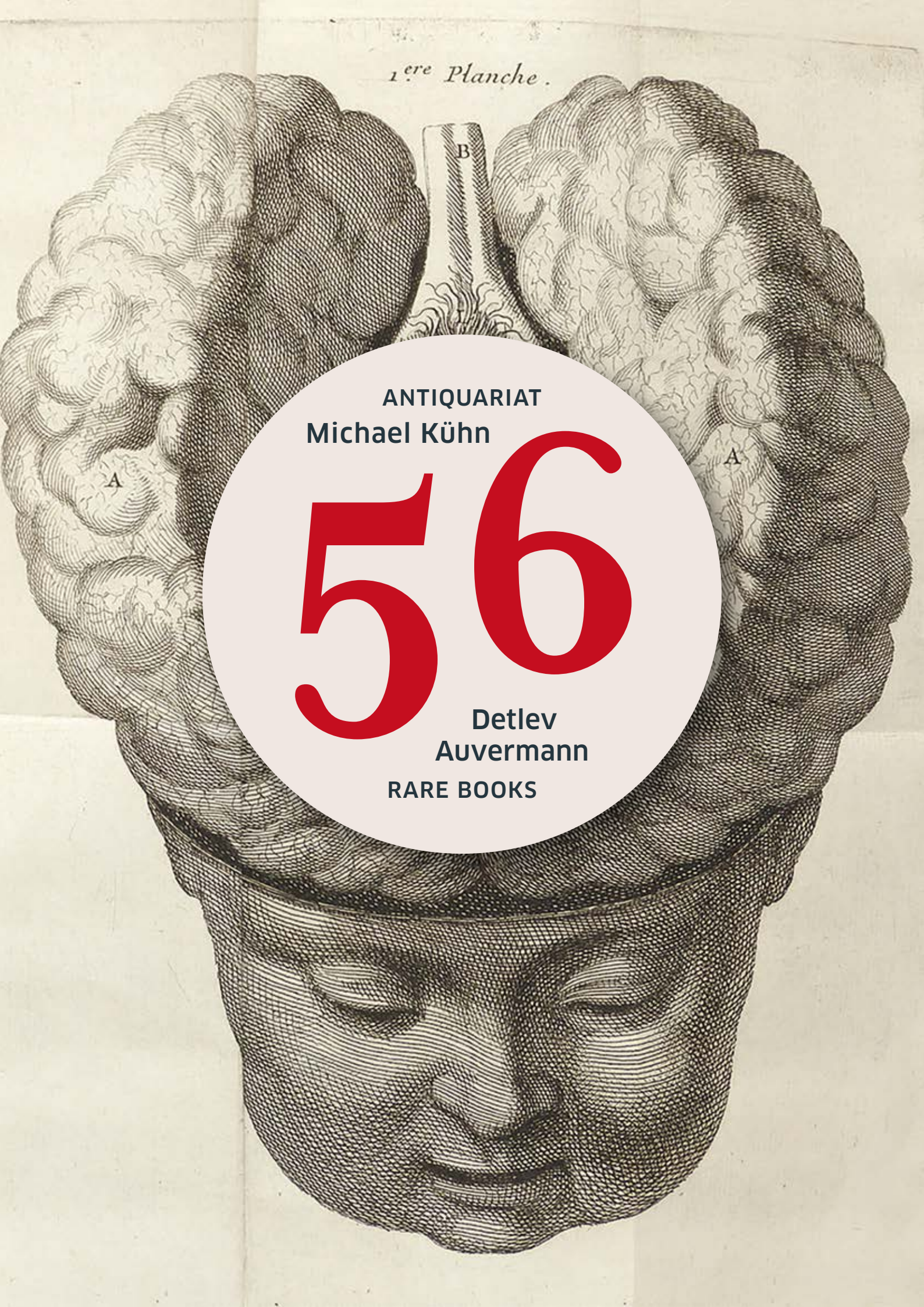


ANTIQUARIAT
Michael Kühn

56

Detlev
Auvermann
RARE BOOKS

Avogadro's Law


FISICA

DE' CORPI PONDERABILI

O SIA

TRATTATO

DELLA COSTITUZIONE GENERALE DE' CORPI

DEL CAVALIERE

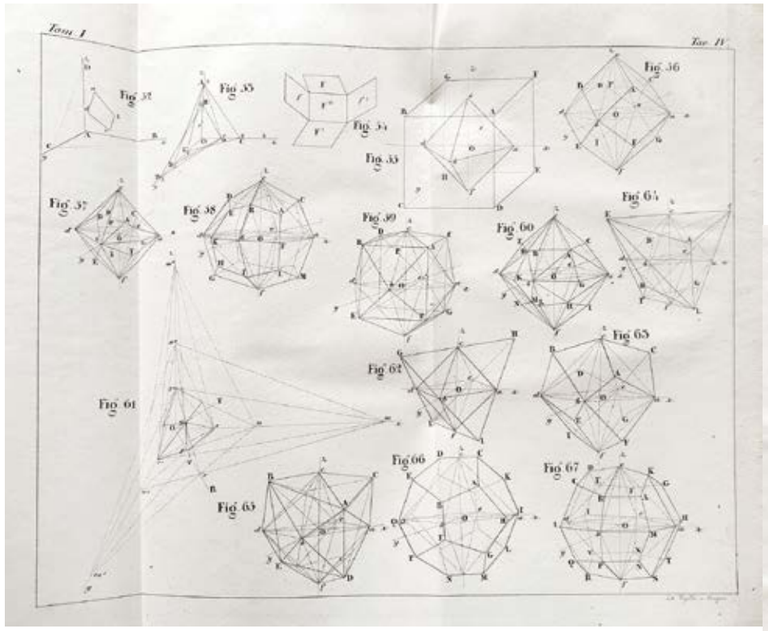
AMEDEO AVOGADRO

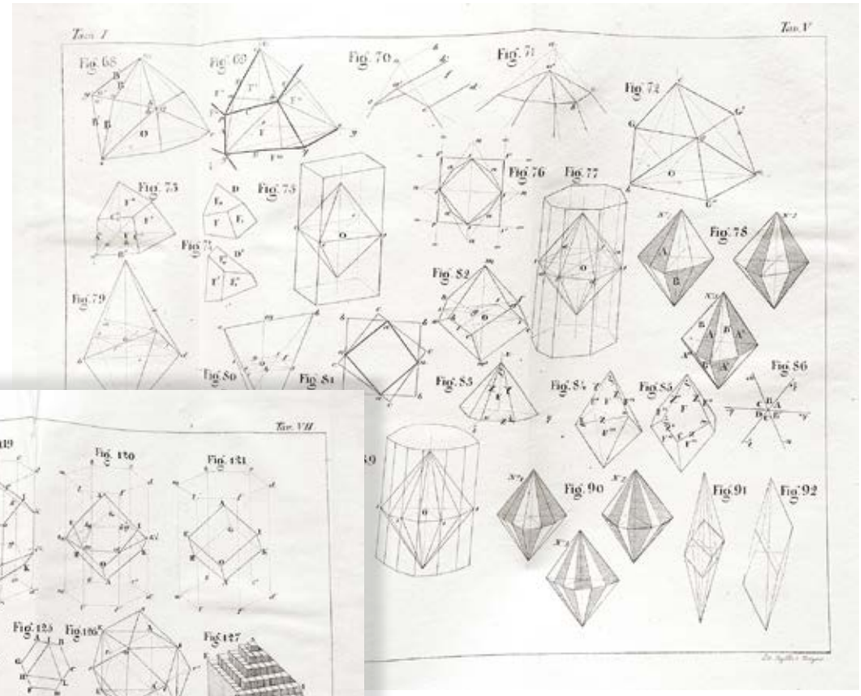
DELL' ORDINE CIVILE DI SAVOIA

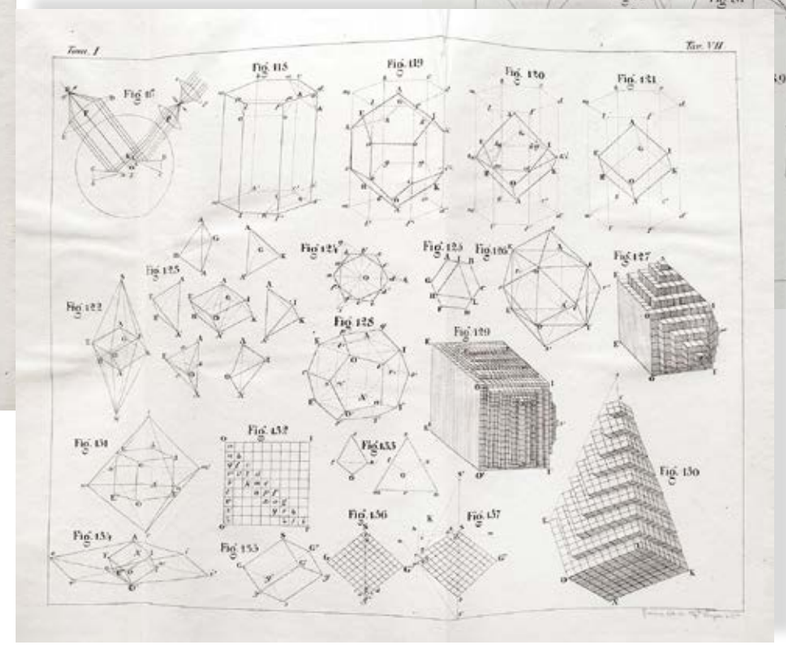
TOMO I.°

TORINO

1837.







AVOGADRO, Amadeo.

Fisica de' Corpi Ponderabili ossia Trattato della Costituzione Generale de' Corpi del Cavaliere. Turin, Stamperia Reale, 1837–41. Four volumes, 8vo, pp. [vi], XXXI, [1], 910; [ii], 980, [2]; [ii], XIII, [1], 932, [2]; XIII, [1], 926, [2], LIII, [1], [2], and 18 folding lithographed plates; an exceptionally fine set in contemporary half calf; one lower joint with a short crack at foot; bookplate of 'Prof. Giovanni Ferraris' on paste-downs.

EUR 22.000.-

First edition, a very fine copy in the original state, of one of the great rarities of chemistry.

This monumental work is the only large-scale publication of Avogadro (1776–1856), famous for his eponymous hypothesis (1811) that equal volumes of all gases at the same pressure and temperature contain the same number of molecules. Although his molecular hypothesis is widely considered to be Italy's great contribution to chemistry in the 19th century, his 1811 memoir was largely ignored for another half century, partly because it was published first in Italian (when Italy was at the periphery of scientific research) and subsequently only in minor French, German and English scientific journals. Emil Offenbacher, the distinguished dealer who specialized in chemistry, wrote (cat. 39, item 4, 1986) 'a complete set [of the present work] is today of great rarity'.

The purpose of the Fisica was clearly outlined in the dedication (vol. I, p. ii): 'In my studies I especially pursued that section of physics dealing with the general constitution of ponderable bodies and, accordingly, with the quality of their component molecules, with the forces by which these molecules are stimulated, and with the capacities of different bodies for caloric, and with the density and elastic forces of their vapors.' For Avogadro, 'ponderable bodies' were formed by tightly joined molecules having a sensible mass; 'imponderable fluids,' on the other hand, were diffused everywhere in space, surrounding molecules of ponderable bodies and subject to vibrational motion. These fluids were of two types: the first, which included electricity and magnetism, moved around the molecules of sensible bodies, adhered to their surfaces, caused them to move, but did not have any influence on their constitution; the second, which included caloric and light, were thought to be either single molecules which gathered around ponderable molecules but did not cause them to move, or fluids which were diffused everywhere in space, but were possibly subject to vibrational motion extending from one ponderable particle to the next. The first volume covered the structure of matter at a given temperature. Avogadro set out his ideas concerning molecular structure, and then discussed mathematical and mechanical problems involving the equilibrium of molecular forces with external forces. He used Poisson's theory of the attractive and repulsive forces acting on molecules to examine the interaction between two adjacent molecules and the caloric molecules surrounding them. 'The importance of this discussion cannot be over-emphasized. It provided a detailed exposition of Avogadro's system of molecular forces and actions, as functions of a molecule's distance, form and number' (Morselli, p. 306). Almost two-thirds of the first volume is devoted to the study of crystallization. He examined in great detail how the form of crystals could be related to the structure of the elementary molecules.

The first section of the second volume was devoted to the constitution of liquids, particularly capillarity. The second section dealt with the constitution of gases and air-like fluids, beginning with the study of air and barometric pressure, followed by a description of the experimental methods adopted by Boyle and Mariotte which led them to 'Boyle's law.' 'The discussion … introduced Avogadro's explanation of the behavior of gaseous substances and strikingly illustrated the conceptual path by which, in 1811, he had formulated his hypothesis' (Morselli, pp. 310-311).

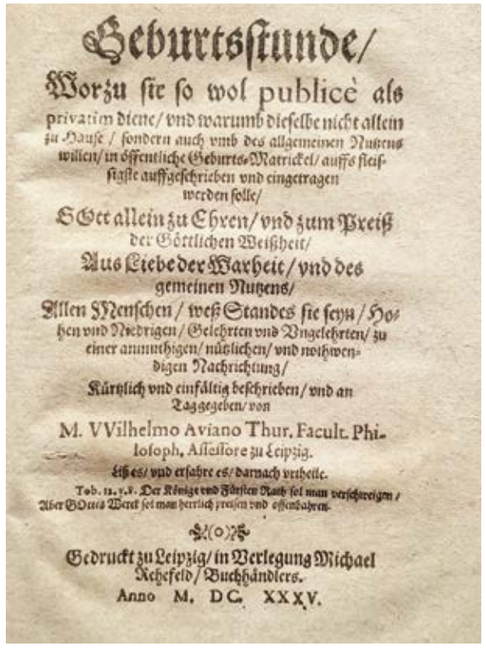
The third volume treated the influence of temperature on the constitution of bodies. The first of its two books examined the concepts of caloric and temperature and their relationship, and reviewed the specific heats of gaseous and non-gaseous bodies and their temperature dependence. The second book treated the effect of temperature on the volume of bodies, and the laws of expansion and condensation of solids and liquids.

Volume Four continued Avogadro's discussion of the influence of temperature on the constitution of bodies, particularly the theory of evaporation and condensation. He discussed the densities of vapors and their relationship to the densities of the liquids producing them, as well as the absorption and evolution of heat observed in the dissolution of solids.

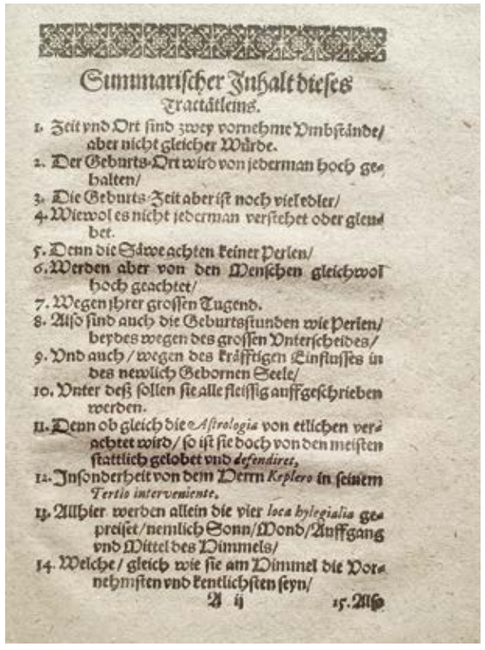
'A work of such magnitude (almost 4000 pages) on physics had never before been published in Italy. In this sense, it represents a landmark for the historian of Italian science' (Morselli, p. 303).

'Avogadro's hypothesis began to gain broad appeal among chemists only after his compatriot and fellow scientist Stanislao Cannizzaro demonstrated its value in 1858, two years after Avogadro's death. Many of Avogadro's pioneering ideas and methods anticipated later developments in physical chemistry. His hypothesis is now regarded as a law, and the value known as Avogadro's number (6.02214179 × 1023), the number of molecules in a gram molecule, or mole, of any substance, has become a fundamental constant of physical science" (Britannica).

Norman 89; Honeyman 168; see Morselli, Amedeo Avogadro: a scientific biography, 1984, chapter 7, for a very detailed analysis of the present work).



Geburtsstunde/
Worzu sie so wol publicè als
privatim diene/ vnd warumb dieselbe nicht allein
zu Hause / sondern auch vmb des allgemeinen Nutzens
willen/ in öffentliche Geburts-Matrickel/ auffs fleis-
sigste auffgeschrieben vnd eingetragen
werden solle/
GOtt allein zu Ehren/ vnd zum Preiß
der Göttlichen Weißheit/
Aus Liebe der Warheit/ vnd des
gemeinen Nutzens/
Allen Menschen/ weß Standes sie seyn/ Ho-
hen vnd Nidrigen/ Gelehrten vnd Vngelehrten/ zu
einer anmuthigen/ nützlichen/ vnd nothwen-
digen Nachrichtung/
Kürtzlich vnd einfältig beschrieben/ vnd an
Tag gegeben/ von
M. VVilhelmo Aviano Thur. Facult. Phi-
loſoph. Aſſeſſore zu Leipzig.
Eilets/ vnd erfahre es/ darnach vrtheile.
Tob. 12. v. 7. Der Könige vnd Fürsten Rath sol man verschweigen/
Aber GOttes Werck sol man herrlich preisen vnd offenbahren.
Gedruckt zu Leipzig/ in Verlegung Michael
Rehefeld/ Buchhändlers.
Anno M. DC. XXXV.



Summarischer Inhalt dieses
Tractätleins.
1. Zeit vnd Ort sind zwey vornehme Vmbstände/
aber nicht gleicher Würde.
2. Der Geburts-Ort wird von jederman hoch ge-
halten/
3. Die Geburts-Zeit aber ist noch viel edler/
4. Wiewol es nicht jederman verstehet oder gleu-
bet.
5. Denn die Säwe achten keiner Perlen/
6. Werden aber von den Menschen gleichwol
hoch geachtet/
7. Wegen jhrer grossen Tugend.
8. Alſo sind auch die Geburtsstunden wie Perlen/
beydes wegen des grossen Vnterscheides/
9. Vnd auch/ wegen des kräfftigen Einflusses in
des newlich Gebornen Seele/
10. Vnter deß sollen sie alle fleissig auffgeschrieben
werden.
11. Denn ob gleich die *Astrologia* von etlichen ver-
achtet wird/ so ist sie doch von den meisten
stattlich gelobet vnd *defendiret*,
12. Insonderheit von dem Herrn *Keplero* in seinem
Tertio interveniente.
13. Allhier werden allein die vier *loca hylegialia* ge-
preiset/ nemlich Sonn/ Mond/ Auffgang
vnd Mittel des Himmels/
14. Welche/ gleich wie sie am Himmel die Vor-
nehmsten vnd kentlichsten seyn/
A ij 15. Alſo

AVIANUS, Wilhelm.

Geburtsstunde, Worzu sie so wol publicè als privatim diene, und warum dieselbe nicht allein zu Hause, sondern auch umb des allgemeinen Nutzens willen, in öffentliche Geburts- Matrickel, auffs fleissigste auffgeschrieben und eingetragen werden solle. Leipzig, Michael Rehefeld, 1635. 4to, ff. [28]; lightly browned, else a very good copy in modern patterned boards.

EUR 4.000.-

First edition of this rare and unusual astrological treatise by the Leipzig mathematician and scientist, a pupil of the mathematician Adam Riese, and a correspondent of Kepler.

An instructional manual for the casting and recording of natal charts both for private, as well as public or official purpose, Avianus leads the reader via 78 separate steps from the basic understanding of astrology towards deeper knowledge, and eventually calculation. The opening statement establishes time and place as separate and 'superior' or ruling circumstances, with the place corresponding to the 'earthly, and visible', and time to the 'heavenly, and invisible'. He discusses and explains compatibilities and affinities regarding partnership, fertility and pregnancy.
An admirer of Kepler who, together with his Harmonices mundi, is here mentioned at various instances, as is his Avianus' final, 78th, step takes the form of a homage to the great astronomer and astrologer.

Kepler communicated with Avianus on astrology in a lengthy letter on March 6, 1629. He there expressed the desire to meet at Leipzig in the following year. Kepler is said to have held Avianus in great esteem (see Jöcher, Gelehrtenlexikon I, 647). Avianus' mathematical works Decas Problematum Mathematicorum and Problema Geographico-Trigonometricum de mensurandis distantijs locorum were printed in 1623 and 1624 respectively; his De motu proprio stellarum in 1623, and his star catalogue in 1629.

This work appears to have been of some interest at the time. It was reprinted twice some 30 years after the author's death.- Cantamessa 521; VD17 14:073009M; OCLC locates five copies in Germany, at the Staatsbibliothek Berlin, Thüringen, Sächsische Landesbibliothek, Leipzig, and Nuremberg; the only copy outside Germany appears to that held at the National Library of Sweden.

BAIER, Johann Jacob.

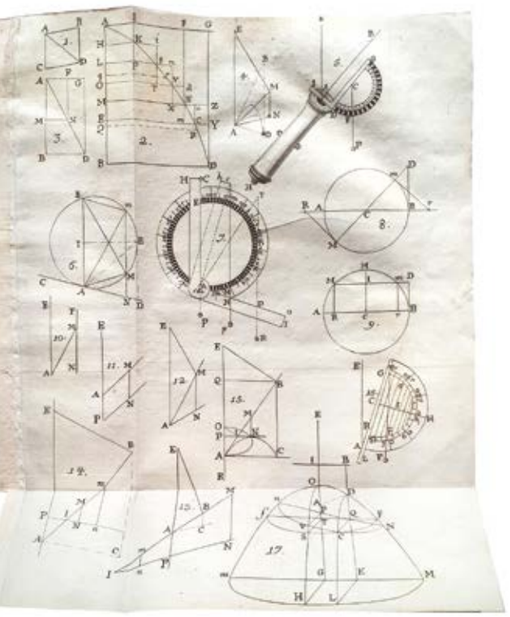
Monumenta rerum petrificatarum praecipua Oryctographiae Noricae supplementi loco iungenda interprete filio Ferdinando Iacobo Baiero. Nuremberg, Georg Lichtensteger, 1757. [bound with:] BAIER, Johann Jacob. Oryctographia Norica sive rerum fossilium et ad minerale regnum pertinentum in territorio Norimbergbensi eiusque vicinia observatarum succincta descriptio … Nuremberg, Wolffgang Schwarzkopff, 1758. Together two works in one vol., folio, pp. [iv], 20, with fifteen engraved plates, six double-page; pp. [iv], 65, [3], with a large engraved title-vignette, and eight engraved plates; short tear to lower blank margin of one plate; a few notes in pencil; a very good, clean copy in 19th-century red sheep-baked marbled boards; spine rubbed, head of spine a little worn.

