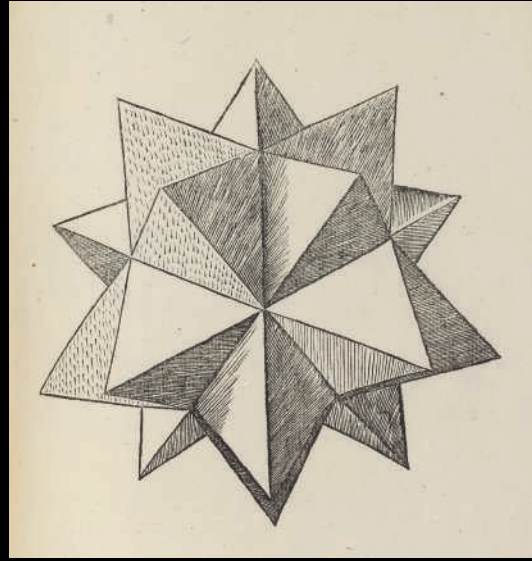
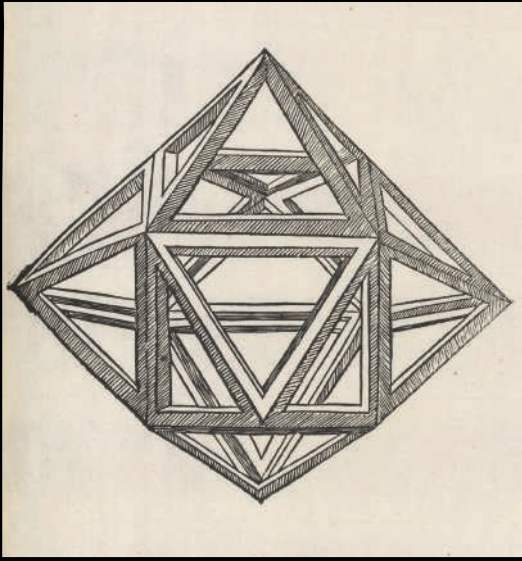
A landmark of Renaissance geometry with woodcuts of geometrical shapes cut from designs by Leonardo da Vinci. The edition as a whole is dedicated to the Florentine gonfaloniere, Pietro Soderini. The first work, dedicated to Ludovico Sforza and composed in Milan in 1497, treats divine proportion, containing a summary of Euclid's propositions on the golden section (Paganini had in fact printed Pacioli's edition of Euclid just ten days earlier) and a study of regular and semi-regular polyhedrons. The second work, on architecture, inspired by Vitruvius and Alberti, was composed later and dedicated to Pacioli's pupils at Sansepolcro, to which he added a treatise on the right proportions of roman lettering. The third work, dedicated to Soderini, is Pacioli's Italian translation of a Latin treatise of geometry by Piero della Francesca, who is unacknowledged. At the Sforza court Pacioli met Leonardo da Vinci, who consulted him on matters relating to mathematics; together they fled to Florence after the capture of Milan by the French. Pacioli's writings are of the greatest importance for the study of Leonardo and in particular the plates that form the last part of this book.

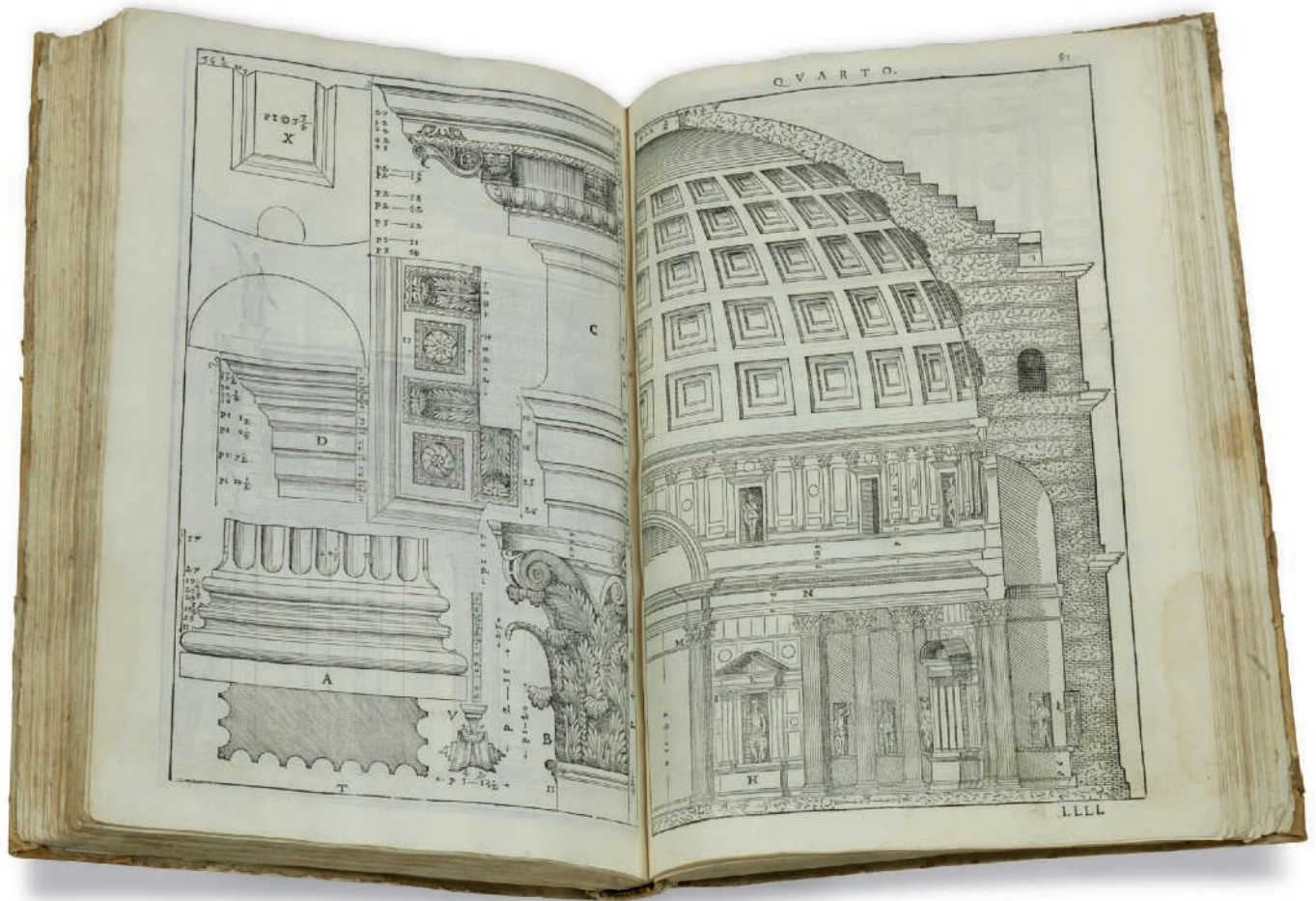
The woodcut of the geometric human head is after Piero della Francesca (a drawing from *De prospectiva pingendi*); the 23 woodcuts of roman capital-letter forms (with O twice and Z omitted) are original to this edition; the 59 woodcuts of solid and open geometric forms are after Leonardo da Vinci (his designs in the 1498 manuscript now in the Ambrosiana) with the final plate misnumbered 61 as usual; the 3 unnumbered architecture plates are found before plate 1 and between plates 13 and 14, and the woodcut of the genealogical tree of proportion and proportionality is copied from the block in Pacioli's 1494 *Somma di aritmetica*. Adams P-7; Isaac 12513; Essling 1645; Mortimer *Italian* 346; Sander 5365/6.

£200,000-300,000

\$300,000-440,000

€270,000-390,000





681

PALLADIO, Andrea (1518-1580). *I quattro libri dell' architettura*. Venice: Domenico de' Franceschi, 1570.

4 parts in one volume, 2° (300 x 207mm). Title and three section-titles each within woodcut architectural border, printer's device above colophon, 221 woodcut illustrations some of which full- or double-page, by Giovanni and Cristoforo Chrieger, Cristoforo Coriolano and others, after Andrea Palladio. (Without blanks, bottom corner of first leaves repaired, title with other small repairs, some wormholes neatly repaired in margins occasionally touching text, a wormtrack repaired in 4L2-4Q2 with some loss, occasional light soiling and spotting, light waterstaining to margins of a few leaves.) Rebound using old vellum, modern box (repaired and soiled). *Provenance*: Hunstanton Hall (stamp on title).

FIRST COLLECTED EDITION of one of the most influential books on architecture. 'Palladio's lasting influence on architectural style in many parts of the world was exercised less through his actual buildings than through his textbook. This is divided into four sections: orders and elementary problems, domestic building, public building and town planning and temples. Palladio's style was directly inspired by Roman classical models through the writings of Vitruvius and Alberti' (PMM). Palladio's influence was great worldwide: in the United States it can be seen in Thomas Jefferson's Monticello, in his designs for the University of Virginia, in numerous governmental buildings and mansions; within years of its publication Jacques Androuet du Cerceau was making manuscript copies of the text for use of teaching and included a copy of one of Palladio's woodcuts in his own publication; Alessandro Farnese also produced a series of drawings based on the woodcuts around the same period and a Spanish translation was written by Juan de Ribero Roda in 1578. '*I quattro libri* was used extensively by architects, builders and teachers, but also by visitors to Rome as a kind of architectural guidebook' (RIBA). Adams P-101; Berlin Kat. 2592; Brunet IV: 320; Cicognara 594; Fowler 212; Mortimer *Italian* 352; Millard *Italian* 65; PMM 92; RIBA 2383 (with p. 41 misnumbered '42' in book 3).

£30,000-50,000

\$44,000-73,000

€40,000-66,000



082

POLACCO, Giorgio (fl. 1644). *Anticopernicus catholicus, sev de terae statione, et de solis motv, contra systema Copernicarum, catholicae assertiones.* Venice: Guerilios, 1644.

2 works bound in one, 4° (197 x 139mm). Engraved diagram of the solar system on title, 2 engraved illustrations in text, woodcut initials and headpieces. (Small stain on M2, some light spotting, mostly at beginning and end, margins cut down.) Later boards (lightly soiled, a few worm holes in sides), modern half morocco case. *Provenance:* 2 manuscript inscriptions (on verso of final leaf, shining through on recto).

FIRST EDITION of this important anti-Copernican work. As a Jesuit committed to church doctrine, Polacco was among the most vehement opponents of Copernican and Galilean theory. The work gives an account of Galileo's 'trial by the Inquisition, and his abjuration of his heresies pp. 68-76' (Redgrave), after publication of the *Dialogo* in 1632. In 195 'assertiones' relating to the Bible and the teaching of the Catholic Church, Polacco proves that Galileo and Copernicus were wrong, and that the sun revolves around the earth. The engravings in the text depict an early illustration of the moon and of sun spots. Cinti 113; Riccardi II, 290.

£12,000-18,000

\$18,000-26,000

€16,000-24,000



083

PTOLEMAEUS, Claudius (c.100–c.170). *Almagestum. Opus omnes celorum motus continens*. Venice: Petrus Lichtenstein, 10 January 1515. 2° (300 x 211 mm). Numerous woodcut diagrams in the margins, large printer's device at end in red and black, ornamental initials. (First gathering starting to detach, hinges weak, light marginal spotting or soiling.) Later boards (new endpapers), modern half-morocco case. *Provenance*: illegible stamp (on margin of title and below printer's device).

THE FIRST COMPLETE LATIN EDITION, translated from the Arabic in 1175 by Gerard of Cremona, of Ptolemy's most important astronomical and mathematical work. 'Ptolemy's chief work in astronomy, and the book on which his later reputation mainly rests... The *'Almagest'* is a masterpiece of clarity and method, superior to any ancient scientific textbook and with few peers from any period' (DSB). Written in the second century A.D., it was 'almost immediately adopted as the standard astronomical textbook of classical antiquity... The *Almagest* remained the dominant influence in theoretical astronomy until the close of the sixteenth century' (Norman 1760). Adams P-2213; Essling 895; Houzeau-Lancaster 865; Sander 5971.

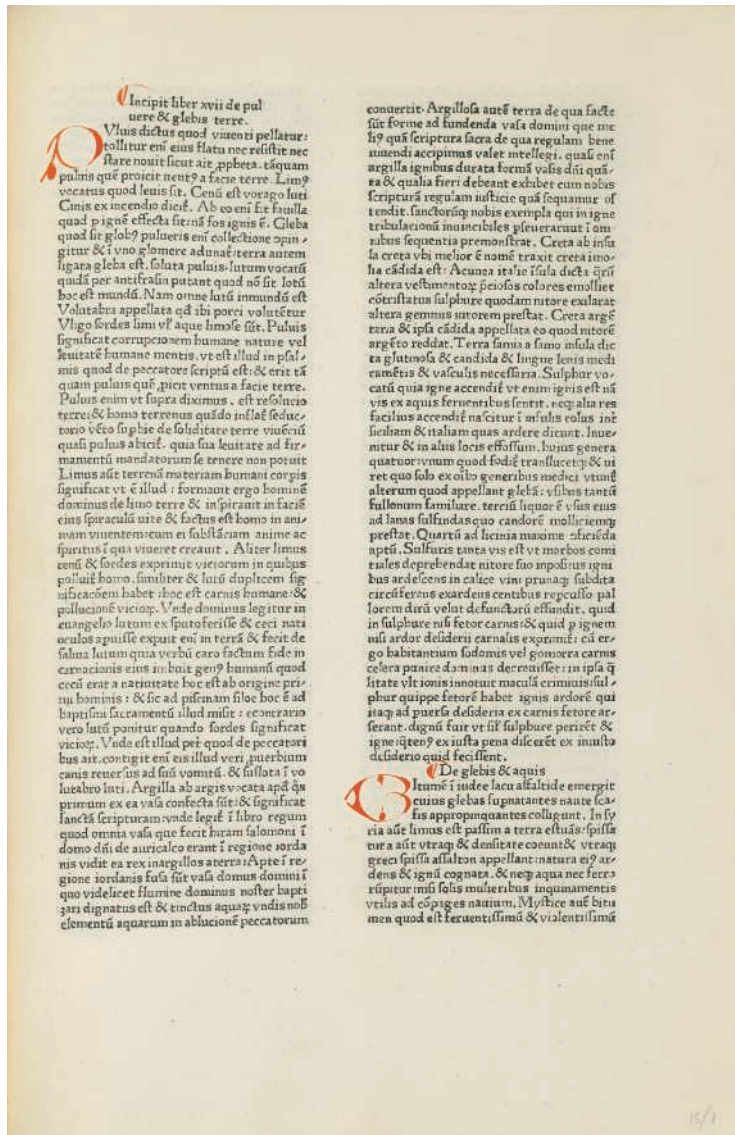
£10,000–15,000

\$15,000–22,000
€14,000–20,000

084

RABANUS MAURUS (c.784–856). *De sermonum proprietate, sive Opus de universo*. [Strassburg: R-Press type 1 (Johann Mentelin and Adolf Rusch), c. 1473, not after 1474].

Royal 2° (400 x 271 mm). Collation: [1–2¹⁰ 3–4⁸ 5–6¹⁰ 7⁸ 8⁶ 9⁸ 10–11¹⁰ 12⁸ 13–14¹⁰ 15⁸ 16–17¹⁰ 18–19⁸] (1/1 blank, 1/2r author's letter to Louis the German, 1/2v author's letter to Haymo, Bishop of Halberstadt, 1/3r chapter index, 1/4v text, 4–8 books V–VIII, 9–11 books IX–XI, 12–14 books XII–XVI, 15–17 books XVII–XX, 18–19 books XXI–XXII, 19/7–8 blank). 168 leaves (of 170, without the first and final blanks but with the penultimate blank leaf). 56 lines, double column. 2- to 10-line initials and paragraph marks in red. Type: 1:103R. (Fos 6/3v–4r lightly soiled, a few other leaves lightly discoloured, occasional small stain, few small wormholes at beginning and end.) 18th-century Dutch calf gilt, panelled sides with central floral arabesque, crown at corners, cockerel tool in spine compartments, red leather spine label, gilt edges (a few minor scuff-marks, corners bumped); red quarter-morocco slipcase (just rubbed). *Provenance*: Pietro Antonio Bolongaro-Crevenna (1736–92; sale Amsterdam 1789, no. 522; ticket on front pastedown) — Dukes of Arenberg (inventory label on spine) — Robert Honeyman (bookplate; sale Sotheby's, 11 November 1980, lot 2563) — George Abrams (bookplate; sale Sotheby's, 16 November 1989, lot 108).