EUR 5.600.-

An excellent copy of this work on fossils by the Nuremberg physician and geologist Johann Jacob Baier, originally published in 1708 with six plates only, and here bound after the first edition of his son, Ferdinand Jacob's, important supplement.

'Baier was the son of Johann Wilhelm Baier, professor of Protestant theology at the University of Jena, and Anna Katharine Musaeus. After private tutoring he matriculated in 1693 at University of Jena, where he dutifully studied philosophy, classical languages, mathematics, medicine, and natural science. During 1699 and 1700 he travelled in northern Germany and in the Baltic Sea provinces to Riga and Dorpat, enriching his knowledge by conversations with other scholars and by examining collections and visiting libraries. In 1700 he finished his studies and war awarded the degrees of M.A., Ph.D., and M.D … He settled in 1701 as a practicing physician in Nuremberg. In 1708 he became a member of the Leopoldina (Academy of Natural Scientists) and in 1730 was chosen its president.
Baier's scientific fame today does not rest on his medical investigations, but on his studies of minerals and fossils. At that time the natural sciences could be pursued only within the framework of medicine: oryctography, comprising geology and palaeontology, was at the very beginning of its development. Baier's Oryctographia norica (1708) was a new, systematic presentation based on his own studies. The work contributed much to disproving the idea that fossils were a mere sport of nature. By means of exact descriptions and good illustration he laid the foundations for the investigation of Jurassic fauna and of scientific palaeontology in general. Instead of theory, he clearly presented what could be observed. He believed that the earth had been created in one act and that the Deluge was the only great change since the Creation.
His exact foundation work, however, helped to prepare the ground for the next generation to determine historically the geological structure of mountains and to transform oryctography into geology' (Encyclopedia.com).
The supplement by Baier's son, Ferdinand Jacob (1707–1788), contains additional observations, referring to specific pages and plates in the first book, including identifications of the objects – mainly fossils, including many shells of molluscs and brachiopods – shown on the eight plates of his father's work, plus his own, new series of fifteen superbly engraved plates. The 15 new plates show a wider variety of fossils and pseudo-fossils, and include fish, crustaceans, and more molluscs. Nissen, ZBI, 189 and 191; Ward & Carrozzi, 97 and 99.

The Dynamics of a Material Point



BOSCOVICH, Ruggiero Giuseppe.

De Motu Corporum Projectorum in Spatio non resistente Dissertatio … Rome, Antonio de Rubeis, 1740.
4to, pp. 22, with ornamental title woodcut, one large woodcut head-piece, and one folding engraved plate with 17 diagrams; a beautiful copy in contemporary brocade paper over thin paper boards.

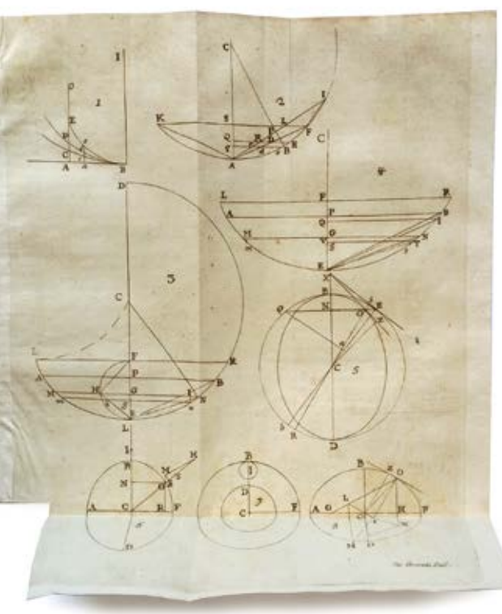
EUR 4.000.-

First edition of Boscovich's important treatise on the motion of bodies projected in a space without resistance, and a treatise still seemingly largely unstudied.

Boscovich opens the tract with a presentation of the Newtonian concept of inertia, or rather innate forces inherent in matter, pointing out the impossibility of proving it either by demonstration or though metaphysical explanation, with Newton himself treating the concept on a mathematical basis only, free of ponderings regarding cause or physical roots, in the Principia. Within this discussion of the dynamics of a material point Boscovich includes lemmas regarding the movement of bodies subject to gravity, as studied by Galileo, Torricelli Fermat, Ceva, and Newton, and studies of ballistics, such as Cassini's L'Art de jetter les Bombes.

Provenance: contemporary Italian – maybe authorial - presentation inscription on upper inner cover: 'Al R[everendissi]mo Mons[igno]re Willi Arcip[ret]e dellas S[anta] Congreg[azion]e S[an] Pier in Carn (?).

Proverbio, Catalogo delle opera a stampa di Ruggiero Boscovich (1711–1787) 1_9; Riccardi I/1 173 9; outside Italy OCLC locates copies at ETH Zurich, and Smithsonian, Columbia, and University of California, Berkeley, for the US.



BOSCOVICH, Ruggiero Giuseppe.

De Inaequalitate Gravitatis in diversis Terrae Locis Dissertatio … Rome, Antonio de Rubeis, 1741.
4to, pp. 19, with a small woodcut ornament to title, a large woodcut head-piece and initial, and one folding engraved plate with 8 diagrams; the final leaf mounted on a stub and cut a little short at outer and lower margins; a clean, crisp copy in Italian patterned wrappers.

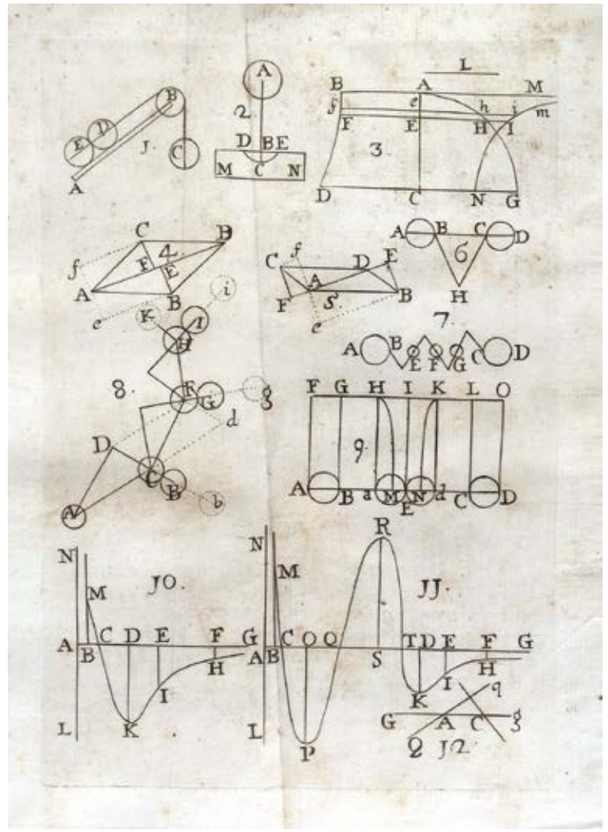
EUR 2.900.-

First edition of the great Croatian scientist's work on gravitational inequalities in different parts of the world.

'Among Croatian scientists, Boškovich stands out due to his incomparable work, which not only advanced science, but changed the scientific picture of the world … From an early age, Boškovich was interested in problems concerning the shape and size of the Earth (De veterum argumentis pro telluris sphaericitate – On the arguments of the ancients for the sphericity of Earth, 1739, Dissertatio de telluris figura – A dissertation on the shape of the Earth, 1739, and problems relating to Newton's theory of gravity De inequalitate gravitates in diversis terrae locis – On the inequality of gravity in diverse places on the Earth, 1741).
'In order to resolve these problems, along with theoretical research, Boškovich proposed to take measurements of meridian degrees at various points on the Earth's surface' (Miljenko Lapaine, Ruder Josip Boškovich and the 250th Anniversary of the Vienna Meridian Survey p. 87).

Proverbio, Catalogo delle opera a stampa di Ruggiero Boscovich (1711–1787) 1_11; Riccardi I/1 173 13 (misdated '1742'); outside Italy OCLC locates a single copy for the UK, at the Royal Institute of British Architects, and five for the US, at Oklahoma, University of California, Berkeley, Linda Hall; Brown University, and Columbia.

Precursor of Modern Atomic Theory



BOSCOVICH, Ruggere Giuseppe.

De viribus vivis dissertatio …. Rome, Komarek, 1745.
4to (240 x 175 mm), pp. XLIX, (1) with one fold. engraved plate. Paper card boards period style, new endpapers, fine almost uncut copy. Plate and last page printed on one sheet.

EUR 5.800.-

First edition, one of two issues, of Boscovich's earliest published work on his dynamic point theory, and which was the precursor to his great Philosophiae naturalis theoria redacta ad unicam legem virium in natura existentium (1758), a work considered as the 'birth of atomic physics' and praised by Faraday, Maxwell, and Heisenberg. Boscovich stated in the Philosophiae naturalis theoria that his work originated in this 1745 publication. "The Theory of Natural Philosophy is now recognized as having exerted a fundamental influence on modern mathematical physics. As the title of his book implies, he considered that a single law was the basis of all natural phenomena and of the properties of matter; that the multiplicity of physical forces was only apparent and due to inadequate mathematical knowledge." (PMM)

Boscovich's 'heterodoxy in mechanics began to be apparent at least as early as 1745, when he published an important discourse on the subject of living force (vis viva) … This discourse contained the first statement of Boscovich's universal force law.

In 1745 Boškovic published De Viribus Vivis in which he tried to find a middle way between Isaac Newton's gravitational theory and Gottfried Leibniz's metaphysical theory of monad-points. He developed a concept of 'impenetrability' as a property of hard bodies which explained their behavior in terms of force rather than matter. Stripping atoms of their matter, impenetrability is disassociated from hardness and then put in an arbitrary relationship to elasticity. Impenetrability has a Cartesian sense that more than one point cannot occupy the same location at once. … It was because of its consequences for the constitution of matter that the law of forces was particularly important. In Boscovich's natural philosophy the "first elements" of matter became mere points – real, homogeneous, simple, indivisible, without extension, and distinguished from geometric points only by their possession of inertia and their mutual interaction. Extended matter then becomes the dynamic configuration of a finite number of centers of interaction. Many historians have seen in Boscovich's derivation of matter from forces an anticipation of the concept of the field, an anticipation still more clearly formulated very much later by Faraday in 1844. Matter, then, is not a continuum, but a discontinuum. Mass is the number of points in the volume, and drops out of consideration as an independent entity. In the special case of high-speed particles, Boscovich even envisaged the penetrability of matter' (Markovic in DSB).- Sommervogel I, 1832.22; Proverbio, Catalogo delle opera a stampa di Ruggiero Boscovich (1711–1787) 1_20; Riccardi I/1 174.21; outside Italy OCLC locates one copy in France, at the Bibliothèque Nationale, two in Germany, at Freiburg and Munich, one in Denmark, one in the Netherlands, one in Switzerland, at ETH Zurich, one for the UK, at Ushaw College Library, and seven copies for the US, at Burndy, Huntington, Smithsonian Institute, Harvard, Brown, Princeton, and American Philosophical Society.

A Traveller's Study of the Three Realms of Nature and a Rare Cookianum

BIRON, Claude.

Curiositez de la nature et de l'art, apportées dans deux voyages des Indes; l'un aux Indes d'Occident en 1698. & 1699. & l'autre aux Indes d'Orient en 1701. & 1702. Avec une Relation abregé de ces deux Voyages. Paris, Jean Moreau, 1703. 8vo, ff. [3], 23, [1], pp. 282, [4], with eight engraved plates, one folding; old collector's stamp to outer margin of title; four leaves at the beginning a bit stained in the margins; a very good copy in contemporary French calf, spine gilt, red leather label.

EUR 4.900.-

First edition, rather rare, of Biron's account of his two voyages to the Lesser Antilles and to India, including observations of curiosities, both natural and man-made, and one of the works known to have been with Sir Joseph Banks aboard the Endeavour. The first, brief log gives a synopsis of his journey to the West Indies, notably La Martinique and Guadeloupe, with special reference to samples of sulphur collected at La Soufrière on Basse-Terre, Guadeloupe, for analysis back in Paris. This is followed by a long letter received by Biron from the French physicist, numismatist and writer Pierre Le Lorrain, Abbé de Vallemont, prior to his second, longer journey encouraging him to thoroughly study the three realms of nature, with the specific request of recording anything of medical interest or application.

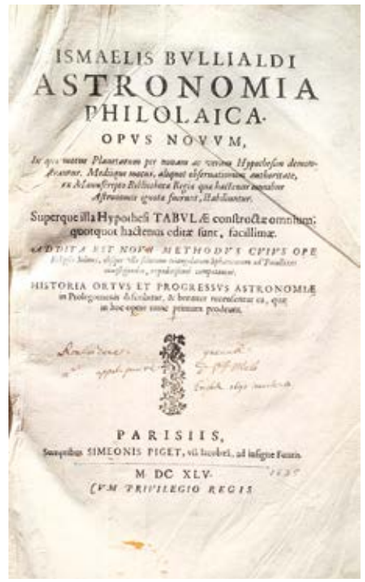
The section that follows describes the voyage around the Cape towards India aboard the French East India Company vessel Maurepas, accompanied by three other ships, the Pondichéri, the Bourbon, and the Marchand des Indes, with some detail on the various stops along the journey.

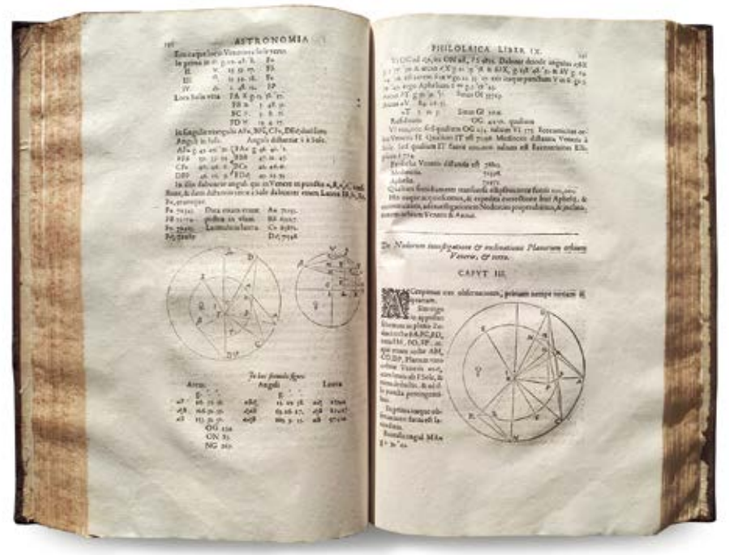
The remainder of the work describes a number of curiosities, herbs, stones, fruit, animals, man-made artefacts, etc. some of which are shown in the plates. There are notes on 'Terre de Patna', used in India to produce a fine earthenware, snake-, eagle- and smallpox stones and their purported properties as remedies, jade and jasper, lychee, mangosteen, star anise, aouara, macha mona (a sort of calabash), marine palms, bamboo, agarwood, tacamaca resin, mabouia wood, manatee stones, hummingbirds, the caiman, the rhino and the use of its parts in oriental materia medica, bezoar stones, etc. The folding plate shows a sculpture of Confucius with a pupil, not so much chosen for the rarity of imagery, but for the alabaster-like multi- coloured stone used in its making.

Full of interesting detail and curious information, Joseph Banks chose to carry a copy of the work on his journey to the Pacific on the Endeavour in 1768.

Provenance: Masonic ownership stamp 'Félix Debraise' below balance scales and the letters 'J L' to blank area of title.- Sabin 5582; Dryander, Catalogus Bibliothecae Historico-Naturalis Josephi Banks p. 87; the work is rather uncommon outside of France, with OCLC locating copies at Oxford, BL, Wellcome, and the Natural History Museum, London, for the UK, and Getty, Minnesota, John Carter Brown, Newberry, and New York Public for the US; a single copy is recorded for Australia, at the State Library of New South Wales.

The Most Important Work on Planetary Systems between Kepler and Newton


ISMAELIS BVLLIALDI
ASTRONOMIA
PHILOLAICA.
OPVS NOVVM,
Superque illa Hypothesi TABVLÆ constructæ omnium;
quotquot hactenus editæ sunt, facillimæ.
HISTORIA ORTVS ET PROGRESSVS ASTRONOMIÆ
PARISIIS,
M DC XLV.
CVM PRIVILEGIO REGIS


ASTRONOMIA
PHILOLAICA. LIBER IX.
CAPVT III.

BOULLIAU, Ismael.

Astronomia philolaica. Opus novum, in quo motus planetarum per novam ac veram hypothesim demonstrantur. Mediique motus, aliquot obseruationum authoritate, ex manuscripto Bibliothecae Regiae quae hactenus omnibus astronomis ignotae fuerunt, stabiliuntur ; superque illa hypothesi tabvlae constructae omnium, quotquot hactenus editae sunt, facillimae ; addita est nova methodvs cvivs ope eclipses solares, absque vlla solutione triangulorum sphaericorum ad parallaxes inuestigandas, expeditissimè computantur; historia ortvs et progressvs astronomiae in prolegomenis describitur, & breuiter recensentur ea, quae in hoc opere nunc primum prodeunt. Paris, Siméon Piget, 1645. Folio, pp. [1-2] 3-22 [2], [24]; 469, [1, blank]; 232 [tables]; the first 4 leaves repaired in the gutter; the title a bit creased; some crinkling in the gutter; an excellent, clean copy in contemporary calf, finely re-backed preserving the original spine.

EUR 19.500.-

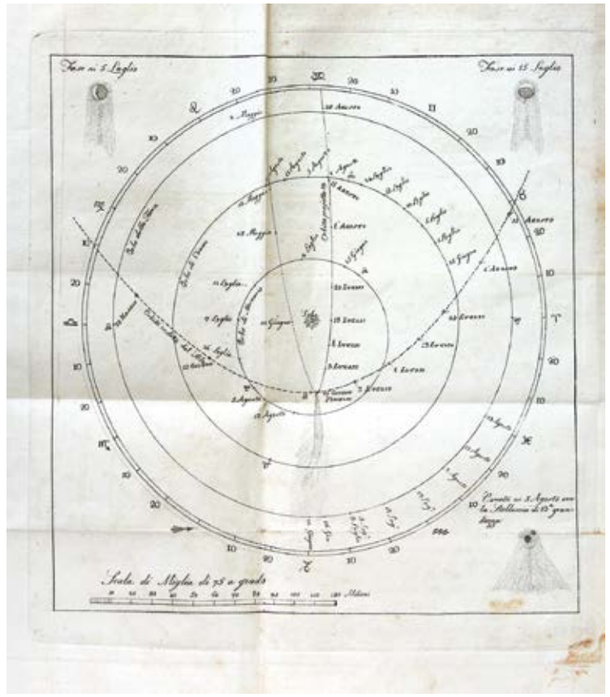
First edition, very rare, of 'the most important work on planetary systems between Kepler and Isaac Newton' (BEA), 'the first treatise after Kepler's Rudolphine tables to take elliptical orbits as a basis for calculating planetary tables' (Cambridge Companion to Newton), and the first to state that the planetary moving force 'should vary inversely as the square of the distance – and not, as Kepler had held, inversely as the first power' (DSB).

'An early Copernican and Keplerian, Ismael Boulliau was the most noted astronomer of his generation' (Biographical Encyclopedia of Astronomers). Newton read the present work closely and used it to rebut Robert Hooke's claim to have been the first to perceive the inverse-square law of gravity.

'Astronomia philolaica clearly extended awareness of planetary ellipses. Here Boulliau offered an entirely new cosmology, a "newer than new" alternative to Kepler's Astronomia nova. Boulliau began by attacking Kepler's cosmology at its very foundation, systematically undermining the physical principles on which Kepler based his calculations. Boulliau concluded that Kepler's celestial physics and calculational procedures were conjectural and cumbersome, unworthy of Kepler's genius. Critical of Kepler's assumptions and conclusions, Boulliau embraced elliptical orbits but insisted they could not be demonstrated by calculation alone. In place of Kepler's anima mortrix and "celestial figments," Boulliau argued it was simpler to assume that planets were self-moved, that their motion, imparted at creation, was conserved. In place of Kepler's indirect "a-geometrical methods" [the magnetic mechanisms hypothesized by Kepler to account for the eccentricity of the planetary orbits] Boulliau proposed direct calculation based on mean motion.

'Boulliau's solution to the "problem of the planets" was the conical hypothesis [described in the present work]. Because circles and ellipses are conic sections, Boulliau imagined that the planets moved along the surface of an oblique cone, each revolving in an elliptical orbit around the Sun located at the lower focus. By construction, the axis of the cone bisected the base, which at once defined the upper (empty) focus of the ellipse as well as an infinite number of circles parallel to the base. The position of a planet on the ellipse at any given time (Kepler's problem) was thus defined by an intersecting circle, and hence, at any given instant, the motion of the planet was uniform and circular around its center (Plato's Dictum). Where Kepler invoked a complex interplay of forces, Boulliau explained elliptical motion by reason of geometry; the planets naturally accelerated or decelerated due to the differing size of circles. Where Kepler employed indirect trial-and-error methods based on physics, Boulliau provided direct procedures based on geometrical principles. In context, Boulliau's conical hypothesis was elegant and practical. Kepler's construction – by contrast – was ingenious but useless … In his Principia (1687, Bk. III) Newton claimed that Kepler and Boulliau "above all others" had determined the periodic times of the planets with greatest accuracy" (BEA).- Sotheran I: 500 ('This important work according to Newton first mentions the sun's attraction, which decreases in inverse proportion to its distance'); Favaro, Bibliografia Galileiana 205; Wilson, 'From Kepler to Newton: Telling the Tale,' in Dalitz & Nauenberg (eds.), The Foundations of Newtonian Scholarship, 2000.

The Great Comet of July 1819 observed by Piazzi's Successor at the Royal Observatory, Palermo



CACCIATORE, Niccolò.

Della Cometa apparsa in luglio del 1819 osservazioni e risultati. [Palermo], della Reale Stamperia, 1819. 4to, pp. [iv], 72, with an engraved title vignette, one engraved head-piece, and a folding engraved plate; the first three or four leaves a little browned or spotted at upper blank margins; a few leaves near the end with a narrow wormtrack to inner margins; the plate with a short tear to blank area near the gutter, far away from the image, and a bit stained in the margins; a very good copy, printed on thick paper, in contemporary calf-backed boards; inner hinges a little weak and the binding lightly soiled and with a little wear to the extremities; presentation inscription in ink to front free end-paper.

EUR 1.800.-

First edition, very rare, of Cacciatore's observations of the comet of 1819, one of the finely produced publications printed by the Reale Stamperia on behalf of the observatory. Born at Casteltermini, Sicily, Niccolò Cacciatore (1770–1841) studied mathematics and physics at Palermo. He there became acquainted with Giuseppe Piazzi, head of the Palermo Astronomical Observatory. He became a graduate student at the observatory in 1798, and a member of staff in 1800. Cacciatore helped Piazzi compile the second edition of the Palermo Star Catalogue (1814), and in fact did the bulk of the work. He succeeded Piazzi as director in 1817, two years before the present publication.

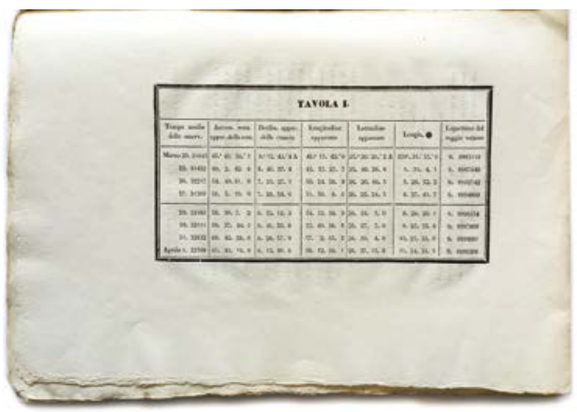
The Great Comet of 1819, an easily visible, exceptionally bright comet, was discovered on July 1, by Johann Georg Tralles in Berlin, Germany. Visible in Palermo only from July 3, Cacciatore began his observations on that date, ending on August 11, 1819. Besides extensive tables documenting the comet's progress and path, he records barometric readings, and temperature. On the same day that Cacciatore began his observations, François Arago analysed the light from the comet's tail using a polarimeter, and discovered that it was polarized. He then observed the nearest star, Capella, which did not show polarized light. This indicated that some light from the comet's tail was reflected from the sun. This marked the first polarimetric observation of a comet. The folding plate shows a detailed diagram of the comet's parabolic path, with two small images of its shape and appearance at top and one at lower right.- Provenance: front free end-paper inscribed 'Alla gentilissima Sig.ra D. na Caravina di Simone in testimonianza di stima e rispetto / l'Autore'. Outside Italy OCLC records a copy at the Royal Library, Denmark, and five copies for North America, at Stanford, Smithsonian, Harvard, Michigan, and Wisconsin.

The Great Comet of 1843

CALANDRELLI, Ignazio.

Sulla gran cometa apparsa nel marzo dell'anno 1843. Rome, Giovanni Olivieri, 1844. Folio, pp. [10], 79; an excellent copy in the original blue printed wrappers; presentation inscription to upper cover (see Provenance, below); the wrappers a little worn along spine; upper and lower margins of text and wrappers a bit foxed.

EUR 900.-



Rare first edition of Calandrelli's publication on the great comet of 1843.

Ignazio Calandrelli (1792–1866) took a degree in philosophy in 1814 and in the same year became a student at the observatory of the Collegio Roman, where his uncle was director. He concentrated on planetary observations, and the Great Comet of 1843. In 1845 he moved to Bologna, where he was appointed professor of astronomy and director of the observatory. He later was called back to Rome by Pope Pius IX and became director of the Campidoglio Observatory. From 1850 to his death he concentrated on comets and eclipses, as well as the history of astronomy.

Provenance: upper cover inscribed 'A Sua Em[inen]za … il Sig. Card. Mezzofanti Prefetto della S. C. degli Studi in attestato di stima e venerazione l'autore. - Outside Italy OCCL locates three copies in France, a single copy in Germany, at the Deutsches Museum, Munich, a single copy in the UK, at the British Library, and two copies in North America, at Huntington Library, and Wisconsin.

The Renewal of Astronomy Bound in Contemporary Southern French Red Morocco

BRAHE, Tycho.

Opera omnia, sive astronomiae instauratae progymnasmata. In duas partes distributa, quorum prima De restitutione motuum solis & lunae, stellarumque … secunda autem de mundi aetherei … Frankfurt, Johannes Godofred Schönwetter, 1648. Two parts in one vol., 4to, pp. [vi], [3-]470, [7]; 217, [1], [1 leaf, blank], with large woodcut printer's device on both titles, and numerous illustrations and diagrams in text; the two leaves of dedication to the Bishop of Munich erroneously bound in at the end of the volume; some mild browning and foxing; the final twenty leaves with a few wormholes filled in, affecting a few letters, otherwise an unusually fine copy, bound in contemporary southern French red morocco, gilt arms to covers (see below).

EUR 54.000.-

A wonderful copy of the first edition of Tycho's 'Works,' comprising his two most significant publications, the Progymnasmata (1602) and de Mundi Aetherei (1603), together 'the foundation on which Kepler, and later newton, built their astronomical systems' (Sparrow).

'Tycho's influence and reputation stems from achievements that fall into three quite distinct categories. The one that was most important during Tycho's life and for the fifty years following it was cosmological in character. It was initiated in 1572 by the appearance of what has come to be called Tycho's nova (now classified as a supernova) and raised to the dimension of a crusade by the appearance of the even more spectacular comet of 1577. During the ensuing decade Tycho composed lengthy monographs on each phenomenon. These would form the great bulk of his life's literary output, and would include the discovery which he himself undoubtedly regarded as the outstanding achievement of his career - the so-called Tychonic system of the world' (Victor E. Thoren in The General History of Astronomy, 2A p. 3).

'The star of 1572 and the comets observed at Hveen had cleared the way for the restoration of astronomy but helping to destroy old prejudices; and Tycho therefore resolved to write a great work on these recent phenomena which should embody all results of his observations in any way bearing on them. The first volume he devoted to the new star, but as corrected star places which were necessary for the reduction of the observations of 1572–72 involved researches on the motion of the sun, on refraction, precession, &c., the volume gradually assumed greater proportions … and was never quite finished in Tycho's lifetime. On account of the wider scope of its contents he gave it the title Astronomia instauratae progymnasmata, or "Introduction to the new astronomy," a title which marks the work as paving the way for the new planetary theory and tables which Tycho had hoped to prepare, but which it fell to Kepler's lot to work out …

'[The new star] roused to unwearied exertions a great astronomer, it caused him to renew astronomy in all its branches by showing the world how little it Knew about the heavens … the star of Cassiopeia started astronomical science on the brilliant career it has pursued ever since, and swept away the mist that obscured the true system of the world' (Dreyer, Tycho Brahe, 1890, pp. 162-62 and 196).

Many Frankfurt imprints of this period (the Peace of Westphalia ended the Thirty Years War in the year this book was published) are afflicted by heavy browning. Whist there is some browning to the paper of this copy, it is much less pronounced than usually found, and the binding is pristine.

Provenance: François de Rignac (1580–1663), Attorney General of the Cour des Aides de Montpellier, with his gilt arms on covers (cf. Olivier-Hermal-de Rotton, pl. 1902 and Guigard, Nouvel armorial du bibliophile, II, 413). The superb binding of this copy is typical of the workshops of the South of France, especially that of Corberan, the binder of Peiresc. Though François de Rignac married a certain Jeanne de Fabry in 1627, she was not related to his namesake, Nicolas Fabri de Peiresc a native of Aix, even though this copy could imply family ties. According to Léopold Delisle, Colbert in 1682 received a gift of one hundred and four manuscripts of Mr. de Rignac, councilor to the Cour des Aides de Montpellier and heir to the books of François de Rignac.- Houzeau & Lancaster 2704; Norman 321; Waller 12004.

A post-Galilean Manuscript Course Absorbing the New Astronomy

CALCAGNI, Girolamo, attributed to.

Della fabrica del mondo ouero cosmografia. Trattato, nel quale si discorre di tute le parti componente questa gran machina con brevità e facilità in modo de Dialogo. [Manuscript on paper in Italian and Latin]. [Italy, possibly Ferrara, c. 1643]. 4to (185 x 140 mm), ca. 155 leaves in brown and red ink, including 15 leaves of tables, with a decorative armorial device on title-page, and numerous diagrams in the text, some with ink wash; the title soiled, damp-stained, and strengthened with a paper strip on verso at inner margin; the final, blank leaves, partly damp-stained and soiled; otherwise overall very well preserved; rebound in the 20th-century in vellum-backed boards.

EUR 21.000.-

A highly interesting and finely illustrated astronomical treatise in dialogue form in the immediate post-Galilean period, discussing and absorbing the new astronomy.

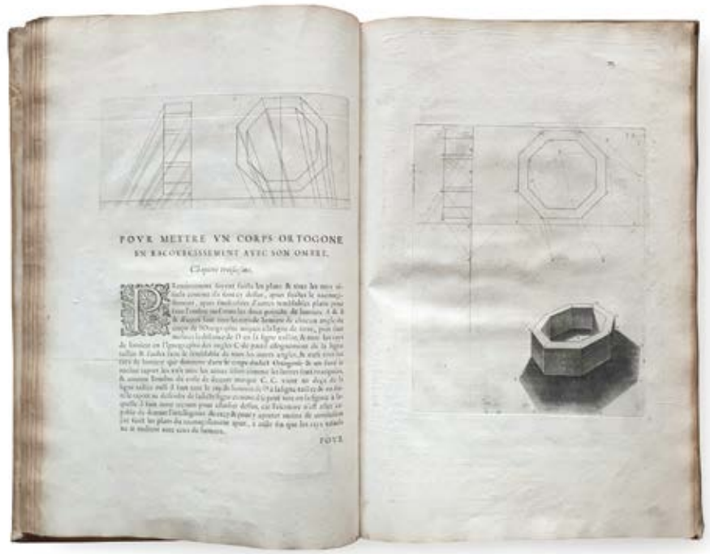
Still largely unstudied, this is the earlier of two recorded versions of this text, the other originally stemming from the collection of the noted historian of science and Galileo expert, Stillman Drake, and now held at the Fisher library, Toronto.

Possibly compiled for private instruction, and highly likely inspired by Galileo's Dialogo, this extensive manual employs two interlocutors, a Pellegrino Cantelli, and Girolamo Calcagni, whose arms are found on the title-page.

Leading through from the elemental to complex astronomy, the treatise – apparently compiled the year after Galileo's death in 1642 – frequently cites, then questions and challenges the teachings of the ancients, whilst cautiously presented and phrased. The third dialogue of the first part carefully treats the motion of the earth, first discussing the question of a revolutionary motion, then the possibility of rotation. Whilst arguments in favour are always refuted, the purpose of the questioning tone appears clear. A number of dialogues discuss geographical questions and details, and a table provides longitudinal and latitudinal data on various European cities. Folios 40-44 provide brief information on distances and sizes of various countries, kingdoms, and islands, including Sumatra, Borneo, the Philippines, the Moluccas, Japan, Cuba, and Hispaniola. Following a 7 page index to this first part there is another group of dialogues concerning astronomical questions such as parallax, as well as astrological questions, illustrated with a number of finely executed diagrams, some in ink wash. Folio 74 recto includes a reference to the existence of moving sun-spots; the verso of the leaf mentions the telescope, and refers to Kepler. There are discussions of solar eclipses, the epicycles of the various planets and, from folios 96 to 102, a dialogue on comets and cometary theory, including the important question whether comets are sublunary phenomena or not. The final dialogues are on the stars, the milky way, the constellations, and astrology.- Provenance: contemporary armorial device on title page of the Calcagni family of Ferrara. (longer description available)

Elizabeth Stuart's Copy

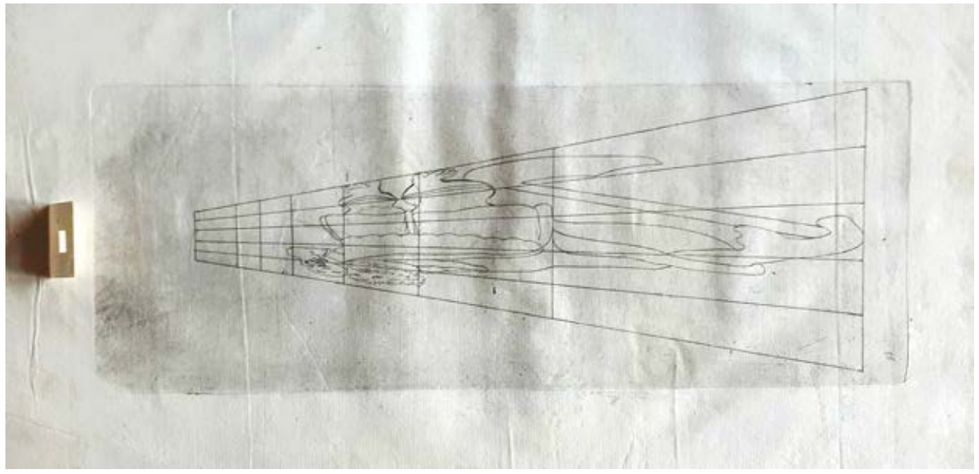
Bound in Contemporary Vellum, with Gilt Edges, the Work carries the Combined Arms of the House of Stuart and the Palatine Electorate on Covers.

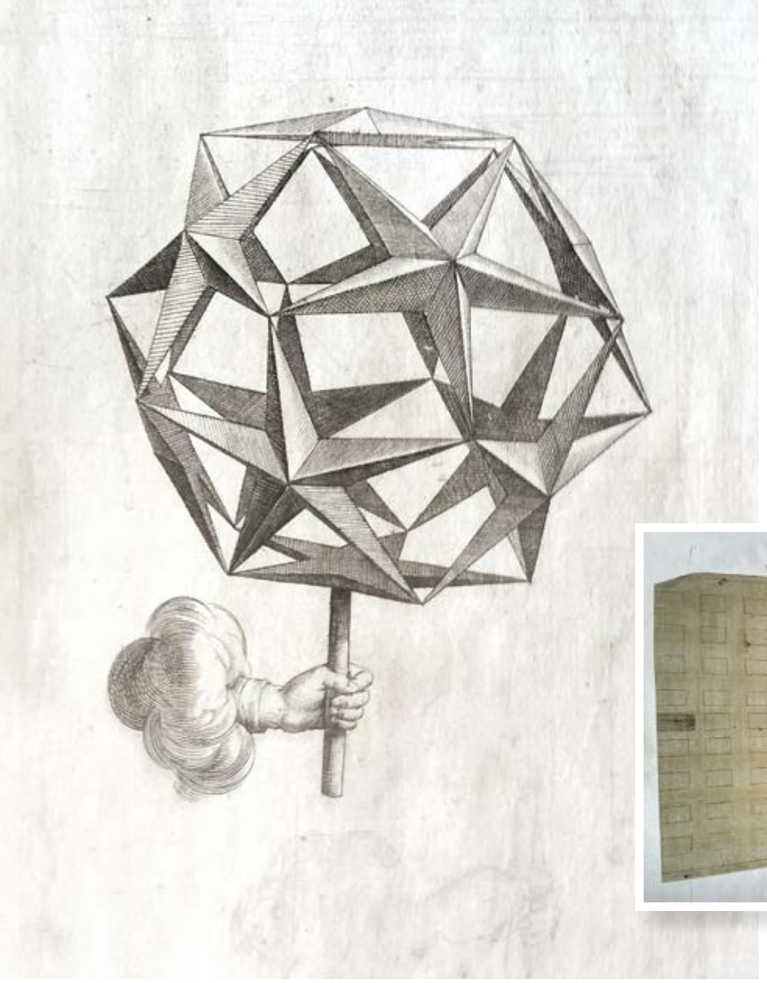


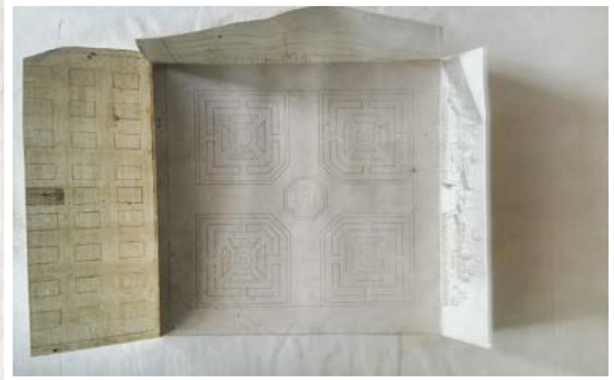
CAUS, Salomon de.

La Perspective, auec la raison des ombres et miroirs. [Printed by Jan Mommaert, Brussels and Richard Field, London for] London, John Norton & Frankfurt, widow of Levinius Hulsius, 1612. Folio (425 x 275 mm), ff. [70], with an engraved frontispiece by Cornelis Boel, 15 small plates in text, 59 full-page and 2 double-page engravings, four with flaps (one flap belonging to plate 31 pasted to plate 30); all flaps present; a fine, large copy in a contemporary vellum binding with the conjoined coat of arms of the House of Stuart and the Palatine Electorate; gilt edges; brown stain to back cover, ties gone.

EUR 56,000.-







A fine, large copy with a fascinating royal provenance of the first edition, third issue, of the first comprehensive treatise on perspective published in England, and among the earliest scientific works to employ paper flaps or pop-ups. La perspective is among the earliest scientific works and the second on perspective to include paper flaps that serve an interpretive and explanatory purpose; the first was John Dee's Euclid, 1570 (see Le Goff).

De Caus's work introduced to England a mathematical and artistic tradition that originated with Piero della Francesca, Leon Battista Alberti, Leonardo da Vinci, and Albrecht Dürer. Although the work is not groundbreaking in its treatment of optics or mathematical perspective it provides a full and clear treatment of its subject, from optical and geometric principles to complex, annotated illustrations of perspectival forms and figures. The work also includes multiple examples of anamorphosis, with folding paper flaps that prompt the reader to view the distorted image from a correcting angle. The engravings accompanying the work 'are amongst the finest and most sophisticated to be found in books bearing an English imprint from this period'; and although the engravings are unsigned, Alexander Marr has recently attributed them to the Flemish artist Cornelis Boel (c. 1576 – 1621). Boel is perhaps most well known for designing the engraved title-page of the King James Bible (1611). It is likely that de Caus would have met Boel -a fellow Huguenot and continental émigré - while they were in residence at Richmond Palace (see Marr, p 218-219).

La perspective 'was published in one edition with three issues. The first issue appeared under the imprint of Robert Barker with the date 1611, the second bears the imprint of John Norton and is dated 1612. The Hulsius firm [of Frankfurt] published a third issue sometime before 1615' (Marr, p. 218).

The distinctive regal binding of this copy, which bears the combined armorial devices of the House of Stuart and the Palatine Electorate, suggests that it was likely given by de Caus to Elizabeth Stuart after her marriage to Frederick V in 1613. The gift would have been poignant for Elizabeth, as de Caus not only instructed her in drawing, but first formalized his theories on perspective in lessons to her brother Henry, who had died in November 1612.

Provenance: conjoined coat of arms of the House of Stuart and the Palatine Electorate; title page signed 'Herzog Wilhelm' at foot; large engraved armorial bookplate of Johann Wilhelm III, Duke of Saxe-Eisenach (1666-1729) to front paste-down; old stamp of the Carl Alexander-Bibliothek, Eisenach to verso of title.

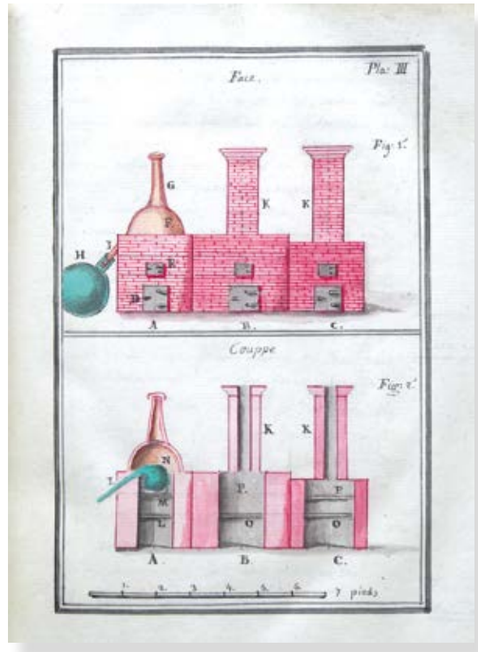
ESTC records Harvard, National Library of Scotland, Trinity College (Cambridge), British Library, Cambridge University, UCL, Niedersächsische Staats-und Universitatsbibliothek, Staatsbibliothek zu Berlin-Preussischer Kulturbesitz; Folger, Getty Research Center, Huntington, Newberry, Northwestern, and Yale. ESTC S124665; VD17 1:080353E; USTC 2016045; Poggendorff I, 404; Millard II, 268.