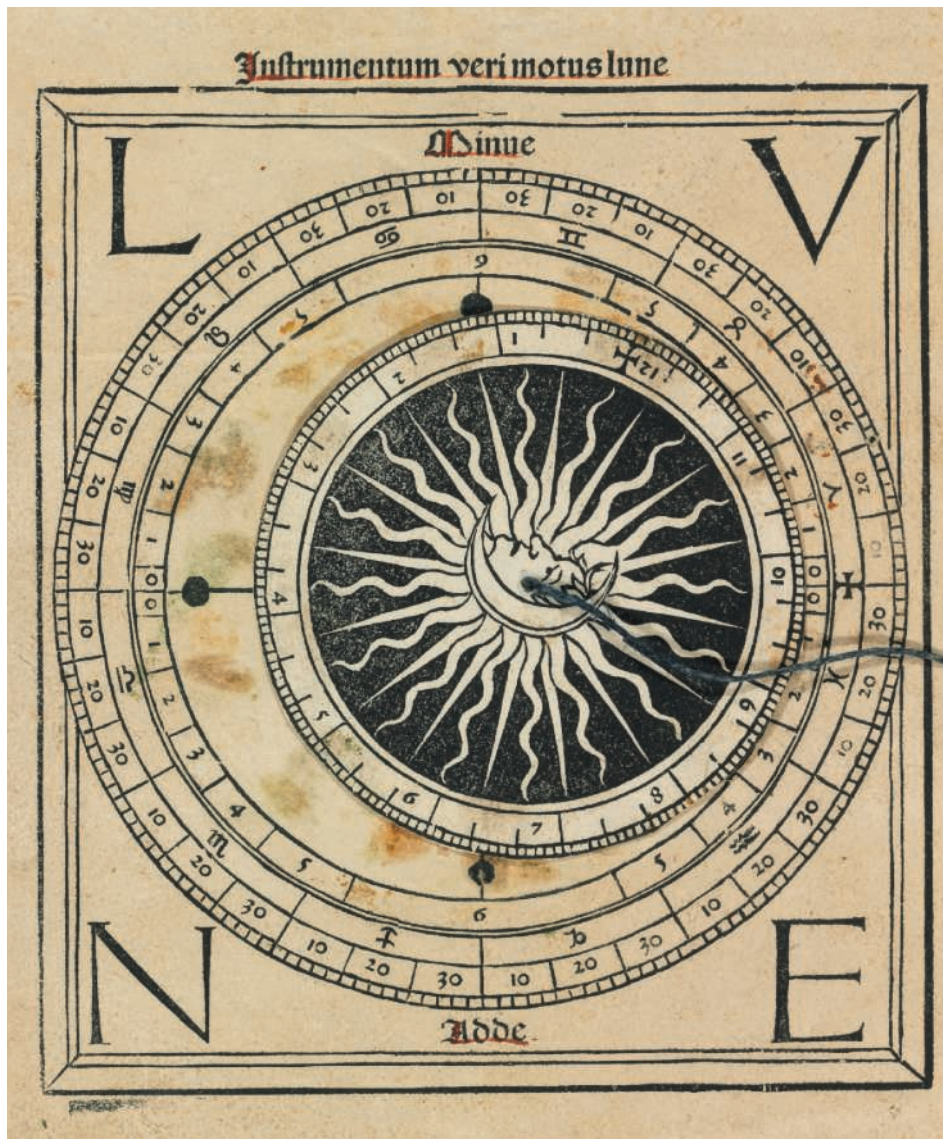
FIRST EDITION of what was long considered the earliest printed book on medicine. One of the great medieval encyclopedias, the *De universo* contains chapters of specific medical interest in book V, chapter 18, and numerous chapters on related subjects of the natural world such as plants and herbs, rocks and minerals, birds, beasts, fish, and the elements, as well as geography, astronomy, metallurgy, music and the arts. Rabanus Maurus had been a pupil of Alciun, 'who was responsible for the introduction of learning into Germany' (Stillwell); he became abbot of Fulda and archbishop of Mainz. *De universo*, his *magnum opus*, continues the tradition of the *Etymologie* of Isidore of Seville.

Not only has this edition been considered the first printed book on medicine, it was also believed to represent the first use of Roman type in Germany. Recent research, however, strongly suggests that the traditional date of this edition, 'before 1467', based on an inscription in the BN copy at Paris, is mistaken (possibly owing to a transposition of the final two digits of the date). The next earliest date associated with it is a purchase inscription in the copy at the Wellcome Institute, London, dated 1474. This accords with other firm dates associated with the R-Press. Adolf Rusch was once considered the printer of the 'R-Press', and his initials were thought to form the distinctive 'R' in its font. Rusch and his father-in-law Johann Mentelin are identified in a document dated 1478 as the printers of an edition of Vincent of Beauvais (Goff B-534) printed in the second type of the R-Press, but Rusch is not known to have printed independently of Mentelin (cf. Christie's Doheny I, lot 16). Manuscript precedent for the 'R' letter form exists in a writing book of 1436 at Munich University Library (see note in BMC). HC *13669; BMC I, 60; BSB-Ink H-393; Garrison and Morton 2190 (described as 'the earliest known printed book to include a section dealing with medicine'); Klebs 524.1; Osler, *Inc. Medica* 1; Stillwell *Science* 491; Goff R-1.

£40,000-60,000

\$59,000-88,000

€53,000-79,000



085

REGIOMONTANUS (Johannes MÜLLER, 1436–1476). *Kalendarium*, in Latin. Augsburg: Erhard Ratdolt, 1492.

Super-chancery 4° (203 x 152mm). Collation: a¹⁰ b⁸ c⁸ d⁴ (a^{1r} title, a^{1v} verse colophon, a^{2r} calendar tables, b^{4v} blank, b^{5r} lunar tables printed in red and black, d^{8r} calculations for the golden number, moveable feasts, hours of daylight, etc., d-4 woodcut instruments). 30 leaves, printed in red and black, 4 full-page woodcuts illustrating instruments at the end, one with one volvelle (lacking the second volvelle and string pointer, metal pointer missing from final woodcut), 12 woodcuts zodiac symbols, woodcut white-on-black initials, red capital strokes. 38–39 lines.

Type: 4:76G, 7:92G, 12:180G. (Top and bottom margin of title a little creased, a³-7 detached, woodcuts of instruments very lightly soiled, light marginal thumb-soiling.) Disbound, modern cloth chemise and case. *Provenance*: C.H. (initials in top margin of title, printer's name and date written in later manuscript on title) — H.P. Kraus collation note at end.

Seventh edition of Regiomontanus's calendar, first published in 1474. The scientist had published the first edition himself at the press he established at Nuremberg to disseminate scientific literature. The work was highly popular and between 1474 and 1500 no less than 14 editions were printed in Latin, German and Italian. The last quire contains 4 woodcuts illustrating Regiomontanus's astronomical instruments. They are printed on one side only of two half-sheets which were usually glued together back-to-back to strengthen the pages in order to support the metal pointer on the final illustration. HC *13781; GW M37447; Klebs 836.7; Schr 4378; BSB-Ink R-74; Goff R-98.

£10,000–15,000

\$15,000–22,000

€14,000–20,000

REGIOMONTANUS (Johannes MÜLLER, 1436–76) and Georgius PURBACHIUS (1423–61). *Epitoma in Almagestum Ptolemaei*. Edited by Caspar Grosch and Stephan Römer. Venice: Johannes Hamman for the editors, 31 August 1496.

Super-chancery 2o (319 x 219mm). Collation: a¹⁰ b–n^{8.6} o⁶ p⁸ (a1r xylographic title, a1v blank, a2r Regiomontanus's dedication to Cardinal Bessarion, a3r verse address to the reader by Johannes Lucilius Santritter, a3v full-page woodcut within a white-on-black ornamental border, a4r text, p7v colophon, p8 blank). 108 leaves (without the bifolium containing Johannes Baptista Abiosus's letter dated 15 August 1496, inserted in a minority of copies between a1 and a2). 48 lines and headline. Types: 4:135G, 2:103G, 8:86G, 5:70(67)G, 8oGk. Xylographic title, full-page woodcut of an armillary sphere with Ptolemy and Regiomontanus studying below, 279 woodcut marginal diagrams (including repeats), white-on-black floriated woodcut initials in several sizes, woodcut printer's device on p7v (Kristeller 231). (Title with early inscription and stamp partly removed and repaired at bottom margin, first quire loosening, faint dampstain at upper corners.) Contemporary blindtooled calf over thin pasteboard, sides diapered with multiple fillets (rebacked, somewhat worn). *Provenance*: Convent at ?Montis Fortini (partly erased inscription; later stamp) — a few marginal drawings/annotations — Herbert McLean Evans (1882–1971), anatomist, endocrinologist and book collector on the history of science and medicine (bookplate) — Robert Honeyman (sale Sotheby's, 11 November 1980, lot 2603).

THE HONEYMAN COPY OF THE FIRST EDITION OF THE FIRST APPEARANCE IN PRINT OF PTOLEMY'S *ALMAGEST* IN ANY FORM. The *Almagest*, or *Mathematical syntaxis*, was the chief astronomical work from its composition in the 2nd century A.D. until the end of the 16th century. It was largely known in the Western Middle Ages through the 12th-century Latin translation by Gerard of Cremona, but neither Gerard's version nor the original Greek were printed until

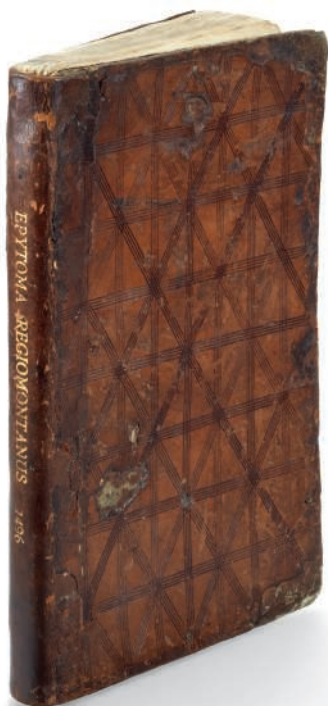


1515 and 1538, respectively. Cardinal Bessarion, then papal legate to the Holy Roman Empire, persuaded the Austrian astronomer Georg Peurbach to compose this epitome of Ptolemy's great work as part of his publishing programme to promote anew the writings of ancient Greek authors in the Latin west. Peurbach died only one year after beginning work, and his friend and colleague Regiomontanus took it up, dedicating the completed manuscript (which survives at Institut de France) to Bessarion before 28 April 1463. The work was inexplicably not published until 1496, although as a surviving printed advertisement makes clear (H *13807) Regiomontanus had intended to publish it himself at his short-lived Nuremberg press (active 1473–1475). Valuable as making Ptolemy's *Almagest* accessible to Renaissance astronomers, the Peurbach–Regiomontanus *Epitome* is also important for the 'observations, revised computations, and critical reflections' made by its compilers. This edition was almost certainly the text which provided Copernicus with his knowledge of the Ptolemaic system, since he had largely completed writing *De revolutionibus* before publication of the next edition in 1515 (Gingerich, *Eye of Heaven* p.164). One of Peurbach–Regiomontanus's corrections sparked Copernicus to question the Ptolemaic system, which had formed the basis of astronomy for more than one millennium, and to 'lay the foundations of modern astronomy with his revolutionary heliocentric system' (DSB 11, p.349).

A TALL COPY, FRESH COPY, retaining strong impressions and with bearer type visible flanking the device. HC *13806; BMC V, 427; CIBN R-60; BSB-Ink R-67; Bod-inc R-040; IGI 5326; Klebs 841.1; Essling 895; Sander 6399; Stillwell *Science*, 103; Dibner *Heralds* 1; Grolier/Horblit 89; Norman 1565; Schäfer/Arnim 192; PMM 40; Goff R-111.

£25,000–35,000

\$37,000–51,000
€33,000–46,000



RHETICUS, Georg Joachim (1514–1574). *De libris revolutionum eruditissimi viri... Doctoris Nicolai Copernici... Narratio prima*. Gdansk: Franz Rhode, 1540.

4° (200 x 135mm). 38 leaves; 2-leaf errata (quire K) misbound between I2 and I3. Woodcut historiated initial. Bound by Middleton in blindstamped pigskin tooled to a 16th-century design, brown morocco folding case gilt. *Provenance*: author's name written in a contemporary hand on title-page and dedication leaf, a few underlinings and one marginal note naming Pico, possibly by: — Laurentius Wirth of Bamberg (contemporary title inscription; gifted by him to:) — an unidentified owner, 'Ex dono Laurentii Wirt cive [sic] Babenberg[ens]...' — Robert Honeyman (bookplate; sale Sotheby's, 11 November 1980, lot 2630, £75,000 to Quaritch) — Haven O'More, Garden Library (bookplate; sale Sotheby's NY, 9 November 1989, lot 50, \$430,000 to Pregliasco).

FIRST EDITION OF THE FIRST PRINTED ACCOUNT OF COPERNICUS'S HELIOCENTRIC THEORY OF THE UNIVERSE. Copernicus had allowed limited circulation of his preliminary theories in manuscript for some years, but it was Rheticus whom he permitted and encouraged to write and publish a redaction of his ground-breaking science. The *Narratio prima* pre-dates by three years the publication of Copernicus's own *De Revolutionibus orbium coelestium*.

'THE MOMENTOUS MEETING BETWEEN RHETICUS AND COPERNICUS PRECIPITATED THE BEGINNING OF MODERN ASTRONOMY' (DSB). The appearance in 1531 of what was later named Halley's comet was observed across Europe and studied by scientists such as Johannes Schöner, Gemma Frisius, Paracelsus, and Achilles Pirmin Gasser; it heightened interest in astronomy, a field in which Gasser, Rheticus's professor at Zurich and his first mentor, encouraged his young protégé. On Gasser's recommendation, Rheticus completed his studies at Wittenberg, where he was appointed — still only 22 years of age — professor of mathematics. Two years later, in 1538, Rheticus embarked on a leave of absence to visit leading scientists such as Schöner at Nuremberg, Peter Apian at Ingolstadt, and Philip Imser at Tübingen, and in May 1539 he arrived at Frombork to meet Nicolaus Copernicus, about whose theories he had heard. The two men worked intensively in Copernicus's tower studio, making observations together and discussing the new theories; the *Narratio prima*, completed on 23 September 1539, is the result of this intense study. Rheticus took it to Gdansk for printing, receiving proofs in February 1540 and the edition appeared in March. First copies were sent to Melanchthon, Schöner, Gasser, Duke Albrecht at Königsberg, Bishop Speratus, and others. Despite the revolutionary ideas contained therein, no public outcry ensued, even if figures such as Melanchthon and Martin Luther opposed it; the muted reaction encouraged Copernicus towards publication of his work in full. After a further two years of work with Copernicus at Frombork, Rheticus returned to Wittenberg laden with books and instruments. Copernicus entrusted Rheticus with the manuscript of his *magnum opus*, *De Revolutionibus orbium coelestium*, which the younger man saw into print at Nuremberg in 1543; Rheticus remained a life-long disciple.

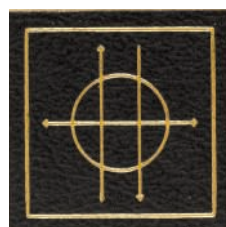
As a summary of highly complex and detailed arguments demonstrating a heliocentric system, the *Narratio prima* itself was highly influential. It was published again in 1541 at Basel, and in editions in 1596 and 1621. It is known to have been read by Gemma Frisius and later scientists such as Brahe and Gassendi; Kepler in particular recommended it and drew on it in his own *Mysterium cosmographicum*. The 'First Report' was written as an open letter to Johann Schöner, and it is accompanied by Rheticus's geographical work on Prussia, an *Encomium Borussiae*, and an explanation of Greek terms, compiled by his travel companion Hermann Zell. Rheticus's reluctance to claim the ideas contained in the *Narratio prima* as his own is demonstrated by the omission of his name from the title-page.

THE HONEYMAN-GARDEN COPY. Owen Gingerich records 25 copies of the *Narratio prima*, only one other of which is in private hands (Pommersfelden, Schönborn library). Burmeister observed that the majority of surviving copies of the first edition circulated in eastern Europe, while copies of the second edition circulated largely in south German and western European libraries. The contemporary owner of the present copy, Laurence Wirth, remains stubbornly unidentified, but his ownership places him among the scientific elite of the time and as a contemporary of Johann Schöner at Bamberg.

Dibner *Heralds* 2; Grolier/Horblit 18a; Houzeau and Lancaster 2487; Stillwell *Science* 106; Zinner 1758; Gingerich, *Annotated Census of Copernicus' De Revolutionibus* (2002), appendix VI, p. 378; cf. K.H. Burmeister, *Rheticus: eine Bio-Bibliographie* (1967–8).

£1,200,000–1,800,000

\$1,800,000–2,600,000
€1,600,000–2,400,000



AD CLARISSIMUM VIRVM
D. IOANNEM SCHONE
RVM, DE LIBRIS REVOLVTIO
nũ eruditissimi viri, & Mathema
tici excellentissimi, Reuerendĩ
D. Doctoris Nicolai Cos
pernici Torunnai, Ca
nonici Varmiens
sis, per quendam
Iuuenem, Ma
thematicæ
studio
sum
NARRATIO
PRIMA.

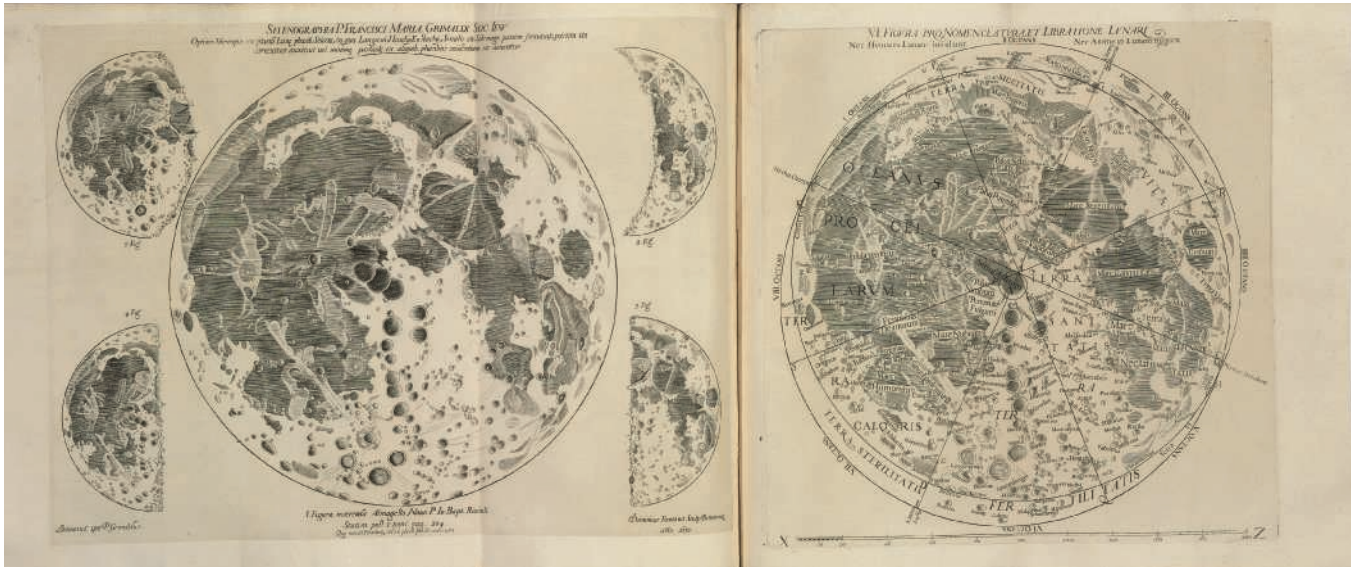
Georgius Joasimius Reivius

ALCINOVS.

Αὐτὸς ἔστιν ἕρπον ἵσαι τῆ γνώμη τὸν μέλλοντα φιλοσοφῆ

Ex dono Laurentij Vinerius Babenbourg

D. L. Wachter



088

RICCIOLI, Giambattista (1598-1671). *Almagestum novum astronomiam veterem novamque complectens observationibus aliorum*. Bologna: Heirs of Vittorio Benatio, 1651.

2 volumes, 2° (361 x 235mm). Engraved frontispiece by Francesco Curti in each volume, engraved arms on dedication leaves, double column, 2 fine engraved folding lunar maps by Domenico Fontana after Francesco Maria Grimaldi, numerous woodcut diagrams in text. (Crude erasure at lower margin of frontispiece in vol.I, a few small wormholes at beginning and end, a few leaves with light mainly marginal waterstaining, a little stronger and affecting text towards the end of vol.I, frontispiece in vol.II tipped in on a stub, top margin and small part of image with several wormtracks or wormholes, dedication waterstained, mainly faint waterstaining affecting the next few leaves, 3Z4 in vol.II with long but clean tear, a few leaves browned and or spotted throughout both vols.) Contemporary vellum (heavily restored, new endpapers, soiled).

FIRST EDITION of one of the most important anti-Copernican works: 'Riccioli's scientific career epitomized the conflict between the old astronomy and the new: as a Jesuit committed to church doctrine, Riccioli was among the most vehement opponents of Copernican and Galilean theory, but as astronomer, Riccioli recognized that Copernican theory provided the simplest and best mathematical model of the solar system' (Norman). 'Riccioli designed a series of experiments by which he hoped to disprove Galileo's conclusions, but instead he ratified them.... He observed the topography of the moon, and, in concert with Grimaldi, introduced some of the nomenclature that is still used to describe lunar features' (DSB). This work was the first to state that no water existed on the moon. Houzeau and Lancaster 9223; Norman 1826.

(2)

£10,000-15,000

\$15,000-22,000

€14,000-20,000



089

SACROBOSCO, Johannes de, *Algorismus, De Sphaera, Compotus*, and [?ROBERTUS ANGLICUS or ?JOHANNES DE MONTE PESSULANO], *Quadrans vetus*, in Latin, decorated manuscript on vellum [Austria or southern Germany, first half 14th century]

246 x 178mm. 45 leaves, apparently COMPLETE, modern pagination 1-90, 36 lines of text in two columns, ruled space: 150 x 114mm, penwork initials in red or blue, often extending into margins, THIRTEEN ASTRONOMICAL AND COMPUTATIONAL DIAGRAMS (some staining and cockling, natural flaws to the vellum, tear to lower margin of f.11, margins sometimes repaired). Modern purple morocco gilt.

PROVENANCE:

(1) An inscription on f.45v reads ‘manus fungonis’ beneath letters of the alphabet cryptically arranged in which the scribe’s name ‘Fungo’ appears twice. St Florian, patron saint of Upper Austria, and St Elizabeth of Hungary, venerated in Germany, appear in the calendar. A note against 12 April (f.40) reads ‘1314 i[o]h[ann]es natus filius quo[ndam] saxonis’. (2) Annotations in several different medieval hands throughout, with the date 1380 appearing twice on f.45v. (3) Descriptive notes dated 1826 and 1827 by Professors von der Hagen of Berlin and Münich of Cracau, bound in at the beginning, and transcripts of the texts bound in after ff.5 and 6. (4) BOIES PENROSE II (1902-1976), collector, writer and lecturer: his sale, Sotheby’s, 9 November 1971, lot 291, and *ex libris* on inside cover. Boies Penrose’s (1860-1921) *ex libris* is also on the inside cover, pasted over his nephew’s, although the 1982 Sotheby’s catalogue states that the manuscript was purchased from Gottschalk in 1929. The manuscript was apparently formerly bound with a late 13th-century German *Compotus* attributed to Robert Grosseteste (now Harvard MS. lat. 230, also bound in purple morocco). See also De Ricci, *Census*, II, p.1996. (6) Sotheby’s, 22 June 1982, lot 63.

CONTENT:

Algorismus ff.1-5v; *De Sphaera* ff.5v-15; *Compotus* ff.15-32v; *Quadrans vetus* ff.32v-37; calendar tables ff.38-45v.

A FASCINATING ILLUSTRATED COMPILATION OF THE FUNDAMENTAL MEDIEVAL TEXTS ON ASTRONOMY, NUMERICAL CALCULATION AND MENSURATION. The manuscript contains the three principal works of the English mathematician and astronomer Johannes de Sacrobosco (also known as John of Halifax or Holywood): his *Algorismus*, an extremely popular mathematical treatise and the first widely-adopted university textbook to introduce Arabic numerals into the curriculum; his seminal work *De Sphaera*, an account of the spherical geometry underpinning the mathematical astronomy of Ptolemy and his Arabic commentators; and his *Compotus*, a complex calendrical work on the reckoning of time. The *Quadrans vetus*, a 13th-century treatise describing the construction and use of the newly introduced Arabic ‘old quadrant’, has been variously attributed to Sacrobosco, Grosseteste, Robertus Anglicus and Johannes de Monte Pessulano (John of Montpellier). The version present in this manuscript seems to survive in only one other (unillustrated) manuscript, Oxford, University College Manuscript 41, ff.36v-39 (see N.L. Hahn, ‘Medieval Mensuration: *Quadrans Vetus* and *Geometrie Due Sunt Partes Principales*’, *Transactions of the American Philosophical Society*, v.72, 1982, pp.169-195).



£25,000-35,000

\$37,000-51,000
€33,000-46,000



090

SCHEDEL, Hartmann (1440–1514). *Liber chronicarum*. Nuremberg: Anton Koberger for Sebald Schreyer and Sebastian Kammermeister, 12 July 1493.

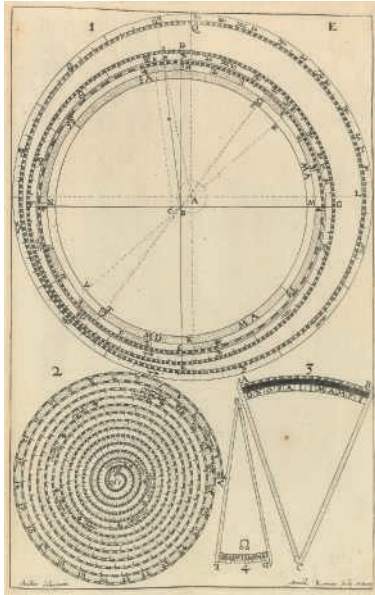
Imperial 2° (475 x 322mm). Collation: [1–2⁶ 3⁸ 4⁶ 5–7⁴ 8–11⁶ 12² 13⁴ 14–16⁶ 17² 18–19⁶ 20–25⁴ 26–29⁶ 30² 31⁶ 32⁴ 33–35⁶ 36² 37⁴ 38–61⁶]. (1/1r xylographic title, 1/1v blank, 1/2r index; 4/1r Creation–Ultimate Age of the World, 54/6v blank, 55/1r Sarmation supplement, 55/5v verse on the exploits of Maximilian, 55/6 blank, 56/1r supplements to the Sixth Age and description of Europe, 61/3v map of Germany, 61/4v colophon, 61/5–6 blank). 327 leaves (of 328; without final blank), 64 lines and headline, table and parts of text double column, ff. CCLVIII–CCLXI blank except for printed headlines. Types: 9:165G, 15:110bG. 1809 woodcut illustrations from 645 blocks (Cockerell's count) by Michael Wolgemut, Wilhelm Pleydenwurff and their workshop, including the young Albrecht Dürer; the illustrations include 29 double-page town views, 8 full-page cuts and double-page maps of the World [Shirley 19] and of Europe by Hieronymus Münzer after Nicolas Khrypffs. (Title somewhat restored and re-inserted, 20/2–20/3 and 32/2–32/3 shorter at bottom margin, small stain with minor loss on 48/3v and 51/2v, some faint occasional soiling and few small marginal repairs.) Brown morocco by R. Petit, gilt spine and inlays, edges gilt and marbled (lightly rubbed), matching slipcase. *Provenance*: 'Ellis May 16 1867 £25.0.0' (acquisition note on front flyleaf and repeated at end).

FIRST EDITION of the most extensively illustrated book of the 15th century, with over 1800 woodcuts. Albrecht Dürer, godson of Koberger, is believed to have worked on the woodcuts, since he was apprenticed to Wolgemut from 1486 to 1489. Two editions, one in Latin for an international audience and one in German for domestic readers, were planned simultaneously, each with its own specially designed, new type, and both with the same woodcuts; the Latin edition preceded the German by about 5 months. (See A. Wilson, *The Making of the Nuremberg Chronicle*, Amsterdam, 1976.) The Nuremberg Chronicle includes two double-page maps: a world map (Shirley 19) based on Mela's *Cosmographia* (1482), and a map of northern and central Europe by Hieronymus Münzer (1437–1508) after Nicolas Khrypffs. The world map is one of only three 15th-century maps showing Portuguese knowledge of the Gulf of Guinea of about 1470. The map of Europe is closely associated with Nicolas of Cusa's *Eichstätt* map, with which it is thought to share a common manuscript source of c. 1439–54. It is therefore claimed to be the first modern map of this region to appear in print. Although published later than the map of Germany in the 1482 Ulm Ptolemy, it was constructed earlier (Campbell, *The Earliest Printed Maps*, 1472–1500, 1987). HC *14508; BMC II, 437 (IC. 7451–3); Polain(B) 3469; CIBN S-161; BSB-Ink. S-195; Bod-Inc. S-108; Schreiber 5203; Goff S-307.

£35,000–45,000

\$52,000–66,000

€46,000–59,000



091

SCHYRLEUS DE RHEITA, Anton Maria (1604-1660). *Oculus Enoch et Eliae sive radius sidereomysticus*. Antwerp: Hiernonymus Verdussen, 1645.

2 parts in one volume, 2° (335 x 225mm). Additional engraved title, printed title in red and black, 10 engraved plates, including 8 folding, printer's device on 2P4r. (A few leaves lightly waterstained, clean tear in 2P3 touching text on recto, 3 plates lightly waterstained, just affecting image of plate C, plate G with long but clean tear along fold, affecting border of plate, some light browning throughout, occasional light spotting.) Contemporary drab boards, uncut (lightly soiled), in a book case (lettering-pieces on spine scuffed). *Provenance*: inscription on lower margin of title removed.

FIRST EDITION of Schyrle's main work, an important work in the history of the telescope. Schyrle describes an eyepiece for Kepler's telescope as well as the construction of binocular telescopes which are to produce erect images. His binocular telescope, which consisted of four convex lenses, is the precursor to our binoculars today. His inventions helped the telescope to become an important astronomical research tool.

£12,000-18,000

\$18,000-26,000

€16,000-24,000

092

[SCRIPTORES ASTRONOMICI VETERES]. FIRMICUS MATERNUS, Julius (fl. early 4th century AD). *Matheseos* (*De nativitatibus libri viii*). Edited by Franciscus Niger. Additionally: Marcus Manilius (fl. 1st century AD). *Astronomicorum libri V* - Aratus (ca. 315 BC - 240 BC). *Phaenomena* [Latin and Greek]. Translated and adapted by Germanicus Caesar, Marcus Tullius Cicero, Rufius Festus Avienus - pseudo-Theon. *Commentaria in Aratum* [Greek] - pseudo-Proclus Diadochus [i.e. Geminus]. *Sphaera* [Greek and Latin]. Translated by Thomas Linacre (1460-1524). Venice: Aldus Manutius, [17] October 1499.

2 parts, 2° (302 x 196mm). Collation and contents as BMC and

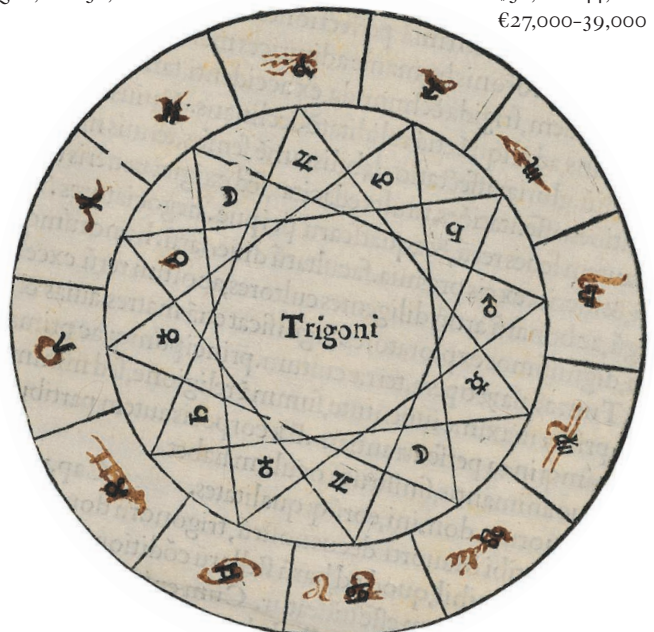
online at christies.com. 376 leaves. Types: 2:114R, 2*:115R, 7:114 Gk. Initial spaces, with guide-letter. 39 woodcuts of the planets, constellations and signs of the Zodiac in the Latin Aratus, also diagrams D to F with repaired worming at lower margin, light staining and occasional browning.) 18th-century vellum, marbled endpapers (rebacked, preserving red morocco label); modern half calf box. *Provenance*: part one with annotations in a contemporary hand — Prince of Soragna (bookplate).

AN ALDINE COMPILATION ON ASTRONOMY, containing the *editio princeps* of Aratus. Second edition of Firmicus Maternus's *De nativitatibus*, also known as the *Mathesis*. It represents popular traditions and sets out practical astrological method, citing Hermes, Orpheus, Abraham and Aesculapius as sources. Firmicus's work 'ranks as the most comprehensive textbook of astrology of ancient times' (Stillwell, *Science*, 56), comprising a defence of astrology, the effects of the planets, the moon, the signs, and horoscopes. The group term for the authors was introduced by Hain. Like the *Hypnerotomachia Poliphili*, the work was printed in 1499 and dedicated to Guidobaldo da Montefeltro, duke of Urbino. The zodiacal signs in the Aratus derive from those in editions of Hyginus produced by Ratdolt and others. The involvement of Thomas Linacre, who spent two years around 1489 in Florence studying Greek, makes the publication particularly interesting from an English perspective. By November 1490 Linacre was in Rome; in 1492 or 1493 he left for Venice and for Padua, where he took a degree in medicine in 1496. While in northern Italy he became closely involved with Aldus and his circle, and it was as part of this collection of Greek astronomical writings published by Aldus that his first book appeared, the translation into Latin of Proclus's *De Sphaera*. A FRESH COPY WITH WIDE MARGINS. HC 14559*; Klebs 405.1; Sander 2781; Essling 1186; Ahmanson-Murphy 34; Renouard 20/3; Polain(B) 3475; IGI 8846; Bod-inc F-061; BMC V 560; BSB-Ink F-129; GW 9981; Goff F-191. See also C.S.Bliss, *Julius Firmicus Maternus and the Aldine Edition of the Scriptorum Astronomici Veteres* (Los Angeles, 1981).

£20,000-30,000

\$30,000-44,000

€27,000-39,000





093

SCHÖENER, Johannes (1477-1547).

Aequatorium Astronomicum. Ad lectorem: Sydera gyrato passim currentia coelo Volvat ut aequato pondere cuncta polus Orbibus aspectus varios hinc inde rotatis Lector sydereum hoc visere spondet opus.
Bamberg: J. Schöner, 1521.

2° (490 x 331mm). Collation: A-B⁶, last leaf blank. 9 full-page woodcut astronomical diagrams, ALL COLOURED BY A CONTEMPORARY HAND, comprising: 1. *Aequatorium Octavae Sphaerae* - lacking volvelles, but with string; 2. *Aequatorium Solis* - lacking correct volvelles, but with three discs, one movable, all of which are duplicates of the Jupiter discs incorrectly placed here; 3. *Aequatorium Lunae* - four discs, two movable; 4. *Aequatorium Saturni* - four discs, two movable; 5. *Aequatorium Iovis* - four discs, two movable; 6. *Aequatorium Martis* - six discs, two movable, all of which are the Mercury discs incorrectly placed here; 7. *Aequatorium Veneris* - four discs, two movable; 8. *Aequatorium Mercurii* - four discs (the outermost coming loose on thread), two movable, all of which are duplicates of the Jupiter discs incorrectly placed here; 9. *Aequatorium coniuntionum oppositionum atque aspectuum lune ad solem*. Title-page with hand-coloured coats-of-arms, text lined in red throughout. (Title with 8 small wormholes, one affecting one letter, one tiny wormhole extending throughout in the lower margin, light marginal staining throughout, heavier to title.) Contemporary boards, reinforced with old vellum manuscript leaves on pastedowns, some overlapping on exterior of covers (sometime rebaked with black leather backstrip and vellum at hinges, extremities rubbed, in places heavily). *Provenance*: Waldburg-Wolfegg (library stamps on recto and verso of title, library classmark on title, printed library label at base of spine).