Elixir of Life

D. P.; Alchemist

L' alchimie moderne ou l'examen par les faits du fameux problème de la Pierre Philosophale. Ouvrage rempli d'expériences, d'observations, de découvertes physico – chimiques, curieuses et intéressantes. (France without place), 1768. Manuscript in french, brown ink on strong paper, written in a very legible hand. There are some marginal notes inserted from another author of the 18th cent. and another hand of the 19th cent. (an alchemists who signed a note (pp. 159): "E. J. 1859 ". Hinges and caps professionally restored. Quarto (248 x 190 mm) Frontispiece, pp. (12), 3-321 [numbered 304], 5 hand-drawn plates. Contemporary calf, gilt spine in compartments, red edges, title on spine: Alchimie moderne. Overall very fine.

EUR 17.500.-



Unpublished authorial 18th century manuscript on alchemy and on chemistry, finely illustrated with pen and wash color sketches on five plates. Described are the experiments made by "D. P." during a year in the 1760's to produce the philosopher's stone resp. aurum potabile after instructions described in an earlier work published in 1615 and in 1660 under the title: Brief traité de métaux by Gabriel Castaigne who dedicated the work to Marie de Medici.

"Since the reign of Henri IV the chemical physicians (Paracelsians) found protection and patronage at court. Prominent among those courtly chemical practitioners was the royal almoner Gabriel de Castaigne (or Castagne), a franciscan friar and client of the Duc de Bellegarde. Castaigne was an outspoken advocate for the quintessential alchemical drug aurum potabile (l'or potable), a gold-infused cordial that he believed could "cure all ills". Many learned contemporaries shared his enthusiasm. In 1611, Castaigne published an inflammatory pamphlet in defence of the drug, claiming that not only had the cordial been approved by the famed intellectuals of the medieval world - Thomas Aquinas, Albertus Magnus and Raymond Lull - but that its efficacy was also recognized by many contemporary expert and learned philosophers. Castaigne named only two of these learned contemporaries. One was the famed poet and churchman Beroald de Verville, the other was "le Sieur George Eglissem". In November 1611 the university medical faculty denounced Castaigne's book as a tissue of "lies and frauds" and set out to prosecute its author, but Castaigne continued to argue his case. Castaigne repeated this claim in his 1615 pamphlet Le Grand Mircale … in which he added Louis XIII. (who had been given a "small phial" of the drug) to the list of worthies, dead and alive who had approved the drug." (Alastair Bellany & Thomas Cogswell. The murder of King James I. pp. 95 ff.)

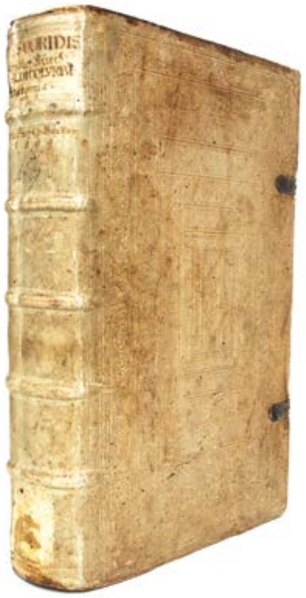
Its author, a certain "D. P." gives the detailed diary of his experiments, conducted for more than a year in his laboratory. This laboratory is described at length at the beginning of the work. The frontispiece drawn by the author, show this laboratory with instruments and his assistants or friends, including a woman. The next plate is the plan of this laboratory, the four others, which are colored, show the instruments: furnaces and chemical vessels. He did not manage to make gold, but learnt a lot: "how much my opinions have changed, how much my knowledge has increased […] What has sustained my courage for nearly a year of hard work and considerable expenditure, was only that spirit of observation and discovery of which I was animated. Indeed, there was nothing more attractive than the compositions and decompositions that I was obliged to do and whose results always taught me something new."

After many and long experiments, the author considers: "The artificial production of gold is impossible or at least faces insurmountable difficulties." Along the way, he acquired a great deal of knowledge in chemistry on the "mercurial principle, the nature of crystallizations, that of phosphorus, of ethers, of almost all the acids, […]" He writes that he is preparing a work whose title will be: "New search for the truth in the examination of nature." In an added sheet of paper (after the foreword), he quotes a sentence from Macquer's Dictionary of Chemistry: "The most essential service that alchymists could render to chymie was to expose as clearly as possible the experiences they missed, which they obscurely described, those which according to them they had succeeded)."

The author then writes: "It is therefore only to comply with this opinion, and for the sole purpose of making myself useful to the public that I consented to the printing of this work." But this never happens; it didn't find a printer.

For his alchemical experiments & operations, he used an old manuscript, called 'Brief traité des métaux', which he reproduced at the end of the book with long commentaries. This treatise is attributed to Jean Saunier, according to a note from another 18th. century hand, stuck at the front-fly of the book. It was also published in the works of Gabriel de Castaigne (after 1562–ca. 1630) in 1660 under the title: "Le grand miracle de la nature metallique" and publ. separately in 1615. Castaigne was a cordelier and almoner of Louis XIII, "which for a cordelier was nearly as good as a bishoprick." (Ferguson I, 148 – 49). For the author this manuscript is: "ce qui distingue particulièrement l'ouvrage dont j'ai entrepris de parler, c'est une extrême bonne foi, une assez grande clarté, des manipulations exactes, des procédés savants et qui supposent chez l' auteur beaucoup de connaissance minéralogiques et métallurgiques, la plupart de ces procédés soutiennent parfaitement l'examen rigoureux de l'expérience."

Ferguson I, 148/49; Brüning 2040; Caillet 2059 (important for the adept of alchemy); Duveen 120; Debus. French Paracelsians 64; Schmieder 359 (all for Castaigne)



DIOSCORIDES, Pedanius

Kräuterbuch deß uralten und in aller Welt berühmtesten Griechischen Scribenten Pedacii Dioscoridis Anazarbaei, von allerley wolriechenden Kräutern, Gewürtzen, köstlichen Oelen, Salben, Bäumen, Hartzen, Gummi, Getränk, Kochkräutern, scharpff-schmäckenden Kräutern .... 2 parts in 1 Vol. - Frankfurt, Johann Bringer für Conrad Corthoys, 1610. Folio (330 x 215 mm) ff. 6, pp. 469, (2), 474-616, ff. 18 (Register). Title printed in black & red, with two title borders and printers marks, one fold. woodcut plate and around 569 text engravings shows hundreds of herb plants as well as various distillers. Contemporary blind-stamped pig skin (medallion HSE, 1601) with two clasps. Some browning to the text as always, old ownership inscription deleted from title. (bound with:) **COLOMBO, M. Realdo**. *Anatomia, das ist: Sinnreiche, künstliche, gegründte Auffschneidung, Theilung, unnd Zerlegung eines vollkommenen menschlichen Leibs und Cörpers. In die teutsche Zung und Sprach ubersetzt. Mit angefügter analogischer Zugaab oder Beschreibung und Contrafacturn der BeinCörper underschiedlicher Thier begriffen. Durch J. A. Schenck. Frankfurt, M. Becker für de Bry Witwe & Söhne, 1609. 4 Bl., pp. 269 (of 273), 1 blank Bl. with engr. title- vignette, 41 (instead of 44) text engravings, 1 fold. table.*

EUR 9.000.-

A finely illustrated German version of Dioscorides' Materia Medica, with Brunschwig's book on the methods of distillation included. In nearly perfect original condition.
First edition of Peter Uffenbach's revision of the German translation of Dioscorides Materia medica made by Johann Dantz von Ast (died 1546) which was first published in Frankfurt in 1546. The first part is the revised translation of the De materia medica and the second part with separate title-page: ‚Ars destillandi, oder Diestellier-Kunst deß wolerfahrnen Hieronymi Braunschweig. . .' is a revision of Hieronymus Braunschweig (Brunschwig) Ars destillandi.
According to tradition, Dioscorides from the Greek city of Anazarbus, studied botany in Tarsus in Asia Minor. He appears to have been a physician to the Roman military, and had wide practical experience in pharmacy and medicine. He traveled extensively through the regions surrounding the Mediterranean. Around the year A.D. 65 he composed in Greek a treatise on medicinal substances that was to have a profound influence in the history of medicine. The treatise became the basis of subsequent books on materia medica for centuries. The treatise consisted of five books, to which two books (on poisonous plants and animals) was later added and falsely attributed to Dioscorides.

Dioscorides who had always been a popular authority, was printed twice in the fifteenth century. The first of these appearances was the Latin editio princeps printed from the translation with commentary prepared by Peter of Abano [c1250-1316]. It was printed in 1478 by John of Medemblick at Colle di Val d'Elsa, located in the province of Siena about thirty miles south of Florence. This translation and commentary appeared again at Lyons in 1512, but subsequently were succeeded by two new Latin translations made directly from the Greek. These were published in 1516 in Venice and Paris, the first prepared by Ermolao Barbaro [1454–1495], who added a commentary entitled Corollarium and the second done by Jean Ruel [c1447–1537]. Between 1478 and 1600 there were thirty-six Latin commentaries involving ninety-six separate printings. During this same time, forty-three separate books were rendered in translation to the modern languages of Italian, French, German, Czech, Spanish, Dutch, English, and Arabic. The second appearance of Dioscorides during the incunabula period was a Greek edition published at Aldus press in July 1499. During the next century five more editions of the Greek text appeared. These statistics reflect only the direct impact. If the imitators of Dioscorides or those who based part of their work on his work are included, hundreds of additional titles could be included

Bound with the first german edition of Realdo Colombo's Anatomia including his demonstration of the lesser circulation through the lungs. This edition includes Colombo's text, 24 anatomical plates of the brothers de Bry after Vesalius and the german edition of Volcher Coiter's ‚Diversorum animalium sceletorum explicationes iconibus illustratae' with 20 (16 full leaf) engraved plates, including bird

sceletons, first published in the Lectiones G. Fallopii (1575). Coiter ‚was the first to elevate comparative anatomy to the rank of an independant branch of biology... Coiter's illustrations occupy a a prominent position in the history of zoology and comparative anatomy' (Norman). ‚The Sceletorum explicationes are Coiters own work. The illustrations of the animal skeletons are used again in Johann Andreas Schenck's german translation of Realdus Columbus' Anatomia' (Choulant-F.). Lacking in this work are the pages 45–48 which include the images of the sexual organs of women (clitoris) and the full-page image of a naked woman; probably deleted & censured in early times. Colombo's only published text, De Re Anatomica, was released shortly after his death in 1559. His sons, Lazarus and Phoebus, were responsible for overseeing the final stages of the publishing process of his book after Colombo's death interrupted it. Many of the contributions made in De Re Anatomica overlapped the discoveries of another anatomist, Gabriele Falloppio, most notably in that both Colombo and Falloppio claimed to have discovered the clitoris. Although both Colombo and Falloppio gave claim to what was actually the re-discovery of the clitoris, it is Colombo who is credited as having been the anatomist who correctly identified the clitoris as a predominantly sexual organ.- VD 17 3:608860N; Nissen BBI 498; Pritzel 2322; Schuh, online Dioscorides 60. for II. Colombo:) VD 17 23:298029G (one of three variants); Choulant - Fr. 210; Krivatsy 2617; Waller 2075; Nissen, ZBI 921 Anm.; Wüthrich II, 144, Nr. 119; vgl. Garrison-M. 378.1 bzw. 284; Norman 501 or 497 (Colombo 1559 bzw. Coiter 1575).


LETTERA
DI
EVSTACHIO DIVINI.
Intorno alle macchie nuouamente scoperte nel mese di Luglio 1665. nel Pianeta di Gioue con suoi Cannocchiali.
ALL'ILLVSTRISS: SIG. CONTE
CARLO ANTONIO MANZINI.
IN ROMA,
Per Giacomo Dragondelli 1666.
Con Licenza de' Superiori.


ILLVSRISS: SIG. E RON PAD. COLENDISS.
DA trè lettere Astronomiche del Signore Gio: Domenico Cassini stampate li 26. Ottobre 1665. dirette all'Illustriss. Signore Abbate Ottauio Falconieri, io prendo occasione di rompere vn longo silentio con V.S. Illustriss. e darle parte, come in alcune cose non côuenimo in dette lettere; e perche la verità habbia il suo luoco, hò stimato bene dar fuori vn breue, e sincerissimo ragguaglio tanto delle cos-
A 2 sco-


77
LETTERA
DEL M. R. P.
EGIDIO FRANCESCO
DE GOTTIGNIES
Professore delle Matematiche nel Collegio Romano,
DIRETTA AD
EVSTACHIO DIVINI.
SIG. MIO PAD. SINGOL:
SONO alcuni giorni, che V.S. mi richiese, che io la ragguagliassi delle mie annotationi, concernenti à quell'osseruationi, da me per lettere motiuate al Signor Cassini, & insieme le partecipassi, à che termine fussero quelle differenze vertenti frà il Sig. Cassini, e me, intorno alle

DIVINI, Eustachio.

Lettera intorno alle macchie nuovamente scoperte nel mese di Luglio 1665. nel Pianeta di Giove con suoi cannocchiali. All'Ilustriss: Sig. Conte Carlo Antonio Manzini. Rome, Giacomo Dragondelli, 1666. 8vo, pp. 109; hole to upper blank portion of title expertly repaired; lower blank corner of one leaf renewed; some light browning and occasional foxing; a very good copy in recent vellum over boards.

EUR 7.500.-

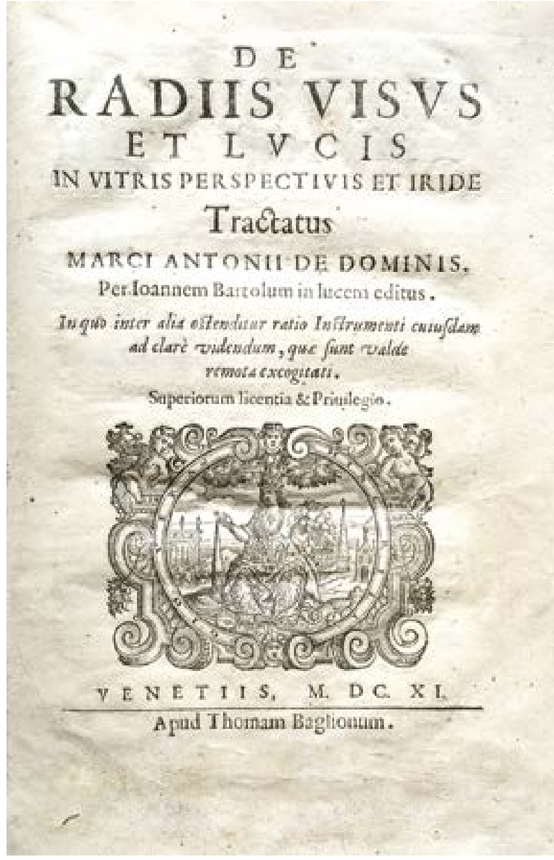
First edition of Divini's extensive lettera containing his telescopic observations of Jupiter's spots, as well as descriptions of numerous telescopes of his making or invention, and with a letter to him appended here by the Belgian jesuit mathematician and astronomer Gilles-François de Gottignies, an opponent of Cassini.

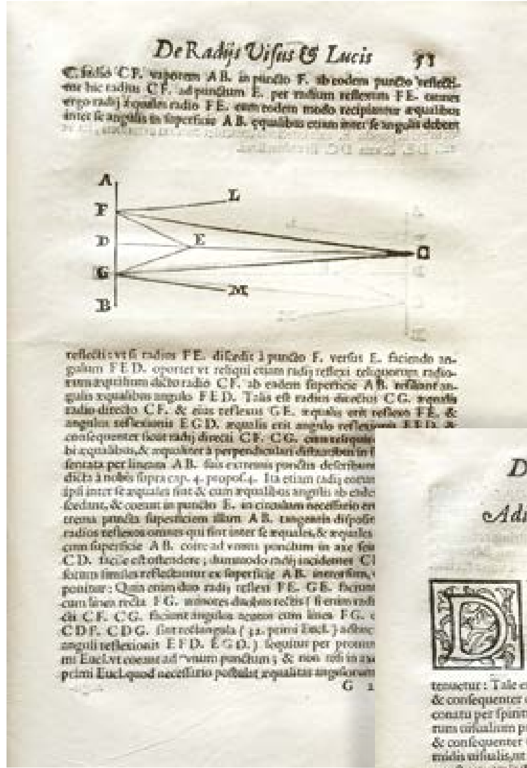
Eustachio Divini was one of the foremost makers of optical instruments in the seventeenth century (see King, The history of the telescope pp. 58-59). He 'was among the first to develop technology for the production of scientifically designed optical instruments. He established himself in Rome about 1646 as a maker of clocks and lenses ... During this same period he experimented with the construction of telescopes of long focus ... He experimented with the elimination of achromatic aberration in his lenses with some success. He had received some scientific training from Benedetto Castelli, one of Galileo's disciples' (DSB).

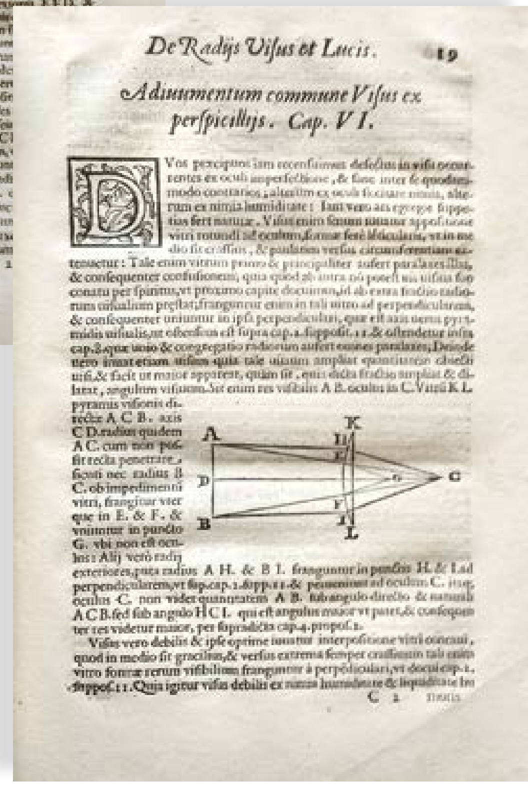
'[Jupiter's] "permanent spot", which may be identical with the present Great Red Spot, was first recognised by Giovanni Dominico Cassini in Italy in 1665. In fact its first sighting, on 1665 July 9 alongside the shadow of Ganymede, was by Cassini's friend and instrument maker (and Campani's rival), Eustachio Divini of Rome' (John H. Rogers, The Giant Planet Jupiter p. 6).
Besides Divini's reports on two different spots observed on the planet on July 9, 1665 by Cassini, Divini himself, Honoré Fabri, and several other guests at the home of Cesario (or Cesareo) Giori, uncle of the Roman cardinal Angelo Giori, on Mount Sant' Onofrio, using a Divini telescope of 50 palms length, a rotational movement of the planet around its axis was established on the same occasion.

The remainder of the text is largely concerned with descriptions of a number of types of Divini telescopes, varying much in length and in lens combination, as well as Divini's invention of 'lenti duplicate', and with a number of letters from clients quoted in print in praise of his instruments, including from patrons such as the Grand Duke of Tuscany (who is known to have purchased telescopes from both Divini and Campani), and the Venetian cardinal Pietro Basadonna, and with the letters apparently quoted verbatim.

'From 1662 to 1665, there was another quarrel between Divini and Campani. Both worked in Rome, so some rivalry between them was inevitable. In those years, however, the rivalry became a hot dispute. Many "comparisons" were made between the instruments of these rivals, which Divini mentioned in his letter to Count Antonio Manzini (1666)' (Biographical Encyclopedia of Astronomers p. 302).
The appendix of over 30 pages consists of a letter by Gilles-François de Gottignies in which the Jesuit scientist describes his own observations of Jupiter on July 9, 1665. Gottignies there also quotes a letter by Cassini in print to prove his priority in the discovery of the planet's rotation, as well as in the interpretation of the nature of the spots, and states Cassini to be in error.
Riccardi I/1 413.4 ('raro', and with a long note); Libri 2298; Sommervogel III 1624 2; OCLC locates copies two copies in the UK, at the British Library, and Whipple Museum, three for France, at the Bibliothèque Nationale, Paris-Mazarine, and Lyon, one for Germany, at the Zentrale Hochschulbibliothek, Lübeck, one for Switzerland, at Zurich, one for Denmark, at the Royal Library, and seven for the US, at the Smithsonian, Chicago, Oklahoma, Miami, Burndy, Huntington, and Wisconsin.


DE
RADIIS VISVS
ET LVCIS
IN VITRIS PERSPECTIVIS ET IRIDE
Tractatus
MARCI ANTONII DE DOMINIS,
Per Ioannem Bartolum in lucem editus.
In quo inter alia ostenditur ratio Instrumenti cuiusdam ad clarè videndum, quæ sunt valde remota excogitati.
Superiorum licentia & Priuilegio.
VENETIIS, M. DC. XI.
Apud Thomam Baglionum.


De Radijs Visus & Lucis 71


De Radijs Visus et Lucis. 19
Adiumentum commune Visus ex perspicillijs. Cap. VI.

DOMINIS, Marcantonio de.

De Radiis Visus et Lucis in Vitris Perspectivis et Iride Tractatus ... per Joannem Bartolum in lucem editus. In quo inter alia ostenditur ratio Instrumenta cuiusdam ad clare videndum, quae sunt valde remota excogitati. Venice, T. Baglionus, 1611. Small 4to, ff. [4], pp. 78, [1, errata], with woodcut device on title and numerous woodcut diagrams in the text; traces of a removed inscription at blank lower margin of title; a very good, clean copy, rebound in 18th-century Italian paste-paper boards.

EUR 32.000.-

First edition of this highly important book in the early history of optics and the telescope. and a work of major influence on the optical theories of Newton.