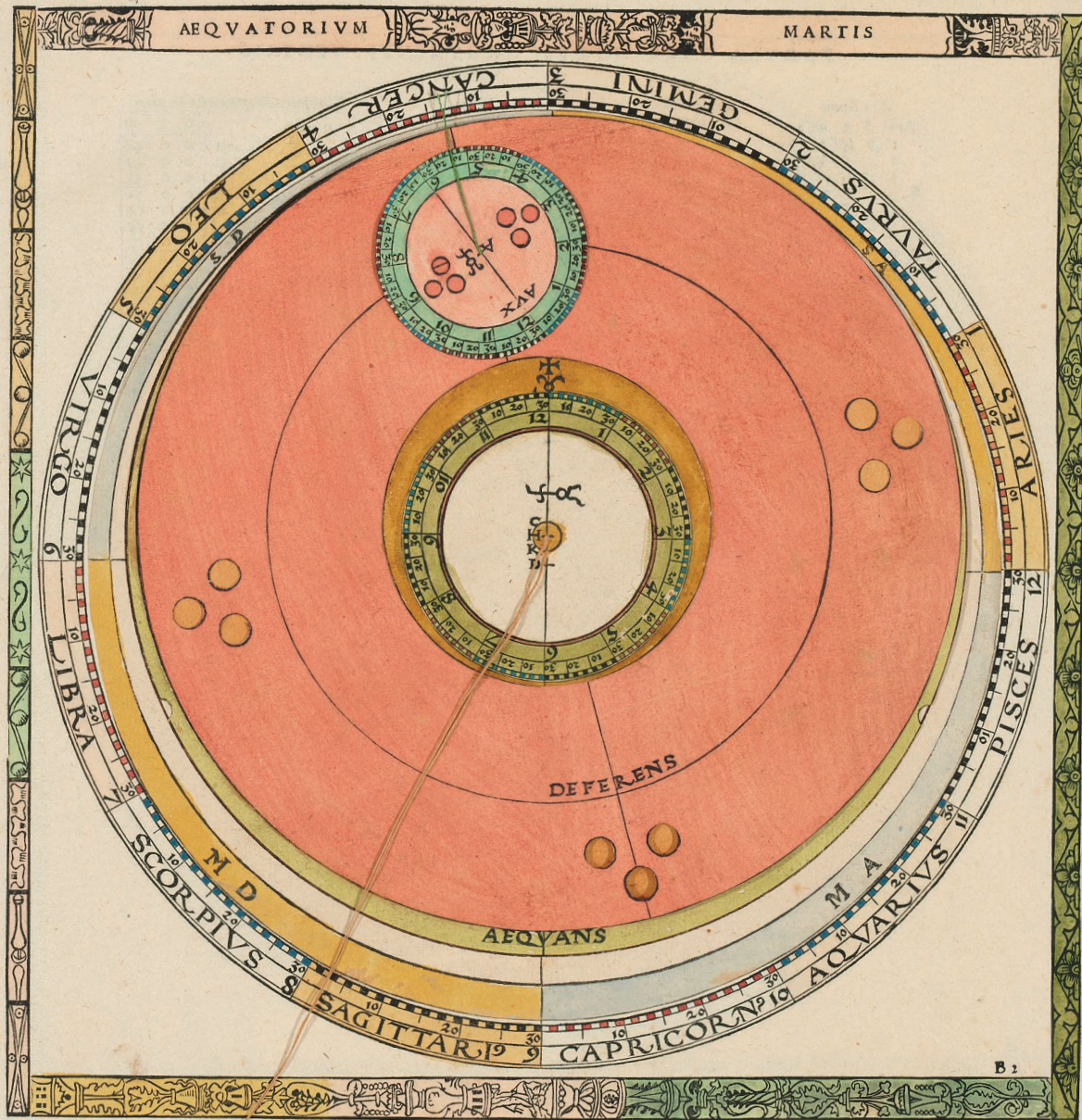
FINE COPY OF THE FIRST BOOK WITH PRINTED EQUATORIA, THE FIRST PRINTED INSTRUMENT TO PREDICT THE POSITION OF THE PLANETS. Born in Karlstadt near Würzburg, Schöner established himself as a priest in Bamberg, and set up a printing press in the town. He was highly interested in mathematics and astronomy and his cosmographic productions, particularly his globes, were highly regarded. His influence was such that it was Schöner who persuaded Georg Joachim Rheticus to make his famous journey north to Frombork, to meet Nicolaus Copernicus. Schöner was also responsible for producing the first pair of globes of the same size to represent the Earth and the heavens, thereby establishing the standard practice of pairing terrestrial and celestial globes. His impact was such that a Schoener celestial globe appears in Hans Holbein's famous painting, *The Ambassadors* (1533), now hanging in the National Gallery in London. The *Aequatorium Astronomicum*, produced on Schöner's printing press in Bamberg in 1521, employs movable paper discs to represent the movement of the planets, so that planetary positions could be calculated in accordance with Ptolemaic cosmology. It is intriguing that in this copy, duplicate Jupiter and Mercury discs have been used in place of the correct Sun, Mars and Mercury volvelles, but all of these 'duplicate' discs are coloured differently from one another. Neither of the two extant copies we have collated have all the correct discs in their correct positions.

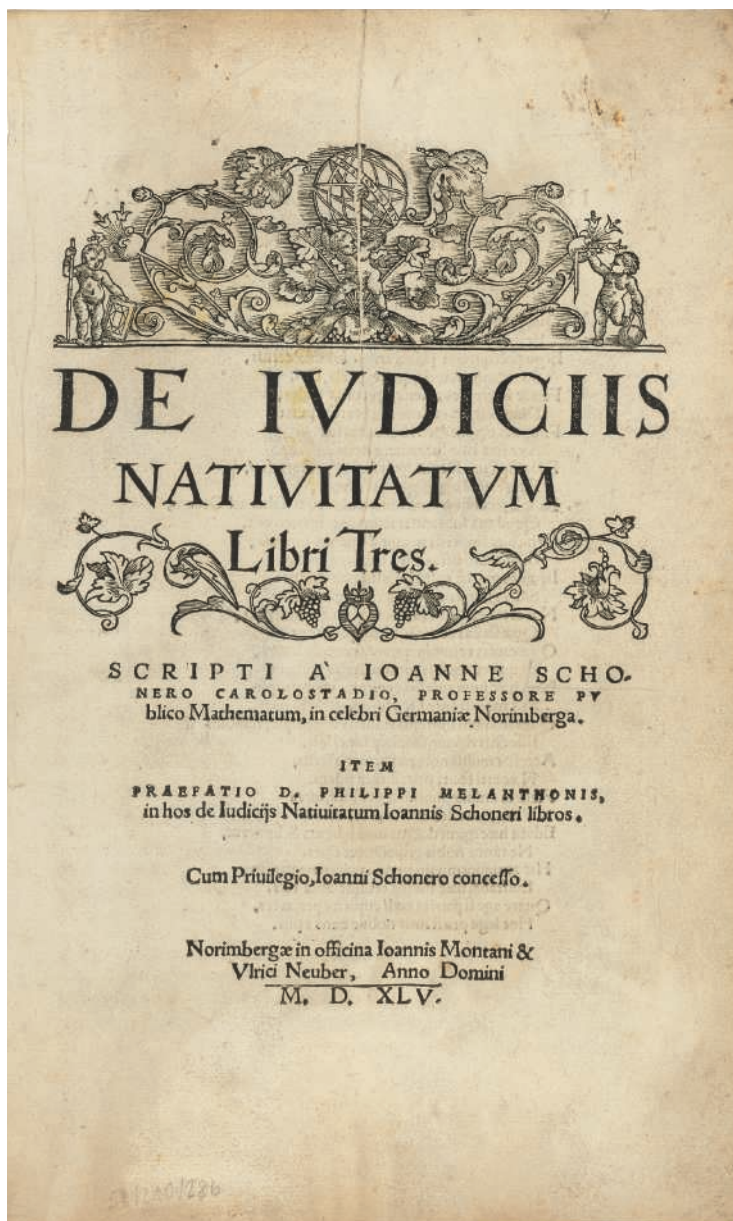
EXTREMELY RARE — NO COPY HAS EVER SOLD AT AUCTION (ABPC/RBH), AND ONLY 5 OTHER COPIES APPARENTLY SURVIVE (British Library, Munich, Bamberg, Reutlingen and Vienna). No copy is recorded in North America. Sold with 6 graduated discs printed on 5 loose sheets, one of which vellum, probably 16th-17th century, apparently not connected with the Schoener publication.

£300,000-500,000

\$440,000-730,000

€400,000-660,000





094

SCHÖNER, Johannes (1477-1547). *De iudiciis nativitatum libri tres*. Nuremberg: Johannis Montanus and Ulrich Neuber, 1545.

2° (302 x 202mm). Title with woodcut vignettes, numerous woodcut diagrams and tables in text, woodcut printer's device on last leaf, historiated initials. (Title and verso of last leaf dust-soiled, vertical crease through top third of title, affecting woodcut border, very light and even browning, a few marginal spots.) Modern vellum (detached, soiled), half morocco case (scuffed).

FIRST EDITION of one of the earliest publications to comment favourably on the new discoveries of Copernicus, with a preface by Philip Melanchthon. 'Schöner in 1545 printed another work of his own of considerable length, namely, three books on the judgments of nativities, with another preface by Melanchthon. Schöner had been one of those who encouraged Copernicus to publish his magnum opus. Now in the present work, although preferring the method of Ptolemy in astrological judgments to those of subsequent astrologers, Schöner maintained that the Copernican system was not unfavourable to astrology' (Thorndike V, p. 367). Adams S-681.

£20,000-30,000

\$30,000-44,000

€27,000-39,000



095

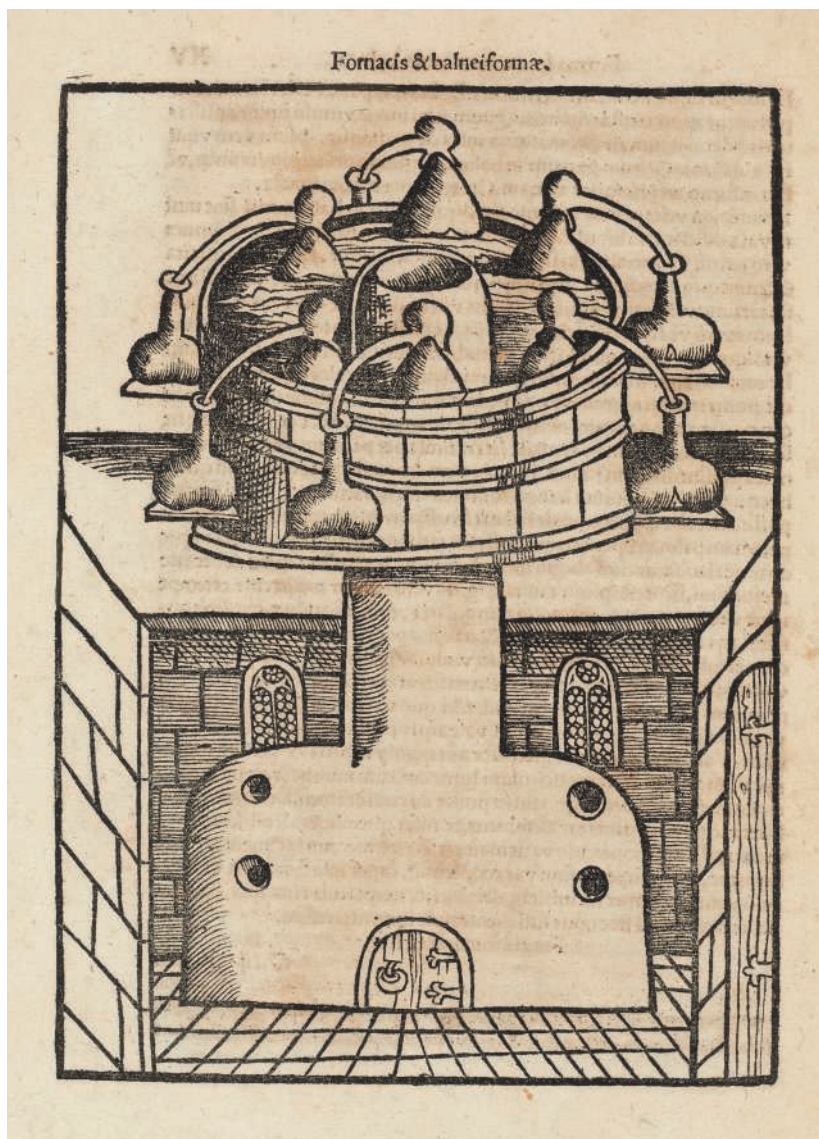
SELLER, John, senior (c.1630-1697) and John SENEX (c.1678-1740). *Stelleri Zodiacus Stellatus* [titled thus on spine]. London: [no dates, but c.1685-1730.]

2° (665 x 390mm.) A collection of 8 celestial and astronomical charts, comprising: 1. [Joseph HARRIS]. *Stellarum fixarum hemisphaerium Boreale; the northern hemisphere projected on the plane of the aequator in which all the stars contain'd in the Britannick catalogue (as publish'd by D' Halley) are carefully laid down and adapted to the beginning of the year 1690.* [No imprint]; 2. — *Stellarum fixarum hemisphaerium Australe; the Southern Hemisphere Projected on the Plane of the Aequator in which all the Stars contain'd in the Britannick Catalogue and those Observ'd by Sr. Edm. Halley at the Isl. of St. Helena are carefully layd down for the Year 1690.* Engraved and sold by John Senex. [No date]; 3. — *Stellarum fixarum hemisphaerium Boreale, in quo omnes stellae in Catalogo Britannico descriptae in plano Eclipticae, eo situ quem anno 1690... Delineavit et sculpsit Johan Senex.* R.S.S. [No date]; 4. — *Stellarum fixarum hemisphaerium Australe, in plano Eclipticae depictum, omnes catalogi Britannici stellae exhibens... delineatas quem anno 1690 habuerunt.* [No imprint]; 5. — John SELLER. *A Coelestiall Planisphere.* [No imprint]; 6. — *The Right Ascensions and Declinations of the Principal Fixed Stars in both Hemispheres to ye year 1678...* printed and sold by John Seller. A second state, with the date in the title altered from 1676; 7. — Edmond HALLEY. *Australis Hemisphaerii tabulam.* Ja[m]es Clark sculp. [No imprint, but probably John Seller sr., 1678]. State with title within dedication, and with lower border blank; 8. — John SELLER. *Zodiacus stellatus cujus limitibus Planetarum Omnium visibiles viae comprehenduntur.* [No imprint]. All mounted on thick paper and on guards. (First 7 charts lacking volvelles, these not called for on 8th chart, some insignificant worming to guards, light soiling.) Contemporary quarter vellum over marbled-paper covered boards (short split to spine, extremities rubbed). *Provenance:* Earls of Macclesfield (bookplate and discreet blindstamps; sale at Sotheby's, 15 March 2007, lot 3280).

VERY RARE COLLECTION OF CELESTIAL CHARTS BY HARRIS, SELLER AND HALLEY. This collection was most probably compiled by John Senex, c.1715, as several of his star maps were issued individually around 1713, and can be found in various of his publications, such as the *English Atlas*, from 1714 onwards until his death in 1740. The first 2 celestial charts by Harris were published in Defoe and Cutler's *Atlas maritimus et commercialis* (London, 1728), where they are described as also being sold separately; the present lot has the very rare complete suite of 4 plates. Cf. Shirley BL C.SEN-1a for a very similar, but later, collection of celestial maps.

£10,000-15,000

\$15,000-22,000
€14,000-20,000



096

ULSTAD, Philipp (fl.1526). *Coelum philosophorum seu de secretis naturae*. Fribourg [i.e. ?Strassburg]: [?]Johann Grüninger], 1525.

Small 2° (271 x 183mm). Large woodcut on title, 60 woodcut illustrations, 3 full-page, initials, one tailpiece. (Title with some marginal repairs, some small marginal repairs throughout, D1-E1 with larger repair in outer margin, occasionally touching text and one or two letters supplied in manuscript, lightly browned and spotted.) Later pasteboard binding (lightly rubbed). *Provenance*: bookseller's label on front pastedown.

RARE FIRST EDITION of this popular treatise on distillation and the medical efficacy of chemical distillates. It went through more than twenty editions and served as a standard authority on the preparation and use of distillates for nearly a century. 'Despite his use of alchemical terminology, Ulstad clearly dissociated himself from the enigmatic aspects of the alchemical tradition in offering his concise and rational account of the preparation of distilled remedies. Concerned with culling from the medieval alchemical corpus those techniques and ideas of practical utility, he ensured that they were made available to as large an audience as possible, including all apothecaries, surgeons, and medical doctors' (DSB). Duveen points out that some bibliographers, including Ferguson, quote the first edition as being printed in Freiburg, Switzerland but he is convinced this is incorrect. 'Printing was not introduced at Freiburg until the end of the 16th century. Probably the date at the end of the Epilogue "Exactum Friburgi Helvetiorum... 1525" has been taken as a colophon by some bibliographers.' He argues that judging from the typography of these early editions, they must have come from Grüninger's press. The first edition of this work is VERY SCARCE, none of the standard bibliographies list a copy and there are no copies recorded at auction on Rare Book Hub or ABPC. Cf. Duveen p.591; cf. Ferguson II, 482-3.

£10,000-15,000

\$15,000-22,000
€14,000-20,000



697

VALTURIUS, Robertus (1413–1484). *De re militari*, in Italian. Translated by Paolo Ramusio. Verona: Boninus de Boninis, de Ragusia, 17 February 1483.

Chancery 2° (281 x 190mm). Collation: π6 (1 blank, 2r translator's dedication to Roberto di Aragonia); a–d⁸ e⁶ f–g⁸ h¹⁰ i–u⁸ x–y⁶ z⁸ &⁸ ?⁶ μ⁶ A–B⁶ C–E⁸ F–G⁶ H–I⁸ K¹⁰ L–N⁸ O¹⁰ (a1 blank, a2r text, O8v colophon, O9r quire register, O9v–O10 blank). 314 leaves. 36 lines and headline. Types: 2:114 R, 1:90G. 2- to 9-line initial spaces, a few with printed guide-letter. 95 woodcuts (including one repeat), many full-page. With all three blanks. (k2.7 slightly short and possibly supplied from another copy, occasional faint marginal spotting.) Green morocco gilt by Riviere, gilt edges (new endpapers); calf-backed folding box. *Provenance*: faint scored inscription (on verso of first blank) — a few old marginal annotations — 'Battaglie maritime' (manuscript inscription on woodcut on F5v) — Augustus, Duke of Sussex (1773–1843; sale 22 April 1845; bookplate).