'De radiis visus et lucis deals with lenses, telescopes, and the rainbow. Dominis knew how light was refracted in its passage from one medium to another ... After the invention of the telescope Dominis added its theoretical explanation to his work. His explanation was not entirely satisfactory, however, because his knowledge of the law of refraction was incomplete ... Dominis describes in particular detail the effect on the angle of sight of a lens of greater curvature or of a greater distance between the lens and the object being viewed. With the same thoroughness he examined lens combinations, in particular the combination of a convex object glass and a concave eyepiece. This work led to his discovery of the conditions under which the magnification of an image is possible' (DSB).
In the Preface, Giovanni Bartoli, who was Tuscan Ambassador at Venice and an early advocate of Galileo's discoveries, describes the newly invented telescope (attributing its invention to Galileo) and the discoveries made possible by this instrument. Dominis also provides an account of the telescope (pp. 34-43) and even suggests draw-tubes, which came into use much later. This book also contains Dominis' theory of the rainbow which greatly influenced Newton. In 1704, Newton wrote in his Opticks: "This Refraction was ... of late more fully discover'd and explain'd by the famous Antonius de Dominis, Archbishop of Spalato, in his book De radiis visus et lucis, published by his friend Bartolus at Venice, in the Year 1611, and written above 20 Years before. For he teaches there how the interior Bow is made in round Drops of Rain by two Refractions of the Sun's light ..." For a thorough discussion of Dominis' explanation of the rainbow, see Boyer, The Rainbow (pp. 187-92 and passim), who calls it "superior to any other published in the interval of three centuries from 1311 to 1611".

Newton owned a copy of the present book which is now at Trinity College Cambridge (see Harrison, The Library of Isaac Newton, 535). Dominis (1560-1626), a Dalmatian Jesuit, lectured on mathematics, logic, and philosophy at Verona, Padua, and Brescia. He was later appointed archbishop of Split (Spalato). Goethe said of him that "he discovered the solar spectrum while saying mass".- Cinti 33. Poggendorff, I, 589-90. Riccardi, I, 417-18 ('importantissimo libro').


DIALOGO
SOPRA LA SFERA
DEL MONDO.
DI M. NICOLO DI NALE.
Diuiso in cinque giornate:
Nel quale con brevità si dichiarano minutamente tutte le cose appartenenti al trattato di ella Sfera.
ALLA ILLVSTRISSIMA SIGNORIA DI RAVGIA.
CON PRIVILEGIO.
IN VENETIA,
Appresso Francesco Zletti. M D LXXIX.


GIORNATA QVINTA.

DI NALE, Nicolò (or Nikola NALJEŠKOVIĆ).

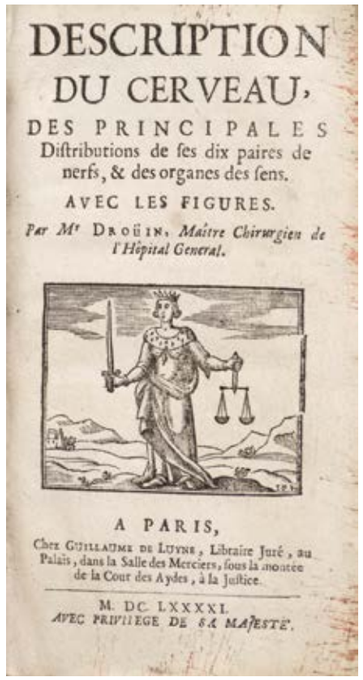
Dialogo sopra la Sfera del Mondo … Diviso in cinque giornate: Nel quale con brevità si dichiarano minutamente tutte le cose appartenenti al trattato di essa Sfera … Venice, Francesco Ziletti, 1579. 4to, pp. [16], 133, [1 blank], [2], with one folding engraved plate, several woodcut illustrations, one full-page (cropped, see below), and a small figure on the verso of the final leaf (recto blank) intended to be cut out to be mounted as a volvelle on the sphere on p. 93, as per printed instructions; occasional browning and foxing, especially to the early leaves; one leaf with a small hole due to oxidisation (loss of a few letters); a few early marginal notes, some shaved; the full-page woodcut shaved with loss at outer margin due to extending far into the white margin; numerical inscription on verso of the final leaf; originally part of a larger volume and with the title numbered '4' in ink in upper blank margin; rebound in plain 20th-century boards.

EUR 3.400.-

First edition of this scarce work on the sphere by the Dalmatian mathematician and poet.

Presented as a dialogue between the author and a 'Marino Battuti', the subject matter is divided into 'five days'. The first day covers questions of geometry, the second is on the sphere, its center, axis, the poles, the division of the sphere into two principal parts, that is the celestial, which is subdivided into nine, and the elementary into the four elements. Pages 35 to 36 examine the question of the motion of the earth, a topic taken up again on pages 45 to 46 and affirmed in the negative. Day three gives definitions of the circle, the equinoctial, the Zodiac, celestial longitude and latitude, the meridian, horizon, equinoctial and solstitial colure, etc., day four is on right and on oblique ascension, day five on solar motion, the planets' epicycles, the moon, and eclipses. An important trading place and the first republic to ban slave trade in Europe (in 1416), Di Nale dedicates his work to the Senate of 'Raugia' (today's Dubrovnik). The early, unnumbered pages provide a brief history of the city, eventually leading up to recent events, including the arrival of the Turkish Armada, and the Senate's purchase of Christian slaves, men, women and children, to set them free, as well as the successful negotiation in the mutual exchange of captured high-ranking citizens and nobles.- Houzeau and Lancaster 2727.

The Structure of the Brain with Drawings based on the Author's own Anatomical Dissections


DESCRIPTION
DU CERVEAU,
DES PRINCIPALES
Distributions de ses dix paires de nerfs, & des organes des sens.
AVEC LES FIGURES.
Par Mr DROÜIN, Maître Chirurgien de l'Hôpital General.
A PARIS,
Chez GUILLAUME DE LUYNE, Libraire Juré, au Palais, dans la Salle des Merciers, sous la montée de la Cour des Aydes, à la Justice.
M. DC. LXXXXI.
AVEC PRIVILEGE DE SA MAJESTÉ.

DROUIN, Vincent Denis.

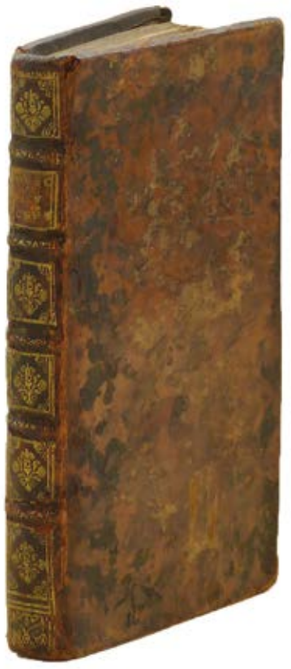
Description du cerveau, des principales distributions de ses dix paires de nerfs, & des organes des sens. Avec les figures. Paris, Guillaume de Lüyne, 1691.12mo, pp. [xvi], 125, [3, Approbation, Privilege, and Errata], with 9 folding engraved plates; a fine copy in contemporary French mottled calf, gilt fleurons on spine, a bit rubbed.

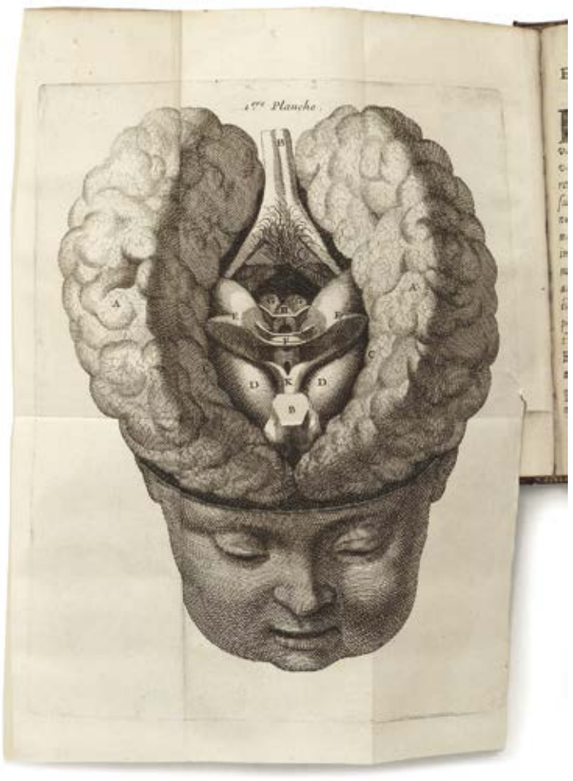
EUR 11.500.-

First edition of this rare work on the brain and the sense organs.

The author, about whom little is known, is described on the title as 'Maître Chirurgien de l'Hôpital General'. 'Drouin enjoyed an excellent reputation as a skilled surgeon in the French army and returned to private life to become chief surgeon at Les Petites Maisons in Paris. This work, important in the development of neuroanatomy during the late seventeenth century, is the result of keen observation and careful dissection. In it, Drouin discusses the skull, the brain and its circulation, and the structure of the nose, eye, tongue, and ear. The nine folding plates were engraved from Drouin's own drawings' (Heirs of Hippocrates p. 247). Drouin clearly relies on his own anatomical dissections, rather than the authority of others. He cites, sometimes critically, Descartes, Duncan, Stensen, Bartholin, and Malpighi.- Provenance: manuscript ex libris 'Pt. Cholet M.DCC.LXXX.IIII' [sic] in ink within floral border, and pasted slip in ms. 'Philibert Cholet 46' on front pastedown; a similar ex libris of a book belonging to Cholet appears in a copy of Elie Col de Vilars, Cours de chirurgie dicté aux écoles de Médecine de Paris (Paris 1759).

Heirs of Hippocrates 700; Krivatsy 3404; Wellcome II p. 487; OCLC locates only three copies in the US, at Iowa, National Library of Medicine, and Minnesota.




4ème Planche.

ENTOMOLOGY

Entomologische Hefte enthaltend Beiträge zur weitern Kenntniss und Aufklärung der Insektengeschichte. Eine Vorarbeit zu einer künftigen Faune des Departements vom Donnersberge und den angrenzenden Gegenden der Departemente von der Saar, und von Rhein und Mosel. Ausgearbeitet von einigen Freunden der Naturgeschichte. Hefte 1–2 (all publ.) in 1 Vol. – Frankfurt, Esslinger, 1803. 8to. XVI, 119 (+1) pp.; 130 pp., 2 Bll., with together 3 (1, 2) colored engraved plates by Jacob Sturm. Later half cloth (1850's) with marbled edges, gilt printed title on spine, rubbed and soiled. Brown-spotted, else fine.

EUR 1.400.-

Rare entomological journal resp. book on a local entomological fauna, all what was published. With contributions by J. J. Hoffmann, J. D. W. Koch, P. Wilbrand, J. Müller and J. M. Linz. The plates by Jacob Sturm show beetles of the genus Hister unicolor, Haltica and Dorcatoma.- Nissen, ZBI 4644; Hagen I, 374 (see J. J. Hoffmann). Recht seltenes, kurzlebiges Periodikum, welches fortgesetzt werden sollte, "wenn das Publikum die Fortsetzung wün-schen wird" (Heft 2, 130) und zu welchem auch weiterhin Jacob Sturm die Tafeln zu liefern sich bereit erklärt hatte. Das Periodikum ist gleich in mehrfacher Hinsicht ungewöhnlich: Zum einen stellt es eine sehr frühe entomologische Lokalfauna dar, zum anderen sind nahezu sämtliche Beiträge Erstlinge bzw. Einzlinge ihrer nur als Laien entomologisch hervorgetretenen Autoren.

[EUCLID]. DECHASLES, Claude-François Milliet.

The Elements of Euclid explain'd in a new but most easie method … Oxford, Lichfield for Anthony Stephens, 1685. Small 8vo, pp. [iv], 380, with numerous woodcut diagrams in text; a fine copy in contem-porary blind- paneled calf, a bit worn.

EUR 1.800.-

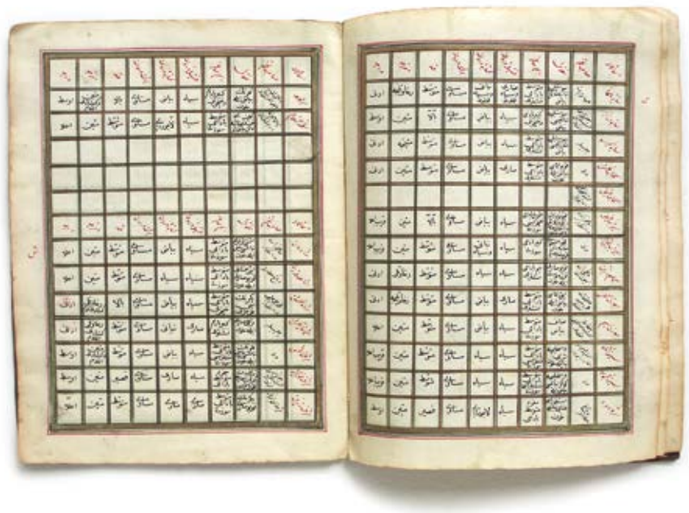
First English edition of Dechasles's Huict livres des elements d'Euclide rendus plus faciles (Lyon, 1672), a paraphrase of Euclid's Elements.

'Claude Dechales [also de Challes or Dechasles] became a Jesuit at the age of 15 and was educated within the Jesuit Order … Dechales lectured at Jesuit colleges, first in Paris where for four years he taught at the Collège de Clermont, then at he taught at Colleges in Lyons and Chambéry. From Chambéry he went to Marseilles where King Louis XIV appointed him Royal Professor of Hydrography. In Marseilles he taught navigation, military engineering and other applications of mathematics. From Marseilles he moved to Turin where he was appointed professor of mathematics. Dechales is best remembered for Cursus seu mundus mathematicus published in Lyons in 1674.

'In 1678 he published in Lausanne his edition of Euclid, The Elements of Euclid Explained in a New but Most Easy Method: Together with the Use of Every Proposition through All Parts of the Mathematics, written in French by That Most Excellent Mathematician, F Claude Francis Milliet Dechales of the Society of Jesus. This work covers Books 1 to 6, together with Books 11 and 12, of Euclid's Elements. A second edition was published in 1683, then an edition revised by Ozanam was published in Paris in 1753. An English translation was published in London by M Gillyflower and W Freeman, the translation being by Reeve Williams. A second edition of this English translation appeared in 1696' (J.J. O'Connor and E.F. Robertson, MacTutor online).

'Dechales [is also known to have] adopted Galileo's theory of motion, where he introduced several original views and developments. He attaches a preponderant significance to the experimental foundation of Galileo's main theorems and, in his opinion, the proportionality of velocity and time is first an expression of Nature (ex natura rei), then a logical assignment. Dechales anticipates some aspects of Newton's natural philosophy by emphasising questions depending on dynamics such as the concept of gravity (related to the free fall of bodies) and the mathematical treatment of air friction … (A Nardi, An eccentric Galilean : the Jesuit François Milliet Dechales between Galileo and Newton (Italian), Arch. Internat. Hist. Sci. 49 (142) (1999), 32–74).- Wing E3400.

Tulip Calendar



[ESQHI, Mohammad, gardener and assumed author].

[Ottoman Turkish:] Tulip Calendar. [Istanbul?, c. 1800]. 4to, ff. [16], manuscript on glazed paper, executed in a beautiful, small nashkĐ script; opening page with a panel of finely-worked illumination in colours and gold; title inset in red ink; all pages within a four-line border in red, black, and gilt; finely preserved in its slim, contemporary binding of red morocco boards; a large leopard-speckled paper panel inset on covers within a silver (oxidized) ornamental scroll; the binding a little worn at head and tail of spine; old European (?) shelf-label to lower cover; end-papers mauve or mauve-speckled opposite lightly pink paste-downs.

EUR 12.000.-

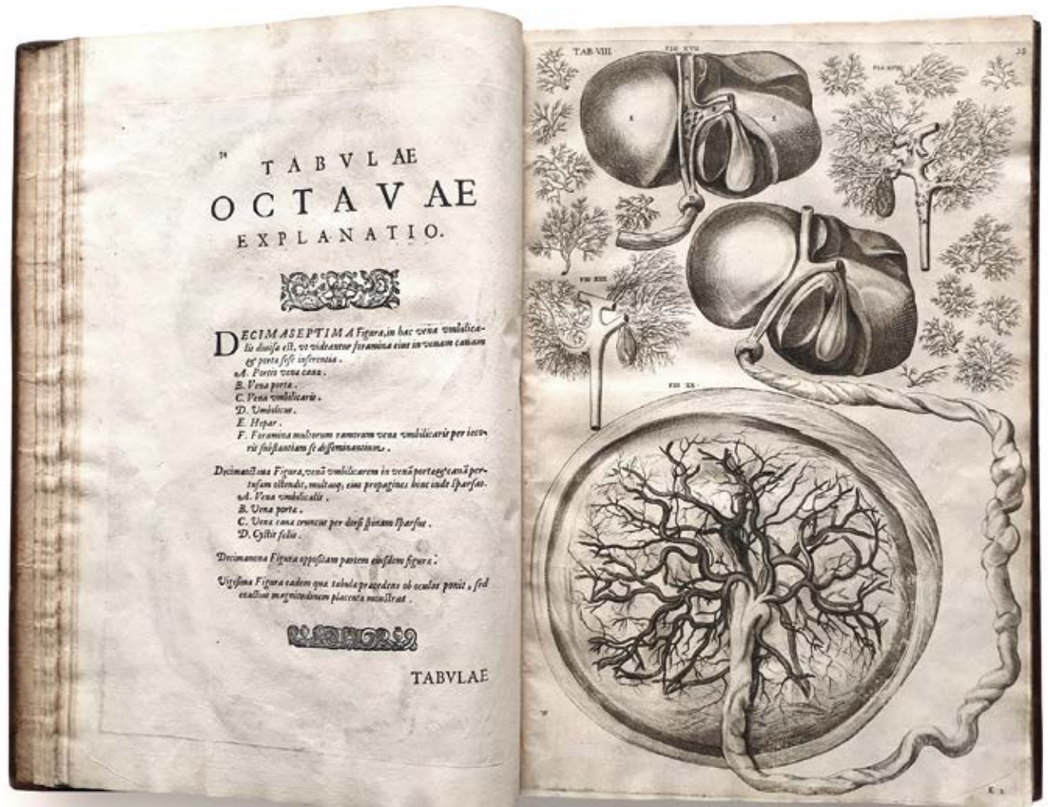
Scarce seasonal calendar for the planting of tulips in Turkey by a named author, seemingly a personal gardener under and to Sultan Selim iii.

The 26-page calendar lists the varieties of tulips in red, and their colours, qualities, sizes, etc., in black ink, and by alphabetical order. Written a long time after Europe's Tulipomania of the seventeenth century, which ended in bankrupting a large number of investors, with single bulbs of certain specimens, such as the striped Semper Augustus, having been traded for extraordinary sums until the collapse of the scheme. This manuscript is rare testimony to the appreciation of this particular flower in its place of origin around the end of the eighteenth century.

A very rare planting calendar for the wonderful, much sought after tulip, written during the reign of the enlightened Sultan Selim iii. (1761–1808), known for his reform-mindedness, his associations outside the boundaries of the Ottoman Empire, and his endeavours to modernize and reform his state. The son of the equally progressive Sultan Mustafa iii. and Mihrişah Sultan, Selim was fond of literature, poetry and calligraphy, a great lover of music and one of the best composers in the Ottoman classical music tradition.

In fact, it was during Selim III's reign that the court first experimented with a foreign head-gardener to redesign its imperial gardens in the capital. Later on, Mahmud II's restoration of a majority of the novel offices that Selim had instituted would also extend to the reactivation of this post. Baron von Herbert, the Austrian internuncio to Selim's court, had imported a gardener from Rastatt by the name of Jacob Ensle (d. 1832) in 1794, who was fortunate enough to be residing with his stepbrother, the distinguished naturalist Franz Boos (1753–1832), botanical gardener and menagerie director of the Schönbrunn Palace in Vienna, during von Herbert's recruitment efforts. Ensle, who appears to have led many a late-eighteenth-century European traveller through the doors of the Topkapi's new sections, while maintaining relative anonymity as 'M. Jacques from Rastadt' in their accounts, himself left a narrative of his time in the Ottoman court. In it, he boasts that 'through the skilful leveraging of a connection [he] managed to achieve an assignment as the chief-gardener of the Bostandji [der Obergärtners der Bostandgi's] in the palace,' and notes that Selim III's mild regime allowed a Christian to fill this post. Ensle also contributed to the gardens in Selim's Besiktas Palace and Eyüp. At Topkapi, he worked on a set of terraced spaces reserved for Selim and for the women's quarters, and as per the sultan's request, instituted the 'French and Dutch conventions ["Sitte"]' rather than the picturesque landscapes that Europeans had begun to install in their own estates.

This calendar might be related to the Dutch conventional garden. While tulips had probably been cultivated in Asia from the tenth century, they did not come to the attention of the West until the sixteenth century, when Western diplomats to the Ottoman court observed and reported on them. They were rapidly introduced into Europe and became a frenzied commodity during Tulip mania. Tulips were frequently depicted in Dutch Golden Age paintings, and have become associated with the Netherlands, the major producer for world markets, ever since. In the seventeenth century Netherlands, during the time of the Tulip mania, an infection of tulip bulbs by the tulip breaking virus created variegated patterns in the tulip flowers that were much admired and valued. In Turkey the tulips was valued high. Sultan Ahmet iii. maintained famous tulip gardens in the summer highland pastures Yayla above the town of Manisa. They seem to have consisted of wild tulips. However, from the 14 tulip species known from Turkey, only four are considered to be of local origin, so wild tulips from Iran and Central Asia may have been brought into Turkey during the Seljuk and especially Ottoman periods. Sultan Ahmet as Selim iii. also imported domestic tulip bulbs from the Netherlands. This is a wonderful little manuscript: a Sultan's gardener's planting calendar – and on a most singular topic; finely produced and calligraphed, and in its original binding. I have not come across any other example before, and certainly not one concerned with this particular flower, The flower of Turkey.- Provenance: line 9 of the second leaf provides the name of 'Mohammad Eshqi' or 'Ashqi' (here: 'shiqi') as that of the gardener, followed by a statement on line 4 of leaf 3 that the calendar was written or compiled during the reign of Sultan Selim III. Judging by the little library shelf mark pasted onto the rear board of the binding, the manuscript eventually appears to have possibly become part of a European collection in the 19th-century.