FIRST VERNACULAR EDITION of one of the first scientific texts to be printed, and the earliest to contain illustrations of a technical nature. Bonino de Boninus completed this edition within a week of the second Latin edition. Both are illustrated with copies of the woodcuts used in the first edition ([Verona:] Joannes Nicolai de Verona, 1472), the order differing slightly in the Italian edition. The subjects cover a wide range of war machines: battering-rams, cross-bows, catapults, storming wagons, chariots, pontoons, catapults, and even an early type of grenade and a paddle-wheeled submarine. This Italian edition is rarer than both its Latin predecessors. This was the last of seven editions printed at Verona by Bonino de Boninus, a cleric from Ragusa, who had worked at Venice in 1479 with Andreas de Paltasichis, who provided him with his typographic material. After completing this edition he moved to Brescia, remaining there for about eight years and producing around 35 editions, mainly of humanist and legal texts. Boninus spent his last years at Lyon, where he acted as bookseller and agent for the Venetian Republic; he reappears as the publisher of a few Lyonese liturgical books at the end of the century. HC 15849; BMC VII, 952; Bod-inc V-043; BSB-Ink V-54; CIBN V-59; Klebs 1015.1; IGI 10116; Goff V-90.

£60,000–90,000

\$88,000–130,000

€79,000–120,000



098
 VESALIUS, Andreas (1514-1564). *De humani corporis fabrica libri septem*. Basel: Johannes Oporinus, June 1543.
 Royal 2° (432 x 294mm). Roman, italic, Hebrew and Greek types. With the two folding sheets following m2 and p3, the single leaf ('Charta parvas aliquot figuras complectens') tipped onto m4. Woodcut pictorial title in first state, author portrait, over 200 woodcut illustrations, including 3 full-page skeletons and 14 full-page muscle-men, printer's device at end, and many woodcut historiated and ornamental initials from several sets. (Title slightly short and mounted on verso, repairing minor holes, occasional spotting and staining, somewhat heavier in final quires, marginal paper flaw in one leaf, folding plates neatly repaired with loss of a few letters, p4 on guard.) 20th-century speckled half calf, flat spine gilt, leather labels, green edges (very minor rubbing); slipcase. *Provenance*: contemporary title inscription removed; a few marginal annotations and corrections — Ippolito Guarisci (16th/17th-century title inscription).

'THE MOST FAMOUS ANATOMICAL WORK EVER PUBLISHED... AND THE MILESTONE IN ALL MEDICAL HISTORY' (*Heirs of Hippocrates*). The *Fabrica* is 'a complete anatomical and physiological study of every part of the human body... [dealing] with bones and muscles, blood vessels, nerves, abdominal viscera, thoracic organs and the brain' (PMM). Benefitting from the then radical practice of dissecting the human body rather than animals, Vesalius broke new ground in his method and observations, thus fundamentally dividing the study of anatomy into pre- and post-Vesalian periods.

The *Fabrica* is widely considered the most beautiful medical book ever published. It combines scientific exposition, art and typography in a manner unprecedented in the 16th century and rarely equalled in later centuries. The more than 200 woodblocks for the illustrations were prepared in Venice by an anonymous artist in the school of Titian under Vesalius's supervision and shipped to the publisher in Basel with the author's precise instructions for placing them in relation to the text and for keying explanations printed in the margins to particular illustrations or details. The woodcuts were highly influential and were re-used or copied for over a century; the woodblocks themselves survived in Germany up to the Second World War. The work opens with a full-page scene of an anatomical theatre showing the dissection of a female corpse in progress; Vesalius performed one of the earliest autopsies on a female body. The 14 muscle-men stand in landscapes that together form a panorama of the Euganean Hills near Padua, where Vesalius studied and wrote his *magnum opus*, and even the woodcut initials, cut specially for this edition, depict activities associated with the dissecting room. A TALL COPY. Adams V-603; Dibner *Heralds* 122; Garrison-Morton 375; *Heirs of Hippocrates* 281; Grolier *Medicine* 18A; NLM/Durling 4577; PMM 71; Wellcome 6560; Norman 2137.

£140,000-180,000 \$210,000-260,000
 €190,000-240,000

DVODECIMA
MVSCVLORVM TABVLA.





699

VERANZIO, Fausto (c.1551-1617). *Machinae novae*. Venice, [c. 1616].

2° (sheet size 390 x 540mm). Etched title and 49 double-page numbered plates. (Lacking text, slight fold along center, some plates with light soiling, heavier on plate 9, and some plates with repairs mainly along fold.) Unbound in original sheets, preserved in a modern cloth box. *Provenance*: Congregazione Cardi? (neat inscriptions on title).

A VERY RARE AND ONE OF THE MOST IMPORTANT AND SOUGHT-AFTER WORKS ON MACHINES, ARCHITECTURE AND SCIENTIFIC INSTRUMENTS. It includes numerous plates depicting the author's inventions such as fountains, clocks, pumps, bridges and a man with a parachute jumping from campanile of St Mark's in Venice. Veranzio, or Verancic, was a Dalmatian who lived in Venice, friend of Tommaso Campanella and Marco de Dominis and close to the entourage of Rudolph II. Between 1581 and 1594 he lived in Prague and Vienna where he studied mathematics and mechanics; during that time he also travelled to Rome and had a chance to study Leonardo da Vinci's manuscripts had a strong influence on his work. He is the author of an important polyglot dictionary published in Venice in 1585, but *Machinae novae* remains his masterpiece: the extreme rarity of the work is due to the fact that it was published at the author's own expense in a very limited number of copies. Brunet V, 1128; Riccardi II, 592 ('Raro e pregiato').

£10,000-20,000

\$15,000-29,000
£14,000-26,000

6100

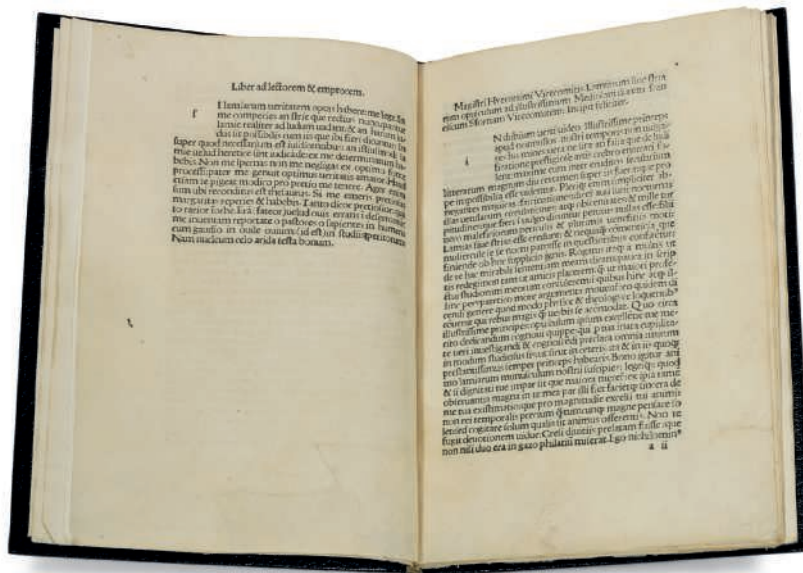
VICECOMES, Hieronymus (d.c.1478). *Lamianum sive striarum opuscula*. Edited by Alvisius de la Cruce. Milan: Leonardus Pachel, 13 September 1490.

Chancery 4° (200 x 134mm). Collation: a-c⁸ (a1r blank, a1v address to the reader and buyer, text, addressed to Francesco Sforza, Duke of Milan, c8v colophon). 24 leaves. 37 lines. Type 6:76R. 4- and 5-line initial spaces with guide-letter. Apparently formerly part of a Sammelband, with no. '3' on first leaf. (Sections of lower margin repaired in last quire and several other leaves, some faint dampstaining, tiny marginal wormhole.) Modern blue morocco tooled in blind by Lenti with Max device at centre, marbled-paper slipcase. *Provenance*: Frederic and Anne Max, Library of demonology and witchcraft (sold Paris, 23-24 June 1997; leather bookplate).

FIRST EDITION of a work on witchcraft by a Dominican provincial and member of the princely family, Girolamo Visconti. Visconti observed witch trials in Lombardy, in response to which he wrote his two treatises. He discusses the validity of the charges and reasons that, because the defendants acted in reality, not dreams, they should be tried as heretics and be subject to clerical inquisition. He gives much detail of the Sabbat, or 'game' (gatherings of witches), and his work is notable for 'reinterpreting ancient folkloric legacies in terms of Christian demonology' (Golden, *Enclyo. of witchcraft*, p.1171). RARE ON THE MARKET; no copy recorded at auction in over 40 years. Hansen 1901. C 6200 = 3210; BMC VI 778; BSB-Ink. V-191; Klebs 1041.1; IGI 10263; Goff V-272.

£10,000-15,000

\$15,000-22,000
£14,000-20,000





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CONDITIONS OF SALE • BUYING AT CHRISTIE'S

CONDITIONS OF SALE

These Conditions of Sale and the Important Notices and Explanation of Cataloguing Practice set out the terms on which we offer the **lots** listed in this catalogue for sale. By registering to bid and/or by bidding at auction you agree to these terms, so you should read them carefully before doing so. You will find a glossary at the end explaining the meaning of the words and expressions coloured in **bold**.

Unless we own a **lot** (Δ symbol, Christie's acts as agent for the seller.

A BEFORE THE SALE

1 DESCRIPTION OF LOTS

(a) Certain words used in the catalogue description have special meanings. You can find details of these on the page headed 'Important Notices and Explanation of Cataloguing Practice' which forms part of these terms. You can find a key to the Symbols found next to certain catalogue entries under the section of the catalogue called 'Symbols Used in this Catalogue'.

(b) Our description of any **lot** in the catalogue, any **condition** report and any other statement made by us (whether orally or in writing) about any **lot**, including about its nature or **condition**, artist, period, materials, approximate dimensions or **provenance** are our opinion and not to be relied upon as a statement of fact. We do not carry out in-depth research of the sort carried out by professional historians and scholars. All dimensions and weights are approximate only.

2 OUR RESPONSIBILITY FOR OUR DESCRIPTION OF LOTS

We do not provide any guarantee in relation to the nature of a **lot** apart from our **authenticity warranty** contained in paragraph E2 and to the extent provided in paragraph I below.

3 CONDITION

(a) The **condition** of **lots** sold in our auctions can vary widely due to factors such as age, previous damage, restoration, repair and wear and tear. Their nature means that they will rarely be in perfect **condition**. **Lots** are sold 'as is', in the **condition** they are in at the time of the sale, without any representation or warranty or assumption of liability of any kind as to **condition** by Christie's or by the seller.

(b) Any reference to **condition** in a catalogue entry or in a **condition** report will not amount to a full description of **condition**, and images may not show a **lot** clearly. Colours and shades may look different in print or on screen to how they look on physical inspection. **Condition** reports may be available to help you evaluate the **condition** of a **lot**. **Condition** reports are provided free of charge as a convenience to our buyers and are for guidance only. They offer our opinion but they may not refer to all faults, inherent defects, restoration, alteration or adaptation because our staff are not professional restorers or conservators. For that reason they are not an alternative to examining a **lot** in person or taking your own professional advice. It is your responsibility to ensure that you have requested, received and considered any **condition** report.

4 VIEWING LOTS PRE-AUCTION

(a) If you are planning to bid on a **lot**, you should inspect it personally or through a knowledgeable representative before you make a bid to make sure that you accept the description and its **condition**. We recommend you get your own advice from a restorer or other professional adviser.

(b) Pre-auction viewings are open to the public free of charge. Our specialists may be available to answer questions at pre-auction viewings or by appointment.

5 ESTIMATES

Estimates are based on the **condition**, rarity, quality and **provenance** of the **lots** and on prices recently paid at auction for similar property. **Estimates** can change. Neither you, nor anyone else, may rely on any **estimates** as a prediction or guarantee of the actual selling price of a **lot** or its value for any other purpose. **Estimates** do not include the **buyer's premium** or any applicable taxes.

6 WITHDRAWAL

Christie's may, at its option, withdraw any **lot** at any time prior to or during the sale of the **lot**. Christie's has no liability to you for any decision to withdraw.

7 JEWELLERY

(a) Coloured gemstones (such as rubies, sapphires and emeralds) may have been treated to improve their look, through methods such as heating and oiling. These methods are accepted by the international jewellery trade but may make the gemstone less strong and/or require special care over time.

(b) All types of gemstones may have been improved by some method. You may request a gemmological report for any item which does not have a report if the request is made to us at least three weeks before the date of the auction and you pay the fee for the report.

(c) We do not obtain a gemmological report for every gemstone sold in our auctions. Where we do get gemmological reports from internationally accepted gemmological laboratories, such reports will be described in the catalogue. Reports from American gemmological laboratories will describe any improvement or treatment to the gemstone. Reports from European gemmological laboratories will describe any improvement or treatment only if we request that they do so, but will confirm when no improvement or treatment has been made. Because of differences in approach and technology, laboratories may not agree whether a particular gemstone has been treated, the amount of treatment or whether treatment is permanent. The gemmological laboratories will only report on the improvements or treatments known to the laboratories at the date of the report.

(d) For jewellery sales, **estimates** are based on the information in any gemmological report or, if no report is available, assume that the gemstones may have been treated or enhanced.

8 WATCHES & CLOCKS

(a) Almost all clocks and watches are repaired in their lifetime and may include parts which are not original. We do not give a **warranty** that any individual component part of any watch is **authentic**. Watchbands described as 'associated' are not part of the original watch and may not be **authentic**. Clocks may be sold without pendulums, weights or keys.

(b) As collectors' watches often have very fine and complex mechanisms, a general service, change of battery or further repair work may be necessary, for which you are responsible. We do not give a **warranty** that any watch is in good working order. Certificates are not available unless described in the catalogue.

(c) Most wristwatches have been opened to find out the type and quality of movement. For that reason, wristwatches with water resistant cases may not be waterproof and we recommend you have them checked by a competent watchmaker before use. Important information about the sale, transport and shipping of watches and watchbands can be found in paragraph H2(h).

B REGISTERING TO BID

1 NEW BIDDERS

(a) If this is your first time bidding at Christie's or you are a returning bidder who has not bought anything from any of our salerooms within the last two years you must register at least 48 hours before an auction to give us enough time to process and approve your registration. We may, at our option, decline to permit you to register as a bidder. You will be asked for the following:

(i) for individuals: Photo identification (driving licence, national identity card or passport) and, if not shown on the ID document, proof of your current address (for example, a current utility bill or bank statement).

(ii) for corporate clients: Your Certificate of Incorporation or equivalent document(s) showing your name and registered address together with documentary proof of directors and beneficial owners; and

(iii) for trusts, partnerships, offshore companies and other business structures, please contact us in advance to discuss our requirements.

(b) We may also ask you to give us a financial reference and/or a deposit as a condition of allowing you to bid. For help, please contact our Credit Department on +44 (0)20 7839 9060.

2 RETURNING BIDDERS

We may at our option ask you for current identification as described in paragraph B1(a) above, a financial reference or a deposit as a condition of allowing you to bid. If you have not bought anything from any of our salerooms in the last two years or if you want to spend more than on previous occasions, please contact our Credit Department on +44 (0)20 7839 9060.

3 IF YOU FAIL TO PROVIDE THE RIGHT DOCUMENTS

If in our opinion you do not satisfy our bidder identification and registration procedures including, but not limited to completing any anti-money laundering and/or anti-terrorism financing checks we may require to our satisfaction, we may refuse to register you to bid, and if you make a successful bid, we may cancel the contract for sale between you and the seller.

4 BIDDING ON BEHALF OF ANOTHER PERSON

(a) **As authorised bidder**. If you are bidding on behalf of another person, that person will need to complete the registration requirements above before you can bid, and supply a signed letter authorising you to bid for him/her.

(b) **As agent for an undisclosed principal**: If you are bidding as an agent for an undisclosed principal (the ultimate buyer(s)), you accept personal liability to pay the **purchase price** and all other sums due. Further, you warrant that:

(i) you have conducted appropriate customer due diligence on the ultimate buyer(s) of the **lot(s)** in accordance with any and all applicable anti-money laundering and sanctions laws, consent to us relying on this due diligence, and you will retain for a period of not less than five years the documentation and records evidencing the due diligence;

(ii) you will make such documentation and records evidencing your due diligence promptly available for immediate inspection by an independent third-party auditor upon our written request to do so. We will not disclose such documentation and records to any third-parties unless (1) it is already in the public domain, (2) it is required to be disclosed by law, or (3) it is in accordance with anti-money laundering laws;

(iii) the arrangements between you and the ultimate buyer(s) are not designed to facilitate tax crimes;

(iv) you do not know, and have no reason to suspect, that the funds used for settlement are connected with, the proceeds of any criminal activity or that the ultimate buyer(s) are under investigation, charged with or convicted of money laundering, terrorist activities or other money laundering predicate crimes.

A bidder accepts personal liability to pay the **purchase price** and all other sums due unless it has been agreed in writing with Christie's before commencement of the auction that the bidder is acting as an agent on behalf of a named third party acceptable to Christie's and that Christie's will only seek payment from the named third party.

5 BIDDING IN PERSON

If you wish to bid in the saleroom you must register for a numbered bidding paddle at least 30 minutes before the auction. You may register online at www.christies.com or in person. For help, please contact the Credit Department on +44 (0)20 7839 9060.

6 BIDDING SERVICES

The bidding services described below are a free service offered as a convenience to our clients and Christie's is not responsible for any error (human or otherwise), omission or breakdown in providing these services.

(a) Phone Bids

Your request for this service must be made no later than 24 hours prior to the auction. We will accept bids by telephone for **lots** only if our staff are available to take the bids. If you need to bid in a language other than in English, you must arrange this well before the auction. We may record telephone bids. By bidding on the telephone, you are agreeing to us recording your conversations. You also agree that your telephone bids are governed by these Conditions of Sale.

(b) Internet Bids on Christie's Live™

For certain auctions we will accept bids over the Internet. Please visit www.christies.com/livebidding and click on the 'Bid Live' icon to see details of how to watch, hear and bid at the auction from your computer. As well as these Conditions of Sale, internet bids are governed by the Christie's LIVE™ terms of use which are available on www.christies.com.

(c) Written Bids

You can find a Written Bid Form at the back of our catalogues, at any Christie's office or by choosing the sale and viewing the **lots** online at www.christies.com. We must receive your completed Written Bid Form at least 24 hours before the auction. Bids must be placed in the currency of the saleroom. The auctioneer will take reasonable steps to carry out written bids at the lowest possible price, taking into account the **reserve**. If you make a written bid on a **lot** which does not have a **reserve** and there is no higher bid than yours, we will bid on your behalf at around 50% of the **low estimate** or, if lower, the amount of your bid. If we receive written bids on a **lot** for identical amounts, and at the auction these are the highest bids on the **lot**, we will sell the **lot** to the bidder whose written bid we received first.

C AT THE SALE

1 WHO CAN ENTER THE AUCTION

We may, at our option, refuse admission to our premises or decline to permit participation in any auction or to reject any bid.

2 RESERVES

Unless otherwise indicated, all **lots** are subject to a **reserve**. We identify **lots** that are offered without **reserve** with the symbol • next to the **lot** number. The **reserve** cannot be more than the **lot's low estimate**.

3 AUCTIONEER'S DISCRETION

The auctioneer can at his sole option:

- refuse any bid;
- move the bidding backwards or forwards in any way he or she may decide, or change the order of the **lots**;
- withdraw any **lot**;
- divide any **lot** or combine any two or more **lots**;
- reopen or continue the bidding even after the hammer has fallen; and
- in the case of error or dispute and whether during or after the auction, to continue the bidding, determine the successful bidder, cancel the sale of the **lot**, or reoffer and resell any **lot**. If any dispute relating to bidding arises during or after the auction, the auctioneer's decision in exercise of this option is final.

4 BIDDING

The auctioneer accepts bids from:

- bidders in the saleroom;
- telephone bidders, and internet bidders through 'Christie's LIVE™ (as shown above in Section B6); and
- written bids (also known as absentee bids or commission bids) left with us by a bidder before the auction.

5 BIDDING ON BEHALF OF THE SELLER

The auctioneer may, at his or her sole option, bid on behalf of the seller up to but not including the amount of the **reserve** either by making consecutive bids or by making bids in response to other bidders. The auctioneer will not identify these as bids made on behalf of the seller and will not make any bid on behalf of the seller at or above the **reserve**. If **lots** are offered without **reserve**, the auctioneer will generally decide to open the bidding at 50% of the **low estimate** for the **lot**. If no bid is made at that level, the auctioneer may decide to go backwards at his or her sole option until a bid is made, and then continue up from that amount. In the event that there are no bids on a **lot**, the auctioneer may deem such **lot** unsold.

6 BID INCREMENTS

Bidding generally starts below the **low estimate** and increases in steps (bid increments). The auctioneer will decide at his or her sole option where the bidding should start and the bid increments. The

usual bid increments are shown for guidance only on the Written Bid Form at the back of this catalogue.

7 CURRENCY CONVERTER

The saleroom video screens (and Christie's LIVE™) may show bids in some other major currencies as well as sterling. Any conversion is for guidance only and we cannot be bound by any rate of exchange used. Christie's is not responsible for any error (human or otherwise), omission or breakdown in providing these services.

8 SUCCESSFUL BIDS

Unless the auctioneer decides to use his or her discretion as set out in paragraph C3 above, when the auctioneer's hammer strikes, we have accepted the last bid. This means a contract for sale has been formed between the seller and the successful bidder. We will issue an invoice only to the registered bidder who made the successful bid. While we send out invoices by post and/or email after the auction, we do not accept responsibility for telling you whether or not your bid was successful. If you have bid by written bid, you should contact us by telephone or in person as soon as possible after the auction to get details of the outcome of your bid to avoid having to pay unnecessary storage charges.

9 LOCAL BIDDING LAWS

You agree that when bidding in any of our sales that you will strictly comply with all local laws and regulations in force at the time of the sale for the relevant sale site.

D THE BUYER'S PREMIUM, TAXES AND ARTIST'S RESEAL ROYALTY

1 THE BUYER'S PREMIUM

In addition to the **hammer price**, the successful bidder agrees to pay us a **buyer's premium** on the **hammer price** of each lot sold. On all lots we charge 25% of the **hammer price** up to and including £50,000, 20% on that part of the **hammer price** over £50,000 and up to and including £1,000,000, and 12% of that part of the **hammer price** above £1,000,000.

2 TAXES

The successful bidder is responsible for any applicable tax including any VAT, sales or compensating use tax or equivalent tax wherever they arise on the **hammer price** and the **buyer's premium**. It is the buyer's responsibility to ascertain and pay all taxes due. You can find details of how VAT and VAT reclaimers are dealt with in the section of the catalogue headed 'VAT Symbols and Explanation'. VAT charges and refunds depend on the particular circumstances of the buyer so this section, which is not exhaustive, should be used only as a general guide. In all circumstances EU and UK law takes precedence. If you have any questions about VAT, please contact Christie's VAT Department on +44 (0)20 7839 9060 (email: VAT_London@christies.com, fax: +44 (0)20 3219 6076).

3 ARTIST'S RESEAL ROYALTY

In certain countries, local laws entitle the artist or the artist's estate to a royalty known as 'artist's resale right' when any lot created by the artist is sold. We identify these lots with the symbol λ next to the lot number. If these laws apply to a lot, you must pay us an extra amount equal to the royalty. We will pay the royalty to the appropriate authority on the seller's behalf.

The artist's resale royalty applies if the **hammer price** of the lot is 1,000 euro or more. The total royalty for any lot cannot be more than 12,500 euro. We work out the amount owed as follows:

Royalty for the portion of the hammer price (in euros)

4% up to 50,000

3% between 50,000.01 and 200,000

1% between 200,000.01 and 350,000

0.50% between 350,000.01 and 500,000

over 500,000, the lower of 0.25% and 12,500 euro.

We will work out the artist's resale royalty using the euro to sterling rate of exchange of the European Central Bank on the day of the auction.

E WARRANTIES

1 SELLER'S WARRANTIES

For each lot, the seller gives a **warranty** that the seller:

- is the owner of the lot or a joint owner of the lot acting with the permission of the other co-owners or, if the seller is not the owner or a joint owner of the lot, has the permission of the owner to sell the lot, or the right to do so in law; and
- has the right to transfer ownership of the lot to the buyer without any restrictions or claims by anyone else.

If either of the above **warranties** are incorrect, the seller shall not have to pay more than the **purchase price** (as defined in paragraph F1(a) below) paid by you to us. The seller will not be responsible to you for any reason for loss of profits or business, expected savings, loss of opportunity or interest, costs, damages, **other damages** or expenses. The seller gives no **warranty** in relation to any lot other than as set out above and, as far as the seller is allowed by law, all **warranties** from the seller to you, and all other obligations upon the seller which may be added to this agreement by law, are excluded.

2 OUR AUTHENTICITY WARRANTY

We warrant, subject to the terms below, that the lots in our sales are authentic (our 'authenticity warranty'). If, within five years of the date of the auction, you satisfy us that your lot is not authentic, subject to the terms below, we will refund the **purchase price** paid by you. The meaning of **authentic** can be found in the glossary at the end of these Conditions of Sale. The terms of the **authenticity warranty** are as follows:

(a) It will be honoured for a period of five years from the date of the auction. After such time, we will not be obligated to honour the **authenticity warranty**.

(b) It is given only for information shown in **UPPERCASE type** in the first line of the **catalogue description** (the 'Heading'). It does not apply to any information other than in the **Heading** even if shown in **UPPERCASE type**.

(c) The **authenticity warranty** does not apply to any **Heading** or part of a **Heading** which is **qualified**. **Qualified** means limited by a clarification in a lot's **catalogue description** or by the use in a **Heading** of one of the terms listed in the section titled **Qualified Headings** on the page of the catalogue headed 'Important Notices and Explanation of Cataloguing Practice'. For example, use of the term 'ATTRIBUTED TO...' in a **Heading** means that the lot is in Christie's opinion probably a work by the named artist but no **warranty** is provided that the lot is the work of the named artist. Please read the full list of **Qualified Headings** and a lot's full **catalogue description** before bidding.

(d) The **authenticity warranty** applies to the **Heading** as amended by any **Saleroom Notice**.

(e) The **authenticity warranty** does not apply where scholarship has developed since the auction leading to a change in generally accepted opinion. Further, it does not apply if the **Heading** either matched the generally accepted opinion of experts at the date of the sale or drew attention to any conflict of opinion.

(f) The **authenticity warranty** does not apply if the lot can only be shown not to be **authentic** by a scientific process which, on the date we published the catalogue, was not available or generally accepted for use, or which was unreasonably expensive or impractical, or which was likely to have damaged the lot.

(g) The benefit of the **authenticity warranty** is only available to the original buyer shown on the invoice for the lot issued at the time of the sale and only if the original buyer has owned the lot continuously between the date of the auction and the date of claim. It may not be transferred to anyone else.

(h) In order to claim under the **authenticity warranty** you must:

- give us written details, including full supporting evidence, of any claim within five years of the date of the auction;
- at Christie's option, we may require you to provide the written opinions of two recognised experts in the field of the lot mutually agreed by you and us in advance confirming that the lot is not **authentic**. If we have any doubts, we reserve the right to obtain additional opinions at our expense; and
- return the lot at your expense to the saleroom from which you bought it in the **condition** it was in at the time of sale.

(i) Your only right under this **authenticity warranty** is to cancel the sale and receive a refund of the **purchase price** paid by you to us. We will not, in any circumstances, be required to pay you more than the **purchase price** nor will we be liable for any loss of profits or business, loss of opportunity or value, expected savings or interest, costs, damages, **other damages** or expenses.

(j) **Books**. Where the lot is a book, we give an additional **warranty** for 14 days from the date of the sale that if on collation any lot is defective in text or illustration, we will refund your **purchase price**, subject to the following terms:

- This additional **warranty** does not apply to:
 - the absence of blanks, half titles, tissue guards or advertisements, damage in respect of bindings,

stains, spotting, marginal tears or other defects not affecting completeness of the text or illustration;

(ii) drawings, autographs, letters or manuscripts, signed photographs, music, atlases, maps or periodicals;

(iii) books not identified by title;

(iv) lots sold without a printed **estimate**;

(v) books which are described in the catalogue as sold not subject to return; or

(vi) defects stated in any **condition** report or announced at the time of sale.

(b) To make a claim under this paragraph you must give written details of the defect and return the lot to the sale room at which you bought it in the same **condition** as at the time of sale, within 14 days of the date of the sale.

(k) **South East Asian Modern and Contemporary Art and Chinese Calligraphy and Painting**.

In these categories, the **authenticity warranty** does not apply because current scholarship does not permit the making of definitive statements. Christie's does, however, agree to cancel a sale in either of these two categories of art where it has been proven the lot is a forgery. Christie's will refund to the original buyer the **purchase price** in accordance with the terms of Christie's **authenticity warranty**, provided that the original buyer notifies us with full supporting evidence documenting the forgery claim within twelve (12) months of the date of the auction. Such evidence must be satisfactory to us that the lot is a forgery in accordance with paragraph E2(h)(ii) above and the lot must be returned to us in accordance with E2h(iii) above. Paragraphs E2(b), (c), (d), (e), (f) and (g) and (i) also apply to a claim under these categories.

F PAYMENT

1 HOW TO PAY

(a) Immediately following the auction, you must pay the **purchase price** being:

(i) the **hammer price**; and

(ii) the **buyer's premium**; and

(iii) any amounts due under section D3 above; and (iv) any duties, goods, sales, use, compensating or service tax or VAT.

Payment is due no later than by the end of the seventh calendar day following the date of the auction (the '**due date**').

(b) We will only accept payment from the registered bidder. Once issued, we cannot change the buyer's name on an invoice or re-issue the invoice in a different name. You must pay immediately even if you want to export the lot and you need an export licence.

(c) You must pay for lots bought at Christie's in the United Kingdom in the currency stated on the invoice in one of the following ways:

(i) Wire transfer

You must make payments to:

Lloyds Bank Plc, City Office, PO Box 217, 72 Lombard Street, London EC3P 3BT. Account number: 00172710, sort code: 30-00-02 Swift code: LOYDGB2LCTY. IBAN (international bank account number): GB81 LOYD 3000 0200 1727 10.

(ii) Credit Card.

We accept most major credit cards subject to certain conditions. To make a 'cardholder not present' (CNP) payment, you must complete a CNP authorisation form which you can get from our Cashiers Department. You must send a completed CNP authorisation form by fax to +44 (0)20 7839 2869 or by post to the address set out in paragraph (d) below. If you want to make a CNP payment over the telephone, you must call +44 (0)20 7839 9060. CNP payments cannot be accepted by all salerooms and are subject to certain restrictions. Details of the conditions and restrictions applicable to credit card payments are available from our Cashiers Department, whose details are set out in paragraph (d) below.

(iii) Cash

We accept cash subject to a maximum of £5,000 per buyer per year at our Cashier's Department only (subject to conditions).

(iv) Banker's draft

You must make these payable to Christie's and there may be conditions.

(v) Cheque

You must make cheques payable to Christie's. Cheques must be from accounts in pounds sterling from a United Kingdom bank.

(d) You must quote the sale number, your invoice number and client number when making a payment. All payments sent by post must be sent to: Christie's, Cashiers Department, 8 King Street, St James's, London SW1Y 6QT.

(e) For more information please contact our Cashiers Department by phone on +44 (0)20 7839 9060 or fax on +44 (0)20 7389 2869.

2. TRANSFERRING OWNERSHIP TO YOU

You will not own the lot and ownership of the lot will not pass to you until we have received full and clear payment of the **purchase price**, even in circumstances where we have released the lot to the buyer.

3 TRANSFERRING RISK TO YOU

The risk in and responsibility for the lot will transfer to you from whichever is the earlier of the following:

(a) When you collect the lot; or

(b) At the end of the 90th day following the date of the auction or, if earlier, the date the lot is taken into care by a third party warehouse as set out on the page headed 'Storage and Collection', unless we have agreed otherwise with you in writing.

4 WHAT HAPPENS IF YOU DO NOT PAY

(a) If you fail to pay us the **purchase price** in full by the **due date**, we will be entitled to do one or more of the following (as well as enforce our rights under paragraph F5 and any other rights or remedies we have by law):

(i) to charge interest from the **due date** at a rate of 5% a year above the UK Lloyds Bank base rate from time to time on the unpaid amount due;

(ii) we can cancel the sale of the lot. If we do this, we may sell the lot again, publicly or privately on such terms we shall think necessary or appropriate, in which case you must pay us any shortfall between the **purchase price** and the proceeds from the resale. You must also pay all costs, expenses, losses, damages and legal fees we have to pay or may suffer and any shortfall in the seller's commission on the resale;

(iii) we can pay the seller an amount up to the net proceeds payable in respect of the amount bid by your default in which case you acknowledge and understand that Christie's will have all of the rights of the seller to pursue you for such amounts;

(iv) we can hold you legally responsible for the **purchase price** and may begin legal proceedings to recover it together with other losses, interest, legal fees and costs as far as we are allowed by law;

(v) we can take what you owe us from any amounts which we or any company in the **Christie's Group** may owe you (including any deposit or other part-payment which you have paid to us);

(vi) we can, at our option, reveal your identity and contact details to the seller;

(vii) we can reject at any future auction any bids made by or on behalf of the buyer or to obtain a deposit from the buyer before accepting any bids;

(viii) to exercise all the rights and remedies of a person holding security over any property in our possession owned by you, whether by way of pledge, security interest or in any other way as permitted by the law of the place where such property is located. You will be deemed to have granted such security to us and we may retain such property as collateral security for your obligations to us; and

(ix) we can take any other action we see necessary or appropriate.

(b) If you owe money to us or to another **Christie's Group** company, we can use any amount you do pay, including any deposit or other part-payment you have made to us, or which we owe you, to pay off any amount you owe to us or another **Christie's Group** company for any transaction.

(c) If you make payment in full after the **due date**, and we choose to accept such payment we may charge you storage and transport costs from the date that is 90 calendar days following the auction in accordance with paragraphs Gd(i) and (ii). In such circumstances paragraph Gd(iv) shall apply.

5 KEEPING YOUR PROPERTY

If you owe money to us or to another **Christie's Group** company, as well as the rights set out in F4 above, we can use or deal with any of your property we hold or which is held by another **Christie's Group** company in any way we are allowed to by law. We will only release your property to you after you pay us or the relevant **Christie's Group** company in full for what you owe. However, if we choose, we can also sell your property in any way we think appropriate. We will use the proceeds of the sale against any amounts you owe us and we will pay any amount left from that sale to you. If there is a shortfall, you must pay us any difference between

the amount we have received from the sale and the amount you owe us.

G COLLECTION AND STORAGE

- (a) We ask that you collect purchased **lots** promptly following the auction (**but note that you may not collect any lot until you have made full and clear payment of all amounts due to us**).
- (b) Information on collecting **lots** is set out on the storage and collection page and on an information sheet which you can get from the bidder registration staff or Christie's cashiers on +44 (0)20 7839 9060.
- (c) If you do not collect any **lot** promptly following the auction we can, at our option, remove the **lot** to another Christie's location or an affiliate or third party warehouse.
- (d) If you do not collect a **lot** within the period set out in the storage and collection page then, unless otherwise agreed in writing:
- (i) we will charge you storage costs from that date.
- (ii) we can at our option move the **lot** to or within an affiliate or third party warehouse and charge you transport costs and handling fees for doing so.
- (iii) we may sell the **lot** in any commercially reasonable way we think appropriate.
- (iv) the storage terms shall apply.
- (v) Nothing in this paragraph is intended to limit our rights under paragraph F4.