FABRICI, Girolamo.

[Opera, comprising:] De venarum ostiolis. Padua, Lorenzo Pasquato, 1603.

bound and issued with: *De locutione et eius instrumentis liber a Ioanne Ursino editus M.DC.I. Padua, Lorenzo Pasquato, 1603.*

bound and issued with: *De brutorum loquela. Padua, Lorenzo Pasquato, 1603.*

bound and issued with: *De formato foetu. [Padua, Lorenzo Pasquato, colophon: 1604 but preface dated 1606, see below]. Four works in one vol., folio (414 x 275 mm), ; II: [ii] 23 [1, blank] with printer's device on title, 8 engraved plates (1 double-page, 7 full-page); II: [viii] 27 [1, blank] with printer's device on title and one engraved plate; III: [vi] 27 [1, blank], with printer's device on title; IV: [ii, engraved title and conjugate blank] pp [x] 151 [1, blank] [2, errata], with engraved title (see below) and 34 engraved plates (11 double-page, 22 full-page, and one, accompanying plate XI, quarter page; plates IX, XIV, XXIIII, XXVIII just touched by binder's knife on outer margin; III with outer margin frayed and paper flaw without loss of engraved surface); overall an exceptionally clean, fresh, large copy, in contemporary or near-contemporary French calf, gilt fillets on sides, gilt crowned arms within wreath, the escutcheons excised some time ago (French revolution probably), replaced with blank matching calf, spines with gilt compartments, minor repairs to spine and corners.*

EUR 158.000.-

First editions of these four tracts (the second, de locutione, the first folio edition, see below), including Fabrici's two most important works, the De venarum ostiolis, and the De formato foetu. The De venarum ostiolis is of one of the great rarities of anatomical literature: Fabrici's discovery of the venous valves directly inspired Fabrici's pupil and lifelong friend William Harvey.

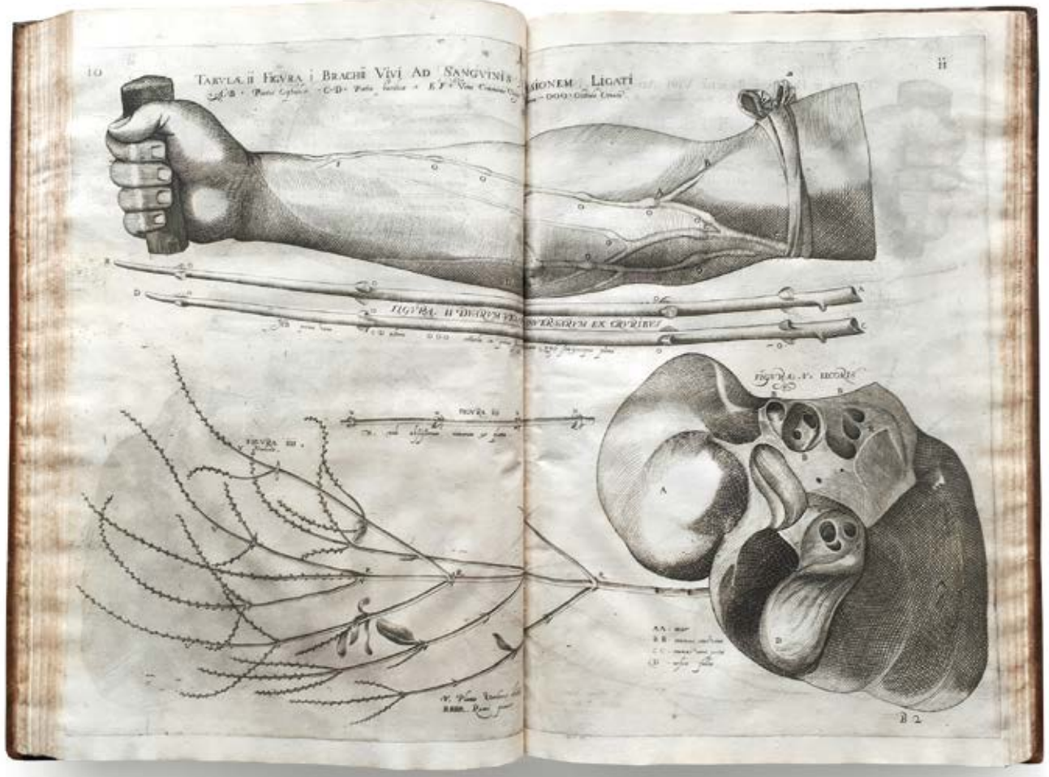
Fabrici's 'best-known and most important medical work is his classic monograph on the venous valves ... published in Padua in 1603 ... This tract, published originally as an unbound folio pamphlet consisting of twenty-three pages of text and eight engraved plates, has been described as one of the rarest and most beautiful works in the history of anatomical illustration' (K.J. Franklin ed, De venarum ostiolis 1603 of Hieronymus Fabricius of Aquapendente).
Among its plates are the well-known depictions of the surface anatomy of the veins of the forearm that William Harvey adapted to illustrate his De motu cordis. Although Fabrici did not fully appreciate the functional significance of the venous valves, his work was a crucial precursor of Harvey's discovery. As Harvey told the British physicist and chemist Robert Boyle, it was his recognition of the significance of Fabrici's observations and his own realization of the function of the venous valves [to prevent backflow of deoxygenated blood] that led him to conceptualize the circulation of the blood' (Grolier, Medicine p 104).

Fabrici (ca 1533–1619) taught anatomy at Padua, where he was successor to his teacher Falloppio, who himself had succeeded Vesalius. He was the outstanding anatomist of his time, and his knowledge is reflected in his many works. 'Fabrici spent nearly fifty years teaching in the medical faculty at Padua, from which he had graduated. He both taught and practised surgery. He was also consulted as a physician on non-surgical problems, and counted important persons as his patients, Galileo among them' (Roberts and Tomlinson, The fabric of the body p 249). Galileo, also a professor at the time in Padua, was a close friend of Fabrici, and through him almost certainly met Harvey. In the De motu cordis Harvey compares the circulation of the blood to the heliocentric system, with the blood circulating around a sun-like heart at the centre. Harvey, who received his degree at Padua in 1602, had lived as a student in Fabrici's house, and the two developed a lifelong friendship.

Accompanying it is his second major work in this group, the De formato foetu, an epochal embryological treatise that investigates not only the foetal anatomy but the whole system of gestation, nutrition, circulation, etc. 'De formato foetu illustrates the way in which nature provides for the necessities of the fetus during its intrauterine life. It treats specifically of the umbilical vessels, the urachus, the fetal membranes, fetal waste products, the "carnea substantia" (placenta), and the uterus ... Fabrici's description of the umbilical cord and its vessels is accurate, as is his differentiation of the action of the umbilical vessels in various animals; he also provides an adequate description of the right and left atria of the heart, the foramen ovale and the ductus arteriosus, the vena cava, and the pulmonary vein in the foetus ...

'De formato foetu ... contains thirty-four plates of great interest which illustrate, in some instances for the first time, various aspects of the anatomy of the uterus and of the fetus in humans and animals' (DSB, which goes on to detail the many discoveries contained herein). These two are accompanied by his lesser tracts on the instruments of speech in humans and animals.

The De venarum ostiolis, along with Fabrici's other anatomical publications, was meant to be part of his monumental Totius animalis fabricae theatrum, an encyclopaedic account of animal anatomy which remained unrealised. The four works issued here had a complicated publishing history, and much has been written, not always accurately, about issues and editions, which is in need of clarification.
The first tract published, De venarum ostiolis, appeared in 1603, and in its preface to Fabrici's German students announced his intention to produce a series of anatomical treatises, of which this was the first, in identical folio format. 'I have also made it so that you, who await most eagerly of all these anatomical works of mine, may also be the first to learn that this treatise is that which shows the printer both the size of the page and the type of print of all the remaining treatises, and of that large work, which we are compiling on the structure of the animal as a whole. From this format no departure is allowed. The remaining treatises will be printed to this pattern, and thus young students, who have procured these one by one on publication, and have arranged them in orderly sequence, will be able finally to put them all into one volume and bind them properly together without any unnecessary loss of text or money'. In fact only a very few copies were released in 1603.
The De locutione followed the same format, but is in fact a reprint of a quarto treatise Fabrici had published in 1601. Its companion work, De loquela brutorum, appeared in the same year. The final treatise, De formato foetu, was



apparently published in 1604, but is something of a bibliographical puzzle. The De formato foetu begins with an elaborate engraved title dated 1600, but upon examination it is clear that it is in fact printed from the engraved plate used for Fabrici's De visione, voce, auditu, Venice, Francesco Bolzetta, 1600. For the De formato foetu, the engraved title in the cartouche below Fabrici's name was masked, and the new title printed separately in letterpress where the original title would have appeared. The imprint, 'Venetiis, Per Franciscum bolzettam, 1600' remains the same but has been altered in pen to read 1620 (as in the Wellcome, Bodleian Library, Oxford, Emmanuel College, Cambridge, and other copies, as noted by Adelmann). This is because following Fabrizi's death in 1619 the four tracts were put together as originally intended and issued in 1620. For some reason no title for the De formato foetu had been printed so Bolzetta adapted the engraved title from the earlier work.

To add to the confusion, the colophon is dated 1604, whereas the preface is dated 1606. Adelmann and Franklin both surmise that the "MDCVI" of the preface was a mistake for 'MDCIV' of the colophon, but we can't be sure, and more importantly, Adelmann offers evidence based upon watermarks that both dates are correct, one for the main body of text, and the other for the preface.

All four works, along with De formatione ovi, et pulli, which had been published posthumously in Padua in 1621 by another printer, were reissued in 1625 by Roberto and Antonio Meglietti with new title-pages, Opera physica anatomica, in the case of Roberto and Opera Anatomica in the case of Antonio. By this time, however, the De venarum ostiolis appears without its own title-page or is absent altogether. And there are further absences in the other tracts in some copies of 1625. Clearly there were very few, if any, complete copies available. 'There are differences in the order of assembling the tracts, in the presence or absence of a separate title-page for De venarum ostiolis, in the inclusion or not of De venarum ostiolis in the table of contents on the general title-page, and finally in the presence or absence of the tract itself' (Franklin).

Finally, the presence or absence of 'Superiorum permissu' on p 22 of the De venarum ostiolis, has been suggested as indicating priority of copies without it. The 'Superiorum permissu', a form of approbatio or licenza, authorisation to publish, is present in the other four tracts. In some copies of the De venarum ostiolis it is absent. Again, examination shows that it wasn't printed with the rest of the text, but stamped separately, its position on the page varying between copies when present. An examination of numerous copies, including the sheets in the 1625 edition when present, show that its presence or absence is arbitrary and cannot determine any priority; in fact, in could be argued for the opposite, but again without any evidence. There was only one original printing of the De venarum ostiolis, as here. Adelmann, in conclusion of his investigations of the printing history of De formato foetu and the other tracts, concluded 'a study of them leaves no doubt that these are the original folio printings of the constituent treatises'.

Watermarks: anchor and trident throughout apart from the dedication leaves to Marchese Renato Borromeo in the De formato foetu, which have a star with one extended arm and trident countermark, and the errata leaf which has a crown, as described by Adelmann

Provenance: old shelfmark on front pastedown; 'Arm[and]. Goubaux Professeur d'anatomie à l'école d'Alfort' (1820–1890) professor at the veterinary college at Alfort, and 'Collation A.D.', signed 'A Dubois' on initial blank; stamp 'Huzard de l'Institut' on verso of title, with pencil note 'Cat Huzard T III n 226 Exemplaire sur grand papier' on front pastedown. Jean-Baptise Huzard (1755–1838) was Inspector General of the national veterinary colleges and a distinguished book collector. His library contained over 40,000 books, covering natural history, agriculture, medicine, and veterinary medicine. The sale catalogue, Catalogue des Livres, Dessins et Estampes de la Bibliotheque de feu M. J.-B. Huzard ... was published in three volumes in 1842.

See Howard B. Adelmann, The Embryological Treatises of Hieronymus Fabricius of Acqapendente (1942), particularly IV, 'Bibliographical Note', pp. 122-135; K.J. Franklin, De Venarum Ostiolis 1603 of Hieronymus Fabricius of Aquapendente (1933), 'Bibliographical note concerning the First Edition', pp. 31-36

I. Grolier Medicine 27b (27a is Harvey's De motu cordis); Garrison and Morton 757; Le Fanu pp 58-59; Krivatsy 3831; Norman 750; Roberts and Tomlinson n. 60 and pp. 249-53; Waller 2886; OCLC record NLM, Huntington, Indiana, Minnesota, Philadelphia College of Physicians, Tennessee, Missouri, and Prior Medical Library; II. Krivatsy 3830; Norman 749; Waller 2885; III. Krivatsy 3825; IV. Garrison and Morton 465; Krivatsy 3827; Norman 751; Wellcome 2119.

Metoposcopy – The Lines of the Face

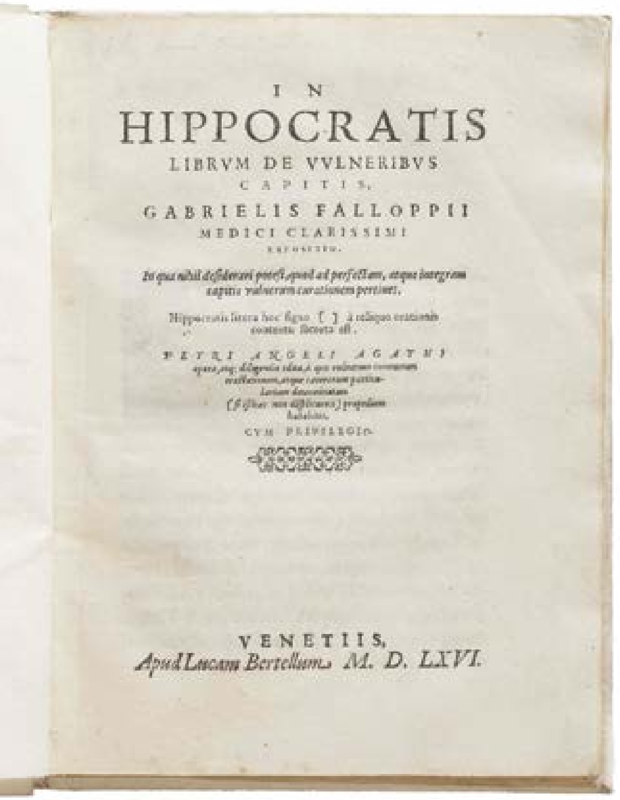
FUCHS, Samuel.

Samuelis Fuchsii Cuslino Pomerani Metoposcopia & ophtalmoscopia. – Argentinae (Strassbourg:) excudebat Theodor Glazer, sumptibus Paul Ledertz, 1615. 8° (150 x 90 mm) pp. (16), 140 with 24 text engravings and two woodcut – portraits. Polished calf, gilt spine in compartments, morocco label, browning throughout, Ex Libris on inner cover: Dr. Maurice Villaret.

EUR 1.600.-

Very rare work, an illustrated treatise on physiognomy and the estimation of character by the eyes not unlike Cardano or Lavater (Garrison 273). "Samuel Fuchs, a native of Koslin in Pomerania, was professor of rhetoric at Königsberg. In this curious and little known work the author suggests a system for the estimation of character based on the shape of the head and eyes […] Among the finely executed engravings and woodcuts are portraits of Cosimo Medici, Andrea Doria, Christopher Columbus, and Philip II, Duke of Pomerania" (Becker).

Edition originale, peu courante, d'un texte pionnier dans l'art de la divination et de l'étude de la psychologie humaine par la lecture des traits du visage, en particulier des rides du front, autrement dit la ‚metoposcopie'. En outre, le titre de l'ouvrage utilise de maniere tout fait nouvelle le terme d'ophtalmoscopia pour designer la connaissance des caracteres humains par l'examen des yeux. Lavater, 250 ans plus tard, utilisera le meme melange de visages anciens et modernes. D'autre gravures illustrent les traits generaux de la psychologie humaine, ou parfois meme, suivant en cela le modele de Della Porta, elles tissent des analogies entre les figures humaine et animale.- BM-STC F 1306. Krivatsy 4457. Waller 3303. Wellcome I, 2468. Becker Coll. 95. Hirschberg 483 (III, S. 20, 1). Sabin 26106. Caillet II, 4248: "livre recherche et rare, orné de figures dans le texte finement gravees". Graesse, Bibl. mag.-pneum. 104. Rosenthal 953 ("Piece fort rare"). L'Art Ancien 673; Lit.: A. de Neufville. Un précurseur de Lombroso au XVIIe siecle; in: La revue des revues 15. June 1896. Analysis of the book on 10 pages. Provenance: ownership inscription on title; Bibliotheque Sainte-Genevieve Paris, 1753.



FALLOPPIO, Gabriele.

In Hippocratis librum de vulneribus capitis … expositio. In qua nihil desiderari potest, quod ad perfectam, atque integram capitis vulnerum curationem pertinent …. Venice, Luca Bertello, 1566. 4to (202 x 150 mm), ff. 59, [1, terminal blank]; some contemporary marginal annotations, a fine copy in carta rustica.

EUR 7.500.-

First edition, exceptionally rare, of Falloppio's treatise on head wounds and their treatment, given as one of his medical lectures at Padua where he held the chair in anatomy as successor to Colombo, and published posthumously, like most of his writings.

The work is in the form of an exposition of and commentary on the relevant passages of Hippocrates. It was transcribed from lecture notes and edited by Giovanni Bonacci, who has dedicated it to the great Venetian printer Vincenzo Valgrisi.

The work covers cranial anatomy, treatment of cranial fractures, injuries to the brain, convulsions and inflammations, etc. Evidencing considerable knowledge of cerebral anatomy, Falloppio was the first to describe 'the arterial circle of vessels at the base of the human brain … He described the union of the anterior rami (corresponding to our anterior communicating arteries) to the carotid arteries' (Garrison's History of Neurology p 58). Besides elucidating Hippocratic texts on brain anatomy, Falloppio corrects other writers, such as Aristotle, Vidius, Cornarius, and Colombo.

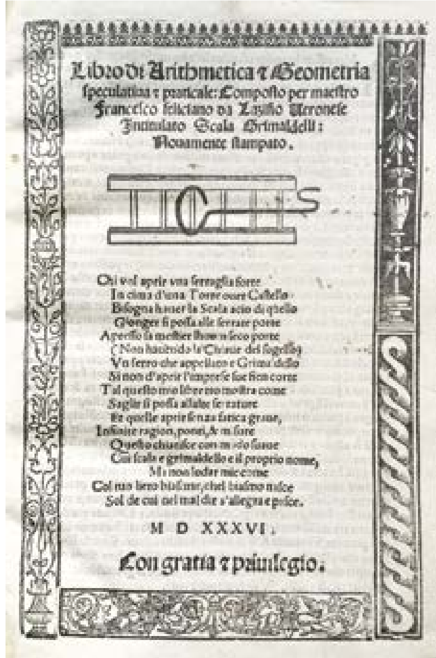
Falloppio (1523-1562), the foremost Italian anatomist of the sixteenth century and rival to Vesalius, made innumerable contributions to the understanding of human anatomy. His knowledge of the detailed anatomical structure of the head assisted him in advancing surgical practice in dealing with head wounds, although he himself was not a skilled surgeon (O'Malley in the DSB remarks drily that 'Falloppio began the practice of surgery but displayed so little aptitude for that subject - as demonstrated by the fatal outcome of a number of his cases - that he soon thereafter abandoned it and returned wholly to the study of medicine').

This is a rare work, and not in the standard medical bibliographies. It was reprinted in the Opuscula tria in 1569.

Adams F142; Bruni Celli 1334 (with incorrect citation of the printer and erroneous collation); not in Waller, Wellcome, etc; the Census of Italian 16th Century Editions (Edit 16, online) lists 8 copies in Italian libraries; OCLC locates copies at UCSF, Chicago, Michigan, and National Library of Medicine.

The 'Scala Grimaldelli'

More Complete than the Treviso Book, More Modern than Borghi, More Condensed than Pacioli The First Work on the Usage of the Surveyor's Cross and Highly Esteemed



FELICIANO, Francesco.

Libro di arithmetica et geometria speculativa et praticale … intitulato Scala Grimaldelli … Venice, Francesco Bindoni and Maffeo Pasini, 1536. 4to, ff. [80]; woodcut frame with foliage and grotesques and a woodcut image of the 'Scala grimaldelli' (ladder and key) to the title-page, many typographical and woodcut diagrams in the outer margins; occasional staining, but a very good copy in later stiff vellum; several contemporary marginalia; the Harrison David Horblit copy with his Ex-Libris on front paste-down.

EUR 5.500.-

The scarce second edition of Feliciano's most famous work (following the publication of his Libro de abaco of 1517), generally known as the Scala Grimaldelli (first, 1526, and extremely rare).

'Feliciano's second work was highly esteemed as a textbook for schools … more complete than the Treviso book, more modern than Borghi, more condensed than Paciuolo, few books had greater influence on the subsequent teaching of elementary mathematics.

'The fanciful name, "Scala Grimaldelli," is explained in the verses on the title page. just as it is necessary in attacking a castle to have a ladder (scala) and a skeleton key (grimaldello) to open locks, so in attacking mathematics it is necessary to have a book that answers the same purposes.' (Smith, p. 148).

'One of the major proponents of the principles of arithmetic, algebra and geometry put forward by Leonardo Fibonacci (1170–1240) and Luca Pacioli (1445–1517) at the turn of the fifteenth and sixteenth centuries, Feliciano da Scolari is remembered for his work as an arithmetic master and land surveyor and for the extraordinary success of his published treatise known as the "Scala Grimaldelli" …
'The work is divided into three "Libri"; the first is of a commercial nature, in the second the author covers roots and algebra, also known as the "Regola della cosa" … while the third book is dedicated to practical geometry and solving the key problems of measurement … The 1526 edition of Feliciano's "Libro di arithmetica & geometria speculative e praticale" is in fact the first printed work indicating the usage and applications of the surveyor's cross. In the first half of the sixteenth century the "arte di misurare con la vista" (art of measuring by sight) that had always had a large following in the field of surveying and was still popular at the time of De Scolari, was becoming increasingly outmoded …

'In the "Terzo libro" of his Scala Grimaldelli he concerns himself mainly with demonstrating the ease of use of the surveyor's cross and the accuracy of the result compared to other methods in use at the time. The work is enhanced with an interesting overview of some case studies relating to the measurement of land which are considered difficult to resolve, providing the solutions to them. To do this he sets out a description of three different ways of measuring for each of the problems posed, supported by drawings, in order to highlight the procedures that lead to correct results compared to those that lead to errors or inaccurate results. …

'Feliciano was the first to provide a description of how the surveyor's cross is used in a printed text; the structure of it is not explained, but it is referred to as an instrument that has already been well-known for some time by more accomplished surveyors. The instrument, which is essentially based on the groma used by the Romans, most likely consisted initially of a horizontal disc with two pairs of cross pieces mounted at right-angles' (Michele Cigola, editor, Distinguished Figures in Descriptive Geometry and its Applications for Mechanism Science pp. 53-65, passim).

'The book had a good deal of influence on the teaching of elementary mathematics, appearing in numerous editions including one in 1669, 143 years after the original edition' (Frank J. Swetz and Victor J. Katz, Francesco Feliciano's Libro di Arithmetica, in 'Mathematical Treasures', online).- Smith, Rara arithmetica p. 148; cf. Riccardi II, 21.

Music and The Theory of Sound

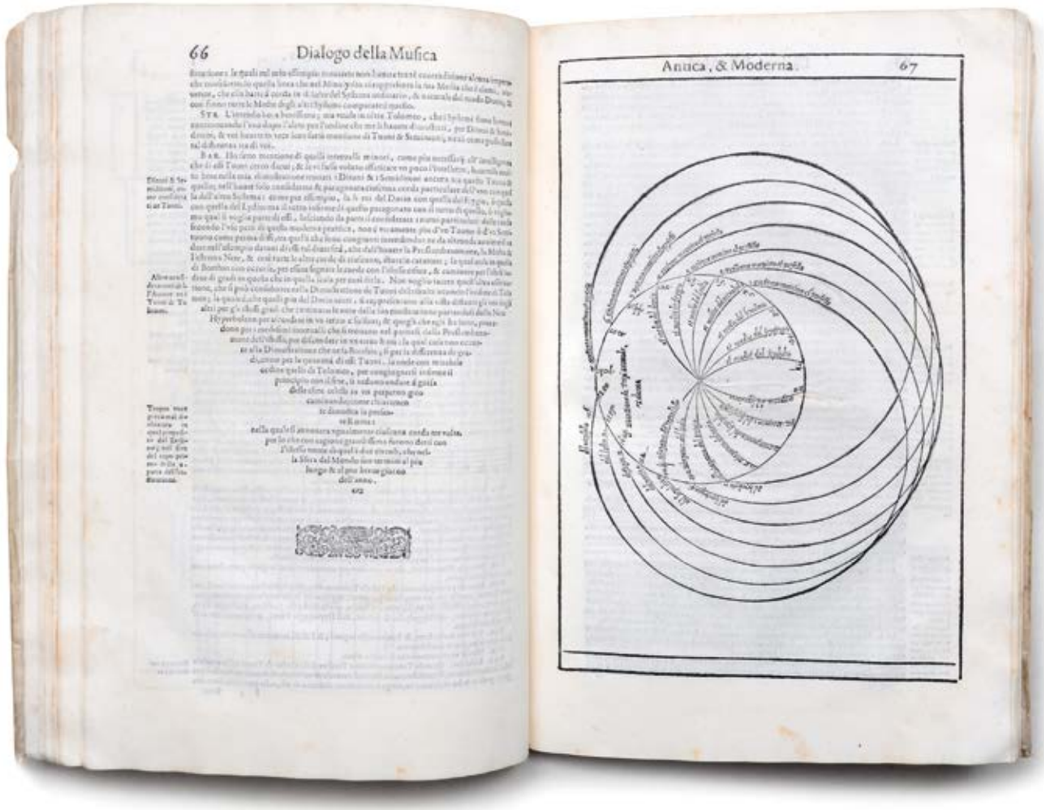
The Birth of Experimental Physics

Vincenzo's Dialogo and Galileo's Discorsi

GALILEI, Vincenzo.

Dialogo ... della musica antica, et della moderna. Florence: Giorgio Marescotti, 1581. Folio, ff. [2], pp. 149, [10], title within a fine allegorical woodcut border, two engraved examples of musical notation, five illustrations of musical instruments, two full page; one pasted-in woodcut diagram, numerous woodcut text diagrams, some full-page, and woodcut printer's device at colophon; one deletion in ink to two lines on page 70, and the odd marginal note in a contemporary hand; occasional light spotting, pale damp mark to the upper margin of the first few leaves, and to the lower outer corner, the odd stain; old ownership inscription on front free endpaper crossed through; contemporary limp vellum; spine with short splits over the cords, top corners worn, missing the original ties; preserved in a custom made morocco backed box.

EUR 26.000.-



A beautiful copy of the first edition, first issue of Vincenzo Galilei's main work, very scarce on the market.

'Vincenzo Galilei, father of Galileo Galilei, the astronomer who disenchanted the universe, was among the first to cut the ancient monochord in a series of experiments conducted in the 1580s, by subjecting instrumental sound to the instrumental reason of empirical science. Indeed, Stillman Drake suggests that Galilei's experiments with sound 'may have led to the origin of experimental physics', inspiring his son to interrogate the world to verify the laws of nature as empirical fact. Galilei wanted to 'demonstrate real things', he said, in the spirit of Aristotle and not the numerical abstractions of Pythagorean mysticism. He collapsed music into 'reality' as an audible fact divorced from celestial values.

'Galilei in these experiments exercised an instrumental reality in two ways. First, he objectified music as a neutralised matter for experimentation. Numbers were not sonorous in themselves, he claimed, but had to be 'applied to some sonorous body'. Music does not exist as some perfect numerological system out there in the celestial realms as Pythagoras and indeed Galilei's teacher, Zarlino, believed; rather sounds are emitted from bodies whose different components colour the aural perception of their harmonic ratios. Why believe in the ancient ratio 2:1, for example, if, as Galilei demonstrates, the diapason can variously be obtained between strings whose length is in duple proportion, or weights in quadruple proportion? Empirical reality simply did not match up with the ancient integers that were to organise the universe ...

'Secondly, having demythologised music with an empirical rationality, he subjects it with an instrumental efficiency that re-tunes music for modern ears. If, as his experiments proved, sounds were necessarily imperfect and unrelated to simple numbers, then there was no reason why the irrational tuning of Aristoxenus, that is equal temperament, should not be imposed upon music played on or accompanied by instruments. Indeed, the chromatic and enharmonic nature of modern music demanded it, and just to underline the point, Galilei composes 'a song' which if sung with perfect intonation would be out of tune with reality: the chromatic and enharmonic clashes of modern harmony can only be eradicated if played on instruments tuned to equal temperament' (Daniel K.L. Chua, Absolute Music and the Construction of Meaning pp. 18-19).

'We may recognize in Vincenzo Galilei's insistence both on the complexity and on the discoverable regularities of auditory experience something of Galileo's approach to natural science, and certainly a family likeness in the polemical aggressiveness to be made famous by his son. Vincenzo was skilled lutenist, a mathematician, and musical preceptor to the Florentine musical Academy of the Camerata. Among the manuscripts inherited by Galileo he left a translation of Aristoxenus into Italian, and he explicitly followed the example of Aristoxenus in trying to build musical science up from auditory sensation, instead of imposing on it a rigid mathematical scheme in the style of the Platonists. One of his discoveries, described in his last published work and last manuscripts, was that the traditional ratio 2 : 1, said to have been shown by Pythagoras to produce the octave, did so only with lengths of strings in that ratio: for the tension of strings the octave ratio was 4 : 1. His ratio for organ pipes was less happy. He poured scorn on the universal harmonies attributed to nature by the Platonists. Even when we knew the mathematical ratios, he pointed out that we could not always determine the quality of our sensations. This was an observation to be developed by Descartes in distinguishing within the "perfection" or "douceur" of consonances between objective mathematical simplicity and subjective pleasure, between "ce qui les rend plus simple et accordantes, et ce qui les rend plus agréables à l'oreille".

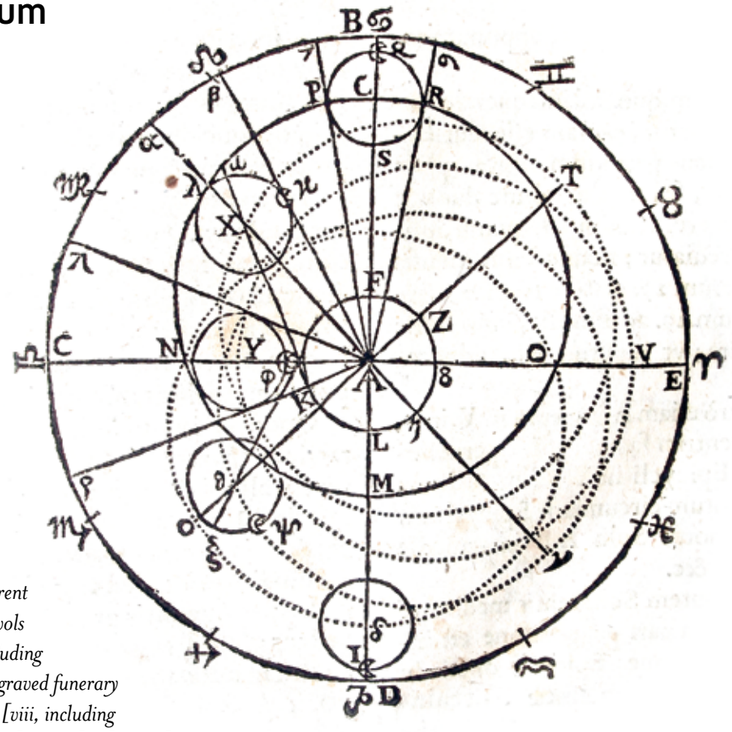
'It was precisely when Vincenzo was doing this work that Galileo made his retreat from Pisa in 1585 and lived mainly in his father's house in Florence, before returning to Pisa as lecturer in mathematics in 1589. He reported what were evidently Vincenzo's results in his Discourses on Two New Sciences (1638), before giving his own proof that the musical intervals were ratios of frequencies and his own physical explanation of resonance, consonance, and dissonance' (A.C. Crombie, Science, Optics and Music in Medieval and Early Modern Thought pp. 367-368).

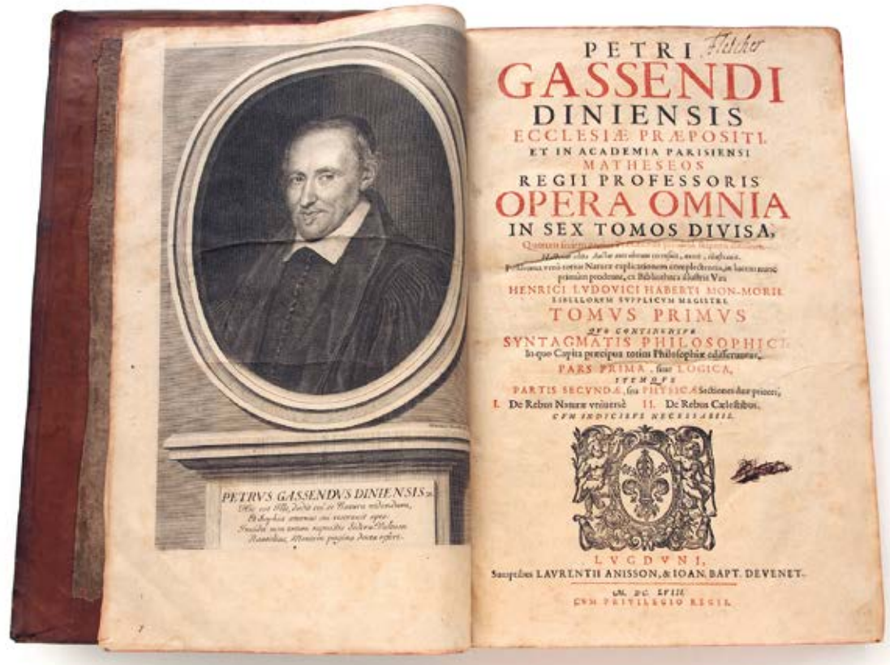
'Galileo was closely tied to the contemporary community of artists, but his links to the world of music and music theory were even tighter. His father, Vincenzo Galilei (c.1520-1591) was a renowned performer on the lute and a prominent music theorist; Marin Mersenne defers to him in his 1625 La Vérité des Sciences. Most of Vincenzo's theoretical publications were devoted to the vexing and age-old problem of tuning ... Vincenzo's experiments went beyond tinkering with instruments into a full-scale test of a physical law. Here the scientific innovation was profound enough (it made Vincenzo perhaps the first experimentalist in the history of European science) that people have wanted to see Galileo involved in the process ...

'Galileo's Two New Sciences was published some forty years after the experiments his father described. The late music historian Claude Palisca, after speculating on whether Vincenzo influenced Galileo or vice-versa, wrote, "While the possibility of such an influence is only conjectural, it is a striking fact that Galileo, in the section on consonances in the Dialogues Concerning Two New Sciences, repeats in the conversation between the two interlocutors, Sagredo and Salviati, the thought process that is documented in the discourses of Vincenzo Galilei". Galileo has Sagredo run through the relations between pitch and length, tension or thickness and justify them by reference to "true (verissime) experiments", but with no reference to where, by whom, or exactly how those experiments were carried out. In particular, Sagredo asserts that substituting a string of one fourth the thickness will give a note one octave higher. (Note that "thickness" must be interpreted as cross-sectional area for this to be correct). Salviati later suggests an improvement: the higher string should have one fourth the weight; this refinement obviates the thickness/cross-section ambiguity and allows the rule to be applied to strings of different material. Galileo also goes beyond his father's experiments in relating pitch to frequency and in explaining the perception of the consonance in terms of coherent vibrations of the eardrum. From the evidence, to say that Galileo drew upon mathematical traditions in music theory would be a substantial understatement. He grew up exposed to reliance on physical experiment and also to the willingness to challenge traditional authority. This was in the domain of music theory, but the principles have wide application. Galileo spoke of his father's experiments as if they were his own and integrated them into his thought about periodic motion in general. On the other hand, the importance of the legacy of his father's scientific attitude towards tradition cannot be precisely gauged but should not be underestimated' (Galileo's Muse: Renaissance Mathematics and the Arts, reviewed by Anthony Phillips). The work was re-issued by Giunta with a new title page in 1602.

Adams G 139; Cinti 6; RISM B. IV, p. 344; Eitner IV, 128; Fetis III, p. 384; Gregory, p. 103; Gaspari I, p. 219; Bibliothèque A. Cortot, p. 83.

First Edition of his Opus Magnum





GASSENDI, Pierre.

Opera omnia in sex tomos divisa. – Lyon, Laurent Anisson and Jean Baptiste Devenet, 1658. 6 vols bound in 4, folio (352 x 228 mm), [lvi, including engraved portrait on verso of half-title and engraved funerary monu-ment with portrait on i6v] 752 [14]; [viii, including blank] 860 [10]; [xliv] 662 [2, blank]; [viii] 536; [xiii] 740 [34, including blank leaf]; [xii] 545 [3, blank], titles in red and black, numerous woodcuts in text; some light marginal spotting, faint marginal water-stains on a few gatherings, overall a very good copy in contemporary speckled calf, ruled in blind, spines in seven compartments, small splits to joints but cords sound, a couple of cords just visible.

EUR 20.000.-

First edition of Gassendi's Opera, containing significant texts published here for the first time, including his masterpiece, the Syntagma philosophicum in first edition.

The Opera was published in six volumes by his friends in Lyons (1658), according to a plan he had established himself. The first two volumes contain the Syntagma; the third, a series of scientific works; the fourth, the astronomical lectures and observations; the fifth, the Lives of Astronomers and Epicurean works, as well as the Life of Peiresc; and the sixth, the Latin correspondence he had selected to preserve [688 letters in all].
Pierre Gassendi (1592–1655) was a French philosopher, scientific chronicler, observer, and experimentalist, scholar of ancient texts and debates, and active participant in contemporary deliberations of the first half of the seventeenth century. His significance in early modern thought has in recent years been rediscovered and explored, towards a better understanding of the dawn of modern empiricism, the mechanical philosophy, and relations of modern philosophy to ancient and medieval discussions. While Gassendi is perhaps best known in history of philosophy for his disputes with Descartes, his relations with other major figures, including Kepler, Galileo, Mersenne, Beeckman, and Hobbes, represented even more important transactions of ideas. And while Gassendi also sought to communicate anew the ideas of Epicurus, the Stoics, and other earlier thinkers, his resulting amalgam of perspectives provides a modern view of his own making, one of the touchstones of philosophy and science in his times: our access to knowledge of the natural world is dependent on the constraints and licenses that follow from our epistemic grasp being limited to information provided by senses. Gassendi's philosophy is a constant review of other sources, a thorough consideration of the landscape into which his own empiricism fits and represents an alternative to contrasting claims, past and present. What is sometimes thought of as eclecticism – particularly in the posthumous masterwork, the Syntagma Philosophicum – actually recasts philosophy as a fully-referenced scholarly enterprise, advancing historical styles and rhetorical modes in philosophical research and exposition. In these changes he matches even the magnitude of innovation that marks his atomist matter theory, empiricist perspectives, explorations and defenses of the new physics, objections to the Meditations, and refutations of contemporary Aristotelians and mystical thinkers. It has been argued - perhaps unfairly - that Gassendi's core ideas are better preserved through the medium of writings by Boyle, Locke, Huygens, and Newton.

Gassendi's science is philosophically noteworthy in the way that Descartes' or Kepler's science is, drawing on a robust set of views on the nature of the world and what we know of it. His scientific work in astronomy, optics, and mechanics is of particular import in suggesting how we should pursue a purely empirical picture of the world, within the limitations of our sensory access and the constraints of tradition. His embrace of an empiricist astronomy can be gauged by his voluminous recorded observations – some presumably with the telescope lenses sent by his friend Galileo – carried out in concert with a league of fellow observers strung across Europe and the Near East. A primary goal of these recorded observations was to confirm and extend the Rudolphine Tables, the project set up by Tycho Brahe and completed by Kepler, to facilitate calculation of the planet's positions (which goal in itself suggests Gassendi's adherence to a Keplerian heliocentrism). Another facet of Gassendi's empiricist astronomy was his denunciation of astrology as crafted independent of any ideas from the senses, impervious to correction by experiment or observation, and thus as failing to qualify as natural or experiential knowledge.

Gassendi's close interests in observation also led to employing the camera obscura to gauge variations in the apparent diameter of the moon—in accordance with its orbit of the Earth and the apparent diameter of the Sun. Further, in his work with Peiresc, Gassendi tackled the problem of determining longitude by reference to lunar eclipses, later working towards this goal with Claude Mellan on the first effort to chart the moon. Gassendi's interests in unusual celestial phenomena dates back as early as 1621, when he observed the colorful illumination of the sky and dubbed these lights 'aurora borealis'. Based on his correspondence with observers as far away as the Levant, he located the source of the illumination at very high altitude, above the Northern Polar region. In 1629, he observed the rare phenomenon of parhelia, or false suns, which he explained in his Parhelia seu soles…, in terms of the reflection of sunlight by ice or snow crystals at high altitude. This account, shown to be accurate in the nineteenth century, relies on the views of Gassendi and Peiresc – based on their microscopical observations – that crystal formations of snow and ice are highly reflective. The great triumph of Gassendi's scanning of the skies was his observation of Mercury's transit before the Sun (1631), the first such recorded observation and a confirmation of Kepler's prediction of the planetary orbits in accordance with the Three Laws. This confirmation in turn enabled the subsequent calculations (Halley and Gallet, 1677) of the distance between the Earth, the Sun, and the other planets.