H TRANSPORT AND SHIPPING

1 TRANSPORT AND SHIPPING

We will enclose a transport and shipping form with each invoice sent to you. You must make all transport and shipping arrangements. However, we can arrange to pack, transport and ship your property if you ask us to and pay the costs of doing so. We recommend that you ask us for an **estimate**, especially for any large items or items of high value that need professional packing before you bid. We may also suggest other handlers, packers, transporters or experts if you ask us to do so. For more information, please contact Christie's Art Transport on +44 (0)20 7839 9060. See the information set out at www.christies.com/shipping or contact us at arttransport_london@christies.com. We will take reasonable care when we are handling, packing, transporting and shipping a **lot**. However, if we recommend another company for any of these purposes, we are not responsible for their acts, failure to act or neglect.

2 EXPORT AND IMPORT

Any **lot** sold at auction may be affected by laws on exports from the country in which it is sold and the import restrictions of other countries. Many countries require a declaration of export for property leaving the country and/or an import declaration on entry of property into the country. Local laws may prevent you from importing a **lot** or may prevent you selling a **lot** in the country you import it into.

- (a) You alone are responsible for getting advice about and meeting the requirements of any laws or regulations which apply to exporting or importing any **lot** prior to bidding. If you are refused a licence or there is a delay in getting one, you must still pay us in full for the **lot**. We may be able to help you apply for the appropriate licences if you ask us to and pay our fee for doing so. However, we cannot guarantee that you will get one. For more information, please contact Christie's Art Transport Department on +44 (0)20 7839 9060. See the information set out at www.christies.com/shipping or contact us at arttransport_london@christies.com.

(b) Lots made of protected species

Lots made of or including (regardless of the percentage) endangered and other protected species of wildlife are marked with the symbol ~ in the catalogue. This material includes, among other things, ivory, tortoiseshell, crocodile skin, rhinoceros horn, whalebone, certain species of coral, and Brazilian rosewood. You should check the relevant customs laws and regulations before bidding on any **lot** containing wildlife material if you plan to import the **lot** into another country. Several countries refuse to allow you to import property containing these materials, and some other countries require a licence from the relevant regulatory agencies in the countries of exportation as well as importation. In some cases, the **lot** can only be shipped with an independent scientific confirmation of species and/or age and you will need to obtain these at your own cost. If a **lot** contains elephant ivory, or any other wildlife material that could be confused with elephant ivory (for example, mammoth ivory, walrus ivory, helmeted hornbill ivory), please see further important information in paragraph (c) if you are proposing to import the **lot** into the USA. We will not be obliged to cancel your purchase and

refund the **purchase price** if your **lot** may not be exported, imported or it is seized for any reason by a government authority. It is your responsibility to determine and satisfy the requirements of any applicable laws or regulations relating to the export or import of property containing such protected or regulated material.

(c) US import ban on African elephant ivory

The USA prohibits the import of ivory from the African elephant. Any **lot** containing elephant ivory or other wildlife material that could be easily confused with elephant ivory (for example, mammoth ivory, walrus ivory, helmeted hornbill ivory) can only be imported into the US with results of a rigorous scientific test acceptable to Fish & Wildlife, which confirms that the material is not African elephant ivory. Where we have conducted such rigorous scientific testing on a **lot** prior to sale, we will make this clear in the lot description. In all other cases, we cannot confirm whether a **lot** contains African elephant ivory, and you will buy that **lot** at your own risk and be responsible for any scientific test or other reports required for import into the USA at your own cost. If such scientific test is inconclusive or confirms the material is from the African elephant, we will not be obliged to cancel your purchase and refund the **purchase price**.

(d) Lots containing material that originates from Burma (Myanmar)

Lots which contain rubies or jadeite originating in Burma (Myanmar) may not generally be imported into the United States. As a convenience to US buyers, **lots** which contain rubies or jadeite of Burmese or indeterminate origin have been marked with the symbol ♡ in the catalogue. In relation to items that contain any other types of gemstones originating in Burma (e.g. sapphires) such items may be imported into the United States provided that the gemstones have been mounted or incorporated into jewellery outside of Burma and provided that the setting is not of a temporary nature (e.g. a string).

(e) Lots of Iranian origin

Some countries prohibit or restrict the purchase and/or import of Iranian-origin 'works of conventional craftsmanship' (works that are not by a recognised artist and/or that have a function, for example: bowls, ewers, tiles, ornamental boxes). For example, the USA prohibits the import of this type of property and its purchase by US persons (wherever located). Other countries, such as Canada, only permit the import of this property in certain circumstances. As a convenience to buyers, Christie's indicates under the title of a **lot** if the **lot** originates from Iran (Persia). It is your responsibility to ensure you do not bid on or import a **lot** in contravention of the sanctions or trade embargoes that apply to you.

(f) Gold

Gold of less than 18ct does not qualify in all countries as 'gold' and may be refused import into those countries as 'gold'.

(g) Jewellery over 50 years old

Under current laws, jewellery over 50 years old which is worth £34,300 or more will require an export licence which we can apply for on your behalf. It may take up to eight weeks to obtain the export jewellery licence.

(h) Watches

(i) Many of the watches offered for sale in this catalogue are pictured with straps made of endangered or protected animal materials such as alligator or crocodile. These **lots** are marked with the symbol ~ in the catalogue. These endangered species straps are shown for display purposes only and are not for sale. Christie's will remove and retain the strap prior to shipment from the sale site. At some sale sites, Christie's may, at its discretion, make the displayed endangered species strap available to the buyer of the **lot** free of charge if collected in person from the sale site within one year of the date of the sale. Please check with the department for details on a particular **lot**.

For all symbols and other markings referred to in paragraph H2, please note that **lots** are marked as a convenience to you, but we do not accept liability for errors or for failing to mark **lots**.

I OUR LIABILITY TO YOU

(a) We give no **warranty** in relation to any statement made, or information given, by us or our representatives or employees, about any **lot** other than as set out in the **authenticity warranty** and, as far as we are allowed by law, all **warranties** and other terms which may be added to this agreement by law are excluded. The seller's **warranties** contained in paragraph E1 are their own and we do not have any liability to you in relation to those **warranties**.

(b) (i) We are not responsible to you for any reason (whether for breaking this agreement or any other matter relating to your purchase of, or bid for, any

lot) other than in the event of fraud or fraudulent misrepresentation by us or other than as expressly set out in these Conditions of Sale; or

(ii) give any representation, **warranty** or guarantee or assume any liability of any kind in respect of any **lot** with regard to merchantability, fitness for a particular purpose, description, size, quality, condition, attribution, authenticity, rarity, importance, medium, provenance, exhibition history, literature, or historical relevance. Except as required by local law, any **warranty** of any kind is excluded by this paragraph.

(c) In particular, please be aware that our written and telephone bidding services, Christie's LIVE™, **condition** reports, currency converter and saleroom video screens are free services and we are not responsible to you for any error (human or otherwise), omission or breakdown in these services.

(d) We have no responsibility to any person other than a buyer in connection with the purchase of any **lot**.

(e) If, in spite of the terms in paragraphs (a) to (d) or E2(i) above, we are found to be liable to you for any reason, we shall not have to pay more than the **purchase price** paid by you to us. We will not be responsible to you for any reason for loss of profits or business, loss of opportunity or value, expected savings or interest, costs, damages, or expenses.

J OTHER TERMS

1 OUR ABILITY TO CANCEL

In addition to the other rights of cancellation contained in this agreement, we can cancel a sale of a **lot** if we reasonably believe that completing the transaction is, or may be, unlawful or that the sale places us or the seller under any liability to anyone else or may damage our reputation.

2 RECORDINGS

We may videotape and record proceedings at any auction. We will keep any personal information confidential, except to the extent disclosure is required by law. However, we may, through this process, use or share these recordings with another **Christie's Group** company and marketing partners to analyse our customers and to help us to tailor our services for buyers. If you do not want to be videotaped, you may make arrangements to make a telephone or written bid or bid on Christie's LIVE™ instead. Unless we agree otherwise in writing, you may not videotape or record proceedings at any auction.

3 COPYRIGHT

We own the copyright in all images, illustrations and written material produced by or for us relating to a **lot** (including the contents of our catalogues unless otherwise noted in the catalogue). You cannot use them without our prior written permission. We do not offer any guarantee that you will gain any copyright or other reproduction rights to the **lot**.

4 ENFORCING THIS AGREEMENT

If a court finds that any part of this agreement is not valid or is illegal or impossible to enforce, that part of the agreement will be treated as being deleted and the rest of this agreement will not be affected.

5 TRANSFERRING YOUR RIGHTS AND RESPONSIBILITIES

You may not grant a security over or transfer your rights or responsibilities under these terms on the contract of sale with the buyer unless we have given our written permission. This agreement will be binding on your successors or estate and anyone who takes over your rights and responsibilities.

6 TRANSLATIONS

If we have provided a translation of this agreement, we will use this original version in deciding any issues or disputes which arise under this agreement.

7 PERSONAL INFORMATION

We will hold and process your personal information and may pass it to another **Christie's Group** company for use as described in, and in line with, our privacy policy at www.christies.com.

8 WAIVER

No failure or delay to exercise any right or remedy provided under these Conditions of Sale shall constitute a waiver of that or any other right or remedy, nor shall it prevent or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall prevent or restrict the further exercise of that or any other right or remedy.

9 LAW AND DISPUTES

This agreement, and any non-contractual obligations arising out of or in connection with this agreement, or any other rights you may have relating to the purchase of a **lot** will be governed by the laws of England and Wales. Before we or you start any court proceedings (except in the limited circumstances where the dispute, controversy or claim is related to proceedings brought by someone else and this dispute could be joined to those proceedings), we agree we will each try to settle the dispute by mediation following the Centre for Effective Dispute Resolution (CEDR) Model Mediation Procedure. We will use a mediator affiliated with CEDR who we and you agree to. If the dispute is not settled by mediation, you agree for our benefit that the dispute will be referred to and dealt with exclusively in the courts of England and Wales. However, we will have the right to bring proceedings against you in any other court.

10 REPORTING ON WWW.CHRTISTIES.COM

Details of all **lots** sold by us, including **catalogue descriptions** and prices, may be reported on www.christies.com. Sales totals are **hammer price** plus **buyer's premium** and do not reflect costs, financing fees, or application of buyer's or seller's credits. We regret that we cannot agree to requests to remove these details from www.christies.com.

K GLOSSARY

authentic: a genuine example, rather than a copy or forgery of:

(i) the work of a particular artist, author or manufacturer, if the **lot** is described in the **Heading** as the work of that artist, author or manufacturer;

(ii) a work created within a particular period or culture, if the **lot** is described in the **Heading** as a work created during that period or culture;

(iii) a work for a particular origin source if the **lot** is described in the **Heading** as being of that origin or source; or

(iv) in the case of gems, a work which is made of a particular material, if the **lot** is described in the **Heading** as being made of that material.

authenticity warranty: the guarantee we give in this agreement that a **lot** is **authentic** as set out in section E2 of this agreement.

buyer's premium: the charge the buyer pays us along with the **hammer price**.

catalogue description: the description of a **lot** in the catalogue for the auction, as amended by any saleroom notice.

Christie's Group: Christie's International Plc, its subsidiaries and other companies within its corporate group.

condition: the physical condition of a **lot**.

due date: has the meaning given to it in paragraph F1(a).

estimate: the price range included in the catalogue or any saleroom notice within which we believe a **lot** may sell. **Low estimate** means the lower figure in the range and **high estimate** means the higher figure. The **mid estimate** is the midpoint between the two.

hammer price: the amount of the highest bid the auctioneer accepts for the sale of a **lot**.

Heading: has the meaning given to it in paragraph E2.

lot: an item to be offered at auction (or two or more items to be offered at auction as a group).

other damages: any special, consequential, incidental or indirect damages of any kind or any damages which fall within the meaning of 'special', 'incidental' or 'consequential' under local law.

purchase price: has the meaning given to it in paragraph F1(a).

provenance: the ownership history of a **lot**.

qualified: has the meaning given to it in paragraph E2 and **Qualified Headings** means the section headed **Qualified Headings** on the page of the catalogue headed 'Important Notices and Explanation of Cataloguing Practice'.

reserve: the confidential amount below which we will not sell a **lot**.

saleroom notice: a written notice posted next to the **lot** in the saleroom and on www.christies.com, which is also read to prospective telephone bidders and notified to clients who have left commission bids, or an announcement made by the auctioneer either at the beginning of the sale, or before a particular **lot** is auctioned.

UPPER CASE type: means having all capital letters.

warranty: a statement or representation in which the person making it guarantees that the facts set out in it are correct.

VAT SYMBOLS AND EXPLANATION

You can find a glossary explaining the meanings of words coloured in bold on this page at the end of the section of the catalogue headed 'Conditions of Sale'

VAT payable

Symbol	
No Symbol	We will use the VAT Margin Scheme. No VAT will be charged on the hammer price . VAT at 20% will be added to the buyer's premium but will not be shown separately on our invoice.
†	We will invoice under standard VAT rules and VAT will be charged at 20% on both the hammer price and buyer's premium and shown separately on our invoice.
∅	For qualifying books only, no VAT is payable on the hammer price or the buyer's premium .
*	These lots have been imported from outside the EU for sale and placed under the Temporary Admission regime. Import VAT is payable at 5% on the hammer price . VAT at 20% will be added to the buyer's premium but will not be shown separately on our invoice.
Ω	These lots have been imported from outside the EU for sale and placed under the Temporary Admission regime. Customs Duty as applicable will be added to the hammer price and Import VAT at 20% will be charged on the Duty Inclusive hammer price . VAT at 20% will be added to the buyer's premium but will not be shown separately on our invoice.
α	The VAT treatment will depend on whether you have registered to bid with an EU or non-EU address: <ul style="list-style-type: none"> • If you register to bid with an address within the EU you will be invoiced under the VAT Margin Scheme (see No Symbol above). • If you register to bid with an address outside of the EU you will be invoiced under standard VAT rules (see † symbol above)
‡	For wine offered 'in bond' only. If you choose to buy the wine in bond no Excise Duty or Clearance VAT will be charged on the hammer . If you choose to buy the wine out of bond Excise Duty as applicable will be added to the hammer price and Clearance VAT at 20% will be charged on the Duty inclusive hammer price . Whether you buy the wine in bond or out of bond, 20% VAT will be added to the buyer's premium and shown on the invoice.

VAT refunds: what can I reclaim?

If you are:

A non VAT registered UK or EU buyer		No VAT refund is possible
UK VAT registered buyer	No symbol and α	The VAT amount in the buyer's premium cannot be refunded. However, on request we can re-invoice you outside of the VAT Margin Scheme under normal UK VAT rules (as if the lot had been sold with a † symbol). Subject to HMRC's rules, you can then reclaim the VAT charged through your own VAT return.
	* and Ω	Subject to HMRC's rules, you can reclaim the Import VAT charged on the hammer price through your own VAT return when you are in receipt of a C79 form issued by HMRC. The VAT amount in the buyer's premium is invoiced under Margin Scheme rules so cannot normally be claimed back. However, if you request to be re-invoiced outside of the Margin Scheme under standard VAT rules (as if the lot had been sold with a † symbol) then, subject to HMRC's rules, you can reclaim the VAT charged through your own VAT return.
EU VAT registered buyer	No Symbol and α	The VAT amount in the buyer's premium cannot be refunded. However, on request we can re-invoice you outside of the VAT Margin Scheme under normal UK VAT rules (as if the lot had been sold with a † symbol). See below for the rules that would then apply.
	†	If you provide us with your EU VAT number we will not charge VAT on the buyer's premium . We will also refund the VAT on the hammer price if you ship the lot from the UK and provide us with proof of shipping, within three months of collection.
	* and Ω	The VAT amount on the hammer and in the buyer's premium cannot be refunded. However, on request we can re-invoice you outside of the VAT Margin Scheme under normal UK VAT rules (as if the lot had been sold with a † symbol). See above for the rules that would then apply.
Non EU buyer		If you meet ALL of the conditions in notes 1 to 3 below we will refund the following tax charges:
	No Symbol	We will refund the VAT amount in the buyer's premium .
	† and α	We will refund the VAT charged on the hammer price . VAT on the buyer's premium can only be refunded if you are an overseas business. The VAT amount in the buyer's premium cannot be refunded to non-trade clients.
	‡ (wine only)	No Excise Duty or Clearance VAT will be charged on the hammer price providing you export the wine while 'in bond' directly outside the EU using an Excise authorised shipper. VAT on the buyer's premium can only be refunded if you are an overseas business. The VAT amount in the buyer's premium cannot be refunded to non-trade clients.
	* and Ω	We will refund the Import VAT charged on the hammer price and the VAT amount in the buyer's premium .

1. We **CANNOT** offer refunds of VAT amounts or Import VAT to buyers who do not meet all applicable conditions in full. If you are unsure whether you will be entitled to a refund, please contact Client Services at the address below **before you bid**.

2. No VAT amounts or Import VAT will be refunded where the total refund is under £100.

3. In order to receive a refund of VAT amounts/Import VAT (as applicable) non-EU buyers must:

(a) have registered to bid with an address outside of the EU; **and**
(b) provide immediate proof of correct export out of the EU within the required time frames of: 30 days via a 'controlled export' for * and Ω **lots**. All other **lots** must be exported within three months of collection.

4. Details of the documents which you must provide to us to show satisfactory proof of export/shipping are available from our VAT team at the address below.

We charge a processing fee of £35.00 per invoice to check shipping/export documents. We will waive this processing fee if you appoint Christie's Shipping Department to arrange your export/shipping.

5. If you appoint Christie's Art Transport or one of our authorised shippers to arrange your export/shipping we will issue you with an export invoice with the applicable VAT or duties cancelled as outlined above. If you later cancel or change the shipment

in a manner that infringes the rules outlined above we will issue a revised invoice charging you all applicable taxes/charges.

6. If you ask us to re-invoice you under normal UK VAT rules (as if the **lot** had been sold with a † symbol) instead of under the Margin Scheme the **lot** may become ineligible to be resold using the Margin Schemes. You should take professional advice if you are unsure how this may affect you.

7. All re-invoicing requests must be received within four years from the date of sale.

If you have any questions about VAT refunds please contact Christie's Client Services on info@christies.com
Tel: +44 (0)20 7389 2886.
Fax: +44 (0)20 7839 1611.

SYMBOLS USED IN THIS CATALOGUE

The meaning of words coloured in **bold** in this section can be found at the end of the section of the catalogue headed 'Conditions of Sale'.

◦

Christie's has a direct financial interest in the **lot**. See Important Notices and Explanation of Cataloguing Practice.

△

Owned by Christie's or another **Christie's Group** company in whole or part. See Important Notices and Explanation of Cataloguing Practice.

◆

Christie's has a direct financial interest in the **lot** and has funded all or part of our interest with the help of someone else. See Important Notices and Explanation of Cataloguing Practice.

λ

Artist's Resale Right. See Section D3 of the Conditions of Sale.

•

Lot offered without **reserve** which will be sold to the highest bidder regardless of the pre-sale estimate in the catalogue.

~

Lot incorporates material from endangered species which could result in export restrictions. See Section H2(b) of the Conditions of Sale.

ψ

Lot containing jadeite and rubies from Burma or of indeterminate origin. See Section H2(d) of the Conditions of Sale.

?, *, Ω, α, #, ‡

See VAT Symbols and Explanation.

■

See Storage and Collection Pages on South Kensington sales only.

Please note that **lots** are marked as a convenience to you and we shall not be liable for any errors in, or failure to, mark a **lot**.

IMPORTANT NOTICES AND EXPLANATION OF CATALOGUING PRACTICE

CHRISTIE'S INTEREST IN PROPERTY CONSIGNED FOR AUCTION

△ **Property Owned in part or in full by Christie's**
From time to time, Christie's may offer a **lot** which it owns in whole or in part. Such property is identified in the catalogue with the symbol △ next to its **lot** number.

◦ **Minimum Price Guarantees**

On occasion, Christie's has a direct financial interest in the outcome of the sale of certain lots consigned for sale. This will usually be where it has guaranteed to the Seller that whatever the outcome of the auction, the Seller will receive a minimum sale price for the work. This is known as a minimum price guarantee. Where Christie's holds such financial interest we identify such **lots** with the symbol ◦ next to the **lot** number.

◦◆ **Third Party Guarantees/Irrevocable bids**

Where Christie's has provided a Minimum Price Guarantee it is at risk of making a loss, which can be significant, if the **lot** fails to sell. Christie's therefore sometimes chooses to share that risk with a third party. In such cases the third party agrees prior to the auction to place an irrevocable written bid on the **lot**. The third party is therefore committed to bidding on the **lot** and, even if there are no other bids, buying the **lot** at the level of the written bid unless there are any higher bids. In doing so, the third party takes on all or part of the risk of the **lot** not being sold. If the **lot** is not sold, the third party may incur a loss. **Lots** which are subject to a third party guarantee arrangement are identified in the catalogue with the symbol ◦◆.

The third party will be remunerated in exchange for accepting this risk based on a fixed fee if the third party is the successful bidder or on the final hammer price in the event that the third party is not the successful bidder. The third party may also bid for the **lot** above the written bid. Where it does so, and is the successful bidder, the fixed fee for taking on the guarantee risk may be netted against the final **purchase price**.

Third party guarantors are required by us to disclose to anyone they are advising their financial interest in any **lots** they are guaranteeing. However, for the avoidance of any doubt, if you are advised by or bidding through an agent on a **lot** identified as being subject to a third party guarantee you should always ask your agent to confirm whether or not he or she has a financial interest in relation to the **lot**.

Other Arrangements

Christie's may enter into other arrangements not involving bids. These include arrangements where Christie's has given the Seller an Advance on the proceeds of sale of the **lot** or where Christie's has shared the risk of a guarantee with a partner without the partner being required to place an irrevocable written bid or otherwise participating in the bidding on the **lot**. Because such arrangements are unrelated to the bidding process they are not marked with a symbol in the catalogue.

Bidding by parties with an interest

In any case where a party has a financial interest in a **lot** and intends to bid on it we will make a saleroom announcement to ensure that all bidders are aware of this. Such financial interests can include where beneficiaries of an Estate have reserved the right to bid on a **lot** consigned by the Estate or where a partner in a risk-sharing arrangement has reserved the right to bid on a **lot** and/or notified us of their intention to bid.

Please see <http://www.christies.com/financial-interest/> for a more detailed explanation of minimum price guarantees and third party financing arrangements.

Where Christie's has an ownership or financial interest in every **lot** in the catalogue, Christie's will not designate each **lot** with a symbol, but will state its interest in the front of the catalogue.

POST 1950 FURNITURE

All items of post-1950 furniture included in this sale are items either not originally supplied for use in a private home or now offered solely as works of art. These items may not comply with the provisions of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended in 1989 and 1993, the 'Regulations'). Accordingly, these items should not be used as furniture in your home in their current condition. If you do intend to use such items for this purpose, you must first ensure that they are reupholstered, restuffed and/or recovered (as appropriate) in order that they comply with the provisions of the Regulations.

BOOKS

If, on collation, any named item in this catalogue proves defective in text or illustration, the lot may be returned within 14 days of the sale with the defect stated in writing. This proviso shall not apply to defects stated in the catalogue or announced at the time of sale; nor to the absence of blanks, half titles, tissue guards or advertisements, damage in respect of bindings, stains, spotting, marginal tears, or other defects not affecting completeness of text or illustration; nor to drawings, autographs, letters or manuscripts, signed photographs, music, atlases, maps or periodicals; nor to books not identified by title; nor to lots sold without printed estimates or described in the catalogue as sold not subject to return.

Buyers are advised to clear their lots within ten days of the sale or storage charges will be incurred.

Please note the Conditions of Sale printed at the end of this catalogue.

STORAGE AND COLLECTION

STORAGE AND COLLECTION

All furniture and carpet lots (sold and unsold) not collected from Christie's by **9.00 am** on the day following the auction will be removed by Cadogan Tate Ltd to their warehouse at: 241 Acton Lane, Park Royal, London NW10 7NP
 Telephone: +44 (0)800 988 6100
 Email: collections@cadogantate.com.
 While at King Street lots are available for collection on any working day, 9.00 am to 4.30 pm. Once transferred to Cadogan Tate, lots will be available for collection from 12 noon on the second business day following the sale. To avoid waiting times on collection at Cadogan Tate, we advise that you contact Cadogan Tate directly, 24 hours in advance, prior to collection on +44 (0)800 988 6100.

SHIPPING AND DELIVERY

Christie's Art Transport can organise local deliveries or international freight. Please contact them on +44 (0)20 7389 2712 or artransport_london@christies.com.

To ensure that arrangements for the transport of your lot can be finalised before the expiry of any free storage period, please contact Christie's Art Transport for a quote as soon as possible after the sale. As storage is provided by a third party, storage fees incurred while transport arrangements are being finalised cannot be waived.

PAYMENT

Cadogan Tate Ltd's storage charges may be paid in advance or at the time of collection. Lots may only be released from Cadogan Tate Ltd's warehouse on production of the 'Collection Order' from Christie's, 8 King Street, London SW1Y 6QT. The removal and/or storage by Cadogan Tate of any lots will be subject to their standard Conditions of Business, copies of which are available from Christie's, 8 King Street, London SW1Y 6QT. Lots will not be released until all outstanding charges due to Christie's and Cadogan Tate Ltd are settled.

POST-WAR & CONTEMPORARY ART

To avoid waiting times on collection, we kindly advise you to contact our Post-War & Contemporary Art dept 24 hours in advance on +44 (0)20 7389 2958

BOOKS

Please note that all lots from book department sales will be stored at Christie's King Street for collection and not transferred to Cadogan Tate.

EXTENDED LIABILITY CHARGE

From the day of transfer of sold items to Cadogan Tate Ltd, all such lots are automatically insured by Cadogan Tate Ltd at the sum of the hammer price plus buyer's premium. The Extended Liability Charge in this respect by Cadogan Tate Ltd is 0.6% of the sum of the hammer price plus buyer's premium or 100% of the handling and storage charges, whichever is smaller.

Christie's Fine Art Storage Services (CFASS) also offers storage solutions for fine art, antiques and collectibles in New York and Singapore FreePort. CFASS is a separate subsidiary of Christie's and clients enjoy complete confidentiality. Visit www.cfass.com for charges and other details.

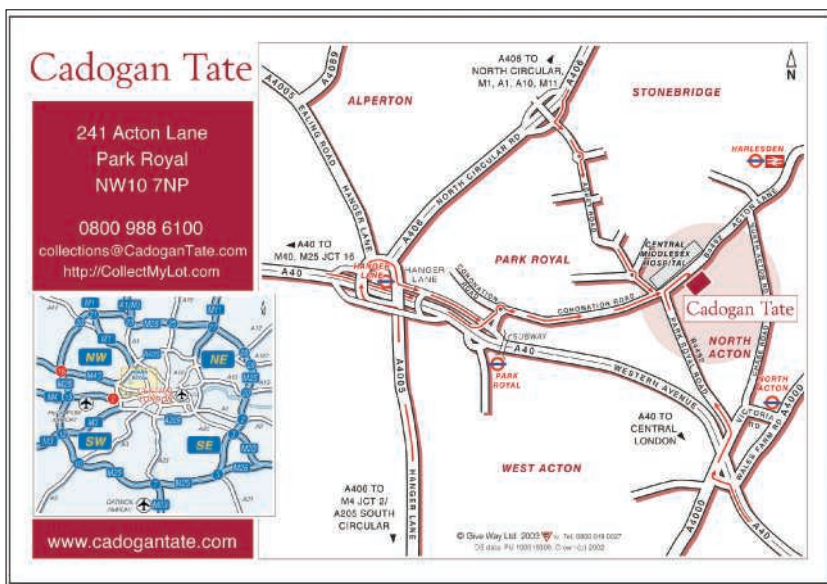
TRANSFER, STORAGE & RELATED CHARGES

CHARGES PER LOT	FURNITURE / LARGE OBJECTS	PICTURES / SMALL OBJECTS
1-28 days after the auction	Free of Charge	Free of Charge
29th day onwards:		
Transfer	£70.00	£35.00
Storage per day	£5.25	£2.65

Transfer and storage will be free of charge for all lots collected before 5.00 pm on the 28th day following the auction. Thereafter the charges set out above will be payable.

These charges do not include:

- a) the Extended Liability Charge of 0.6% of the hammer price, capped at the total of all other charges
- b) VAT which will be applied at the current rate



CADOGAN TATE LTD'S WAREHOUSE
 241 Acton Lane,
 Park Royal,
 London NW10 7NP
 Telephone: +44 (0)800 988 6100
 Email: collections@cadogantate.com

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29/04/16



Das Ergebnis der Befruchtung lässt sich dadurch anschaulich machen, dass die Bezeichnungen für die verbundenen Keim- und Pollenzellen in Bruchform angesetzt werden, und zwar für die Pollenzellen über, für die Keimzellen unter dem Striche. Man erhält in dem vorliegenden Falle:

$$\frac{A}{A} + \frac{A}{a} + \frac{a}{A} + \frac{a}{a}$$

Bei dem ersten und vierten Gliede sind Keim- und Pollenzellen gleichartig, daher müssen die Producte ihrer Verbindung constant sein, nämlich A und a ; bei dem zweiten und dritten hingegen erfolgt abermals eine Vereinigung der beiden differirenden Stamm-Merkmale, daher auch die aus diesen Befruchtungen hervorgehenden Formen mit der Hybride, von welcher sie abstammen, ganz identisch sind. Es findet demnach eine wiederholte Hybridisirung statt. Darans erklärt sich die auffallende Erscheinung, dass die Hybriden im Stande sind, nebst den beiden Stammformen auch Nachkommen zu erzeugen, die ihnen selbst gleich sind; $\frac{A}{a}$ und $\frac{a}{A}$ geben beide dieselbe Verbindung Aa , da es, wie schon früher angeführt wurde, für den Erfolg der Befruchtung keinen Unterschied macht, welches von den beiden Merkmalen der Pollen- oder Keimzelle angehört. Es ist daher

$$\frac{A}{A} + \frac{A}{a} + \frac{a}{A} + \frac{a}{a} = A + 2Aa + a.$$

So gestaltet sich der mittlere Verlauf bei der Selbstbefruchtung der Hybriden, wenn in denselben zwei differirende Merkmale vereinigt sind. In einzelnen Blüthen und an einzelnen Pflanzen kann jedoch das Verhältniss, in welchem die Formen der Reihe gebildet werden, nicht unbedeutende Störungen erleiden. Abgesehen davon, dass die Anzahl, in welcher beiderlei Keimzellen im Fruchtknoten vorkommen, nur im Durchschnitte als gleich angenommen werden kann, bleibt es ganz dem Zufalle überlassen, welche von den beiden Pollenarten an jeder einzelnen Keimzelle die Befruchtung vollzieht. Deshalb müs-

sen die Einzelwerthe nothwendig Schwankungen unterliegen, und es sind selbst extreme Fälle möglich, wie sie früher bei den Versuchen über die Gestalt der Samen und die Färbung des Albumens angeführt wurden. Die wahren Verhältnisszahlen können nur durch das Mittel gegeben werden, welches aus der Summe möglicher vieler Einzelwerthe gezogen wird; je grösser ihre Anzahl, desto genauer wird das bloss Zufällige eliminirt.

Die Entwicklungsreihe für Hybriden, in denen zweierlei differirende Merkmale verbunden sind, enthält unter 16 Individuen 9 verschiedene Formen, nämlich: $AB + Ab + aB + ab + 2ABb + 2aBb + 2Aab + 2Aab + 4Aab$. Zwischen den verschiedenen Merkmalen der Stammpflanzen A , a und B , b sind 4 constante Combinationen möglich, daher erzeugt auch die Hybride die entsprechenden 4 Formen von Keim- und Pollenzellen: AB , Ab , aB , ab , und jede davon wird im Durchschnitte 4mal in Befruchtung treten, da in der Reihe 16 Individuen enthalten sind. Daher nehmen an der Befruchtung Theil die

$$\text{Pollenzellen: } AB + AB + AB + AB + Ab + Ab + Ab + Ab + aB + aB + aB + aB + ab + ab + ab + ab.$$

$$\text{Keimzellen: } AB + AB + AB + AB + Ab + Ab + Ab + Ab + aB + aB + aB + aB + ab + ab + ab + ab.$$

Im mittleren Verlaufe der Befruchtung verbindet sich jede Pollenform gleich oft mit jeder Keimzellform, daher jede von den 4 Pollenzellen AB einmal mit einer von den Keimzellen AB , Ab , aB , ab . Genau eben so erfolgt die Vereinigung der übrigen Pollenzellen von den Formen Ab , aB , ab mit allen andern Keimzellen. Man erhält demnach:

$$\frac{AB}{AB} + \frac{AB}{Ab} + \frac{AB}{aB} + \frac{AB}{ab} + \frac{Ab}{AB} + \frac{Ab}{Ab} + \frac{Ab}{aB} + \frac{Ab}{ab} + \frac{aB}{AB} + \frac{aB}{Ab} + \frac{aB}{aB} + \frac{aB}{ab} + \frac{ab}{AB} + \frac{ab}{Ab} + \frac{ab}{aB} + \frac{ab}{ab}$$

$$\text{oder}$$

$$AB + ABb + AaB + AaBb + ABb + Ab + aBb + Aab + AaB + AaBb + aB + aBb + AaBb + Aab + aBb + ab + AB + Ab + aB + ab + 2ABb + 2aBb + 2Aab + 2Aab + 4AaBb.$$

In ganz ähnlicher Weise erklärt sich die Entwicklungsreihe der Hybriden, wenn in denselben dreierlei differirende Merkmale

JOHANN GREGOR MENDEL

'Versuche über Pflanzen-Hybriden'. Offprint from: *Verhandlungen des naturforschenden Vereines in Brünn*.

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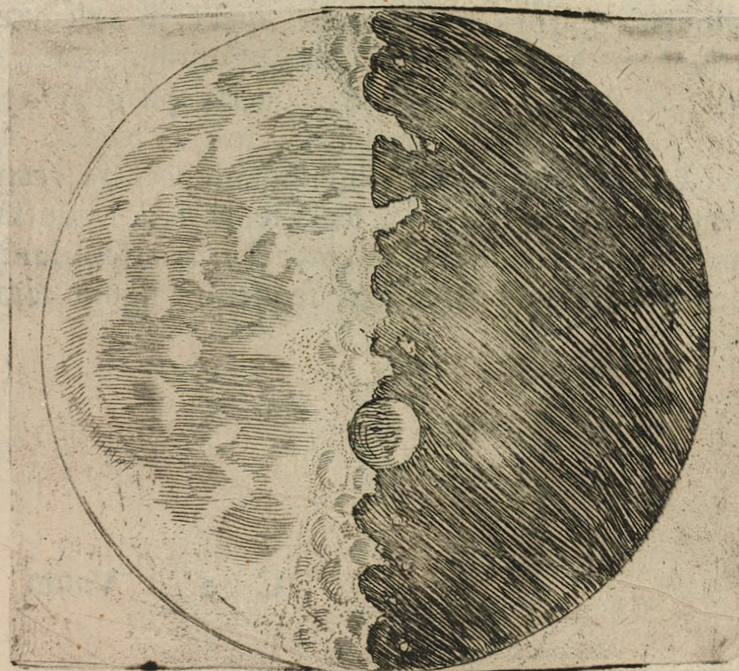
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 is nutrimentum destinantur. Vides hic quoque quomodo Mare ventis et aeris pressura
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