Closely related to Gassendi's interests in astronomy are a number of issues in optics, where he sought to articulate a physiological model of vision and a physical model of light. In so doing, Gassendi contributed to early modern efforts that would eventuate in distinguishing these two ends of traditional optics. His integrated optics model follows an Epicurean and Lucretian intromission view, that vision is a function of rays of light atoms or image-bearing atoms that are received by our internal apparatus for vision. The structure of this apparatus was of great concern to Gassendi and his early collaborator on naturalist projects, Peiresc. The premise of their work was that Kepler was largely correct in postulating an optical image that gathers many rays into a coherent representation in the eye, focused on the retina by the crystalline lens. Gassendi's mechanics shows the strong influence of the Galilean programme. He addresses the law of free-fall twice, first in a faulty treatment in De Motu (1642), and next in corrected fashion in De proportione qua gravia decidentia accelerantur (1646). In the earlier work, Gassendi focuses on forces compelling the falling body, which he takes to comprise the attractive force of magnetism and the propelling force of air behind the falling body. This combination of forces, he suggests, allows for the Galilean law that the distance traveled by bodies in free-fall is proportional to the time of fall squared. However, Gassendi mistakenly takes increases in velocity and in distances to be equivalent, leading him to manufacture a false need for greater velocity attained than what would be produced by the attractive forces alone. In De Proportione, he acknowledges this error, amends his calculations, and retreats to a causal account that rests on the single force of the terrestrial magnetic attraction. This is not one of Gassendi's empirical triumphs, though—in neither work does he make any specific reference to observations or experiments. One notable success in the experimental domain is his performance of the Galilean test of dropping a stone from the mast of a moving ship, recorded in De Motu. Once dropped, Gassendi shows, the stone conserves its horizontal speed (equal to that of the ship, before being released) and its motion describes a parabola given its downward fall. This result successfully refutes one simple anti-Copernican argument, by showing that the Earth can move without superadding motion to terrestrial objects otherwise in motion (which superaddition, opponents of Copernicanism correctly maintained, would generate much havoc in the motion of terrestrial objects). This much Galileo surmised in his original thought experiment, though the performance was excellent publicity for the Galilean perspective and an opportunity for Gassendi to think through the issues at stake. In this regard, Gassendi was able to take a step beyond Galileo's conclusions, drawing from this test a generalized principle of inertia (the Galilean version of inertia was fundamentally circular, given that bodies in motion would trace the earth's curve). Gassendi saw that the motion of the dropped stone at a sustained speed – in the absence of any contrary force or obstacle – is an instance of inertial motion, albeit one where the motion is compositional (describing the parabola). Indeed, neither compositionality nor directionality had any impact on inertial motion, Gassendi concluded: any body set in motion in any direction continues, unless impeded, in rectilinear path. Other accomplishments in physics included a compelling measurement of the speed of sound (showing that sound travels at the same speed, no matter the nature of its pitch), and the first satisfactory interpretation of the Pascalian barometry experiment. In his account of the Puy-de-Dôme experiment, Gassendi proposes that variations in air pressure are relative to atmospheric conditions and altitude, as the air is an elastic gas. He also suggests that this experiment (which he repeats at Toulon in 1650) shows that created vacuum is possible, at least as accumulated among part of the air particles in the instrument 'sealed' by the mercury column in the experimental apparatus. In establishing the elasticity of air as a gas and accumulated void as a result of particle displacement, Gassendi evokes his ontology of atoms and the void.- Gomez and Turner 116; Carli and Favaro 260; Houzeau-Lancaster 340.


D. Carl Abraham Gerhard,
Königl. Preußl. Geheimer Ober-Finanz- Kriegs- und Domainen-Rath ꝛc. ꝛc.
Abhandlung
über die
Umwandlung
und über den
Uebergang
einer
Erd- und Stein-Art in die andere.
Berlin, 1788.
Bei Wilhelm Vieweg, dem jüngern.

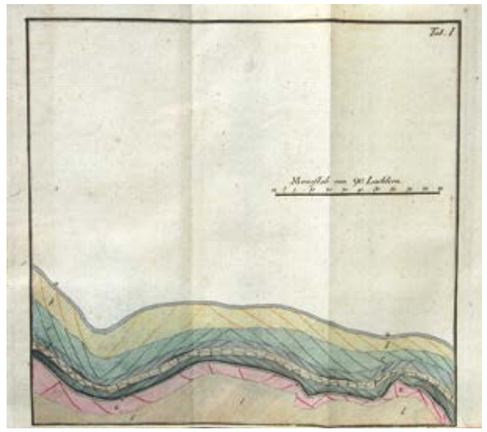
GERHARD, Carl Abraham.

Abhandlung über die Umwandlung und über den Uebergang einer Erd- und Stein-Art in die andere. – Berlin: bei Wilhelm Vieweg, dem jüngeren, 1788. 8° (170 x 100 mm) (2), 129 pp. Contemporary half calf, morocco lettering piece, red edges, engraved title-vignette by D. Beger, label on spine, a fine copy.

EUR 1.200.-

Very scarce first edition. Concerns the effects of heat on various minerals, stones and soils and the geological sequence of different layers. Two amendments lists the geological sequences in different parts of Silesia like Münsterberg (Ziebice). Carl Abraham Gerhard (1738–1821) was from 1786 an advisor on finance and war to the Prussian court in Berlin. He also was appointed commissary for the administration of mines and melting works, becoming in 1779 councillor for mining. Gerhard was a member of the Akademie der Wissenschaften in Berlin. – Poggendorff I, 880 f.; NDB VI, 274.

Classification of Minerals & Earths



GERHARD, Carl Abraham.

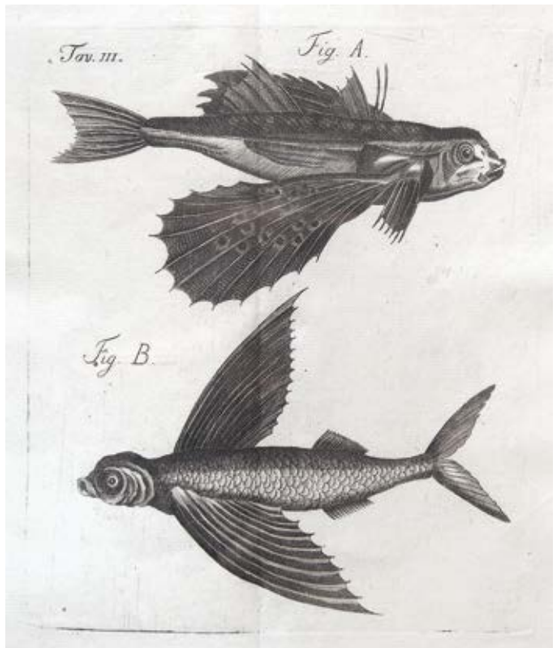
Versuch einer Geschichte des Mineralreichs. Erster (und zweiter) Theil. Mit X Kupfertafeln. 2 vols. – Berlin, bey Christian Friedrich Himburg, 1781 – 1782. 8° (198 x 116 mm) [i]-xxxx, 302 pp. with engraved title vignette by J. W. Meil, and 10 engraved fold. plates (of which 7 are hand-colored); viii, 424 pp. Contemporary black paper-card boards, red sprinkled edges, red morocco label, rubbed and soiled.

EUR 1.600.-

Scarce mineralogical work. Volume one provides descriptions of the properties of minerals, theories on the internal structure of the earth, techniques for locating mineral veins, etc. Volume two explains Gerhard's system of mineral classification, which was based on the previous systems of Bergman, Born, Werner, Wallerius and Cronstedt. Following this is a descriptive mineralogy listing the minerals according to Gerhard's classification. Carl Abraham Gerhard (1738–1821) was an advisor on finance and war to the Prussian court in Berlin from 1786 onwards. He was also appointed commissary for the administration of mines and smelting works, becoming in 1779 councillor for mining. Gerhard was a member of the Akademie der Wissenschaften in Berlin.

Seine "Beiträge zur Chemie und Geschichte der Mineralogie" (2 Bände, Berlin 1773/76) enthalten eine der ersten moderneren Darstellungen der Mineralogie mit einer gegen die herrschenden Einteilungen natürlicher erscheinenden Systematik: Die Einordnung der Mineralien in die höheren Klassifikationsstufen stützt sich vor allem auf die chemische Zusammensetzung, die Unterscheidung und Abtrennung der einzelnen Mineralarten auch auf die äußeren (physikalischen) Kennzeichen, ganz so, wie G. A. Werner später und konsequenter in seinem berühmter gewordenen System vorging." - NDB VI, 274 ff.; Pogg. I, 880-81; Ferchl 181; Hirsch-H. 275; Adams, Birth and Development (1938) pp. 315; Ferguson, Bibliotheca Chemica, I, 311; Freilich Sale Catalog: no. 206; Jonathan Hill, cat. 28, no. 49; Erika Bielefeldt. Carl Abraham Gerhard - ein Berliner Geologe der Aufklärung, Zeitschrift für geologischen Wissenschaften, 8 (1980), no. 2, 207-15.

Fish Fossils from Bolca



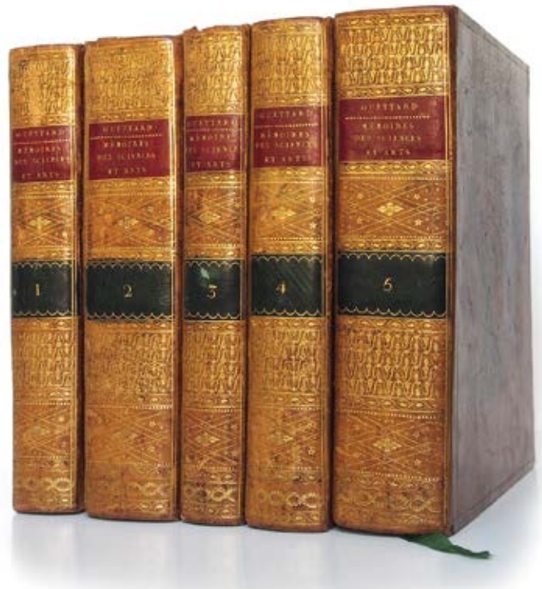
GAZOLA, Count Giovanni Battista (Giovambattista)

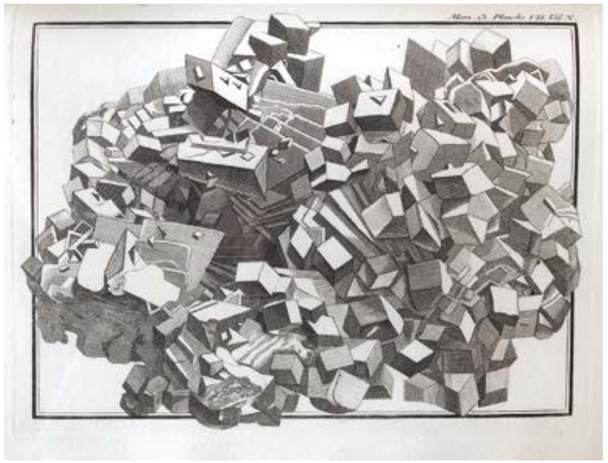
Lettere recentemente pubblicate sui pesci fossili Veronesi con annotazioni inedite agli estratti delle medesime (di Fortis). – Verona: dalla stamperia Ramanzini, 1794. Quarto (212 x 140 mm) 187 pp., (1) with six folding engraved plates (incl. one printed in black & brown) and three more engraved plates showing basalt formations near Bolca privately bound with. Contemporary Carta rustica, handwritten title on spine, exceptionally fine & clean copy.

EUR 3.800.-

Very rare work on the fossils fishes of the Bolca Lagerstätten edited by the collector Count Giovanni Battista Gazola (1757-1834) with descriptions by Alberto Fortis (1741-1803).

The first documented report of a fossil from the Bolca Lagerstätten dates back to the 16th century, and notes material belonging to the ambassador of the Holy Roman Empire to the Venetian Republic (Mattioli 1550). Nearly a century later, the first illustration of a fossil from Bolca appeared in a catalogue of the collection of the Veronese apothecary Francesco Calceolari (Ceruti & Chiocco 1622). Bolca fossils and their origin were extensively debated during the 18th century. It is also at this time that large collections were amassed by noblemen in Verona, including Vincenzo Bozza, Ottavio Canossa and Giovanni Battista Gazola. By the end of 1791, Gazola's own museum contained over a thousand well - preserved fossil fishes, plus numerous plants and invertebrates. The abbot Giovanni Serafino Volta studied the Bozza collection and assigned most of the fishes to modern tropical species in his lavishly illustrated catalogue (Volta 1796–1809). The revolutionary armies of Napoleon confiscated about 600 fossils from the Gazola collection during the occupation of Verona in 1797. Subsequently transported to Paris, these specimens were studied by de Blainville (1818) for an account in Nouveau Dictionnaire d' Histoire naturelle, and later by Louis Agassiz, who reviewed Volta's identifications (Agassiz 1835) and provided further descriptions in his monumental Recherches sur les Poissons fossiles (Agassiz 1833–1844). The first detailed analysis of the fossil plants from Bolca was provided by Abramo Bartolomeo Massalongo in a series of monographic studies in the 1850's and further improved and expanded by Meschinelli & Squinabol (1892). The most extensive collections of fossils from the Bolca Lagerstätten remain in Italy, particularly in Verona and Padua. Large collections outside Italy, such as those in Paris, have interesting histories. Fossils at the Naturhistorisches Museum, Vienna, were presented by Massalongo to Emperor Franz Joseph I following an assassination attempt in 1853; material at the Natural History Museum, London, derives largely from the purchased collections of William Willoughby Cole and Sir Philip de Malpas Grey Egerton in the late 1800s. Fossils from Pesciara–Monte Postale are otherwise found in numerous smaller collections throughout the world, often tracing their origins to early 'cabinets of curiosities'. The village of Bolca lies on the eastern part of Monti Lessini not far from Verona, northern Italy. Several productive sites characterized by contrasting fossils are known from the Bolca region and are collectively known as 'Monte Bolca' in older literature although no such place exists. The most famous representative is Pesciara, which has been exploited since the mid-16th century and yields exquisitely preserved marine fishes, plants and soft-bodied invertebrates. It is joined by Monte Postale, located nearby and also famous for marine fishes and plants. These two localities are the source of most fossils from the Bolca area in museums, and have yielded over 100 000 exceptionally preserved fossils. The added plates showing basalt formations at Vestenanova might be from the Guida di Verona of Da Persico (1821) and from the "Museo Lapidario" of Maffei (1795).- Dean I, 443 (1794.1) (6 plates); Lit.: Jean Gaudant. Brève histoire de la collection Gazola de poissons fossiles éocènes du Monte Bolca (Italie) conservée au Muséum national d'Histoire naturelle, Paris. Geodiversitas 33 (2011), pp. 637-647.





GUETTARD, [Jean Etienne].

Memoires sur differentes parties des sciences et arts. Par … 5 Vols. – Paris, Laurent Prault, and Eugene Onfroy; Ph. D. Pierre (from Vol. IV), 1768–1783. Quarto (265 x 205 mm) [2], cxxvi, 439 pp.; (2; errata) and [18] fold. engraved plates; [4], lxxxv, (1, errata), 530 pp. with LXXI fold. engraved plates; [4], 544 pp.; [2] Bll., (2, avert.), 687 pp.; [2] Bll., 446 pp., (1, errata) with [167] engraved plates. Contemporary calf, gilt spine in compartments. In general fine and broad margined copy.

EUR 12.000.-

Very rare complete set, with the often missing vol. 4-5. The ‚Memoires' are mainly devoted to mineralogical, geological and paleontological subjects regarding the geography of rocks, rock formations, mines and minerals, and fossils, including reports concerning Guettard's discovery of the French kaolin deposits, weathering of mountains, fossil records, description and classification of several corals, sponges and especially tube-shaped bivalvia. 28 taxa are described here for the first time. But there are also important essays on paper-making and Chinese porcelain. The 256 engraved plates are by Jean Robert and published here for the first time. With the financial support of his patrons and the Academy, Guettard accumulated not only specimens of rocks, crystals, fossils and mineral specimens, but a large archive of drawings and engravings of many of the-se objects which he witnessed in his own travels or collected in the field. The French geologist and mineralogist was also the first to survey and map the geologic features of France and to study the exposed bedrock of the Paris Basin. The keeper of the Duc d' Orléans's natural history collection, he was the first to identify several fossil species from and to suspect the volcanic origin of mountains in central France.

Jean-Etienne Guettard (1715–1786) came from a modest background, trained in Paris as a botanist and a doctor, and divided his professional life between working for wealthy collectors and pursuing his own scientific work in botany, mineralogy, and related areas of natural history. Over a long career, he observed, described, and collected minerals and fossils in extensive travels across Europe, contributing to an ambitious mineralogical atlas.

"While studying medicine in the 1740's, Guettard lived in the household of René-Antoine de Réaumur, a powerful figure in the Paris scientific circles and proprietor of one of the largest natural history collections in Paris at the time. The collection grew continually for decades, through the influx of objects arriving from distant correspondents as well as those collected locally. As a curatorial assistant to this enterprise, and as a collector and observer in his own right, Guettard's work was essential to the life of Reaumur's collection. In turn, Reaumur's patronage paved the way for the young man's appointment to the Academie des sciences in 1743. … After leaving Reaumur's household, Guettard shifted his attention increasingly to mineralogy, and especially the geography of mineral distribution. … Although neither fashionable nor wealthy, Guettard became intimately familiar with the natural history cabinets of the capital's (Paris) elite, through his connections first to Reaumur and then to the Duke of Orleans. At his death, the duke left his valuable collection of naturalia to Guettard, but the latter ceded it to his patron's son Louis-Philippe, the new duke, in exchange for a stipend and lodgings in the Palais Royal. Guettard continued as a curator of the collection with the freedom to leave Paris on long geological expeditions from time to time." (Mary Terrall; in: Adiana Craciun (ed.) The material cultures of Enlightenment Arts and Sciences. 2016. pp. 25 ff.)

DSB V, 579; Schuh 2021 (only 3 vols..): "Very rare"; not Schuh online; Roller/Goodman I, 491; Ferchl 204; not in Sinkaskas; Pogg. I, 973; Pritzel 3631; Quérard III, 514; not in Honeyman and Norman; Brunet, 4354; France littéraire, I, 278.

HARVEY, William.

De Motu Cordis & Sanguinis in animalibus, Anatomica Exercitatio. Cum refutationibus Aemylii Parisani, Romani, philosophi, ac medici Veniti; et Jacobi Primrosii, in Londinensi collegio doctoris medici. Leiden, Johann Maire, 1639. [issued with:] ASELLI, Gaspare. De Lactibus, sive Lacteis Venis, quarto vasorum mesaraicorum genere, novo invento … . Leiden, Johann Maire, 1640. 3 parts in one vol., 4to (192 x 144 mm), pp. [iv], 267; 84, [iv], with 4 engraved plates on two inserted leaves; [viii], 104, [8], with 4 engraved plates on 4 inserted leaves; very faint trace of marginal waterstain to some gatherings, overall a very good copy, in contemporary yapped Dutch vellum, a third medical work bound in at end (see below).

EUR 45.000.-

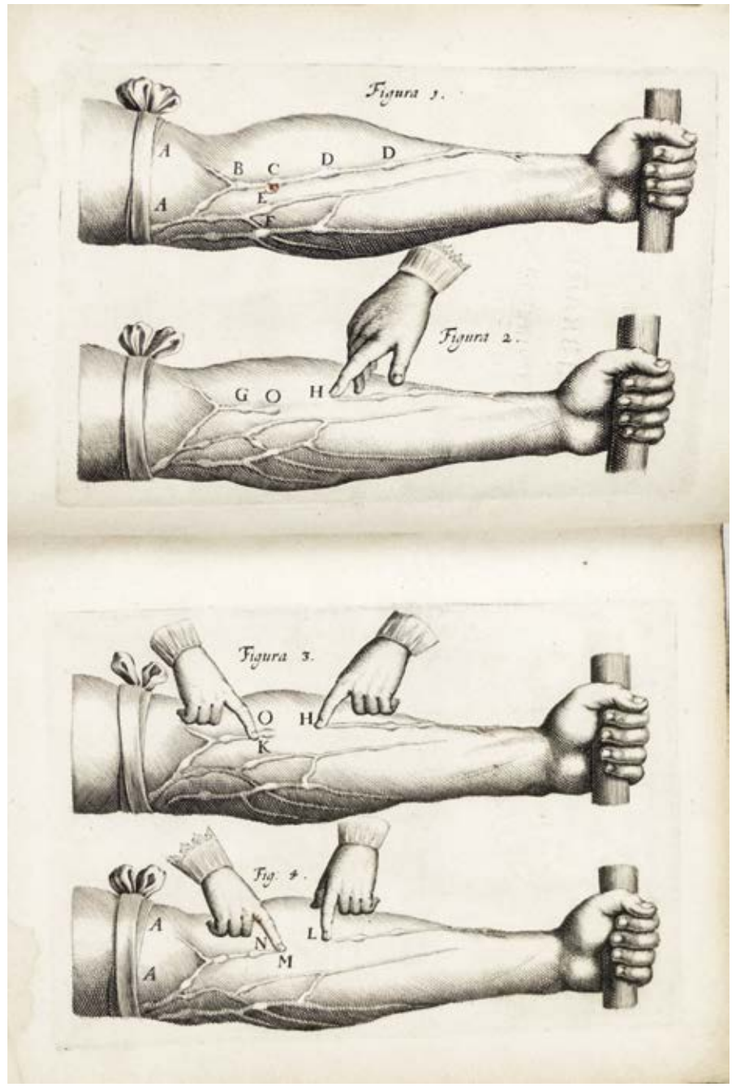
Second complete edition (first 1628) of Harvey's classic, the single most important and famous medical book ever published, containing Harvey's discovery and experimental proof of the circulation of the blood, which created a revolution in physiology comparable to the Copernican revolution in astronomy.

This is the earliest edition that collectors could reasonably expect to obtain. This edition includes the attacks on Harvey by Parisanus and Primrose, and the third edition of Aselli's classic on the discovery of lacteal vessels (first Milan 1627).

Parisanus had published his refutation of Harvey in 1635, and included the bulk but not the entirety of Harvey's text. Maire restored these passages, and included the illustrations, and also added Primrose's attack (Animadversiones, 1630). He also took the opportunity, as he discusses in the Ad lectorem, to publish another medical classic, Aselli's De lactibus, and the two are usually found together, as above. Bound at the end is Daniel Beckher, Medicus microcosmus seu spagyria microcosmi, Leiden, Jacob Maire, 1633 (Krivatsy 1011).

Provenance: inscription on front free endleaf 'Henricus Lubaeus Bergoz. Possessor. Anno 1644 12/17 Groningae' with further inscription (or code) in Greek; initials of same at foot of Harvey and Beckher titles dated November 7 1644; text with meticulous marginal annotations in his hand. The title to the Aselli is also initialed by him, and dated 2/2/1641. Lubaeus was the author of Disputatio medica, 1641, and of an astronomical work, Isagoge astronomica, 1654, both published in Groningen. Initials 'J W'; and date 1734 on title; Library of the College of Surgeons of Ireland with their stamp on title and blindstamp on plates and following text leaf.

Keynes 3; Krivatsy 5329 (Harvey) and 447 (Aselli); Wellcome 3070 (Harvey) and 506 (Aselli); Heirs of Hippocrates 256 (Harvey only); Parkinson & Lumb 1147 (Harvey) and 98 (Aselli); Waller 4089 (Harvey) and 504 (Aselli).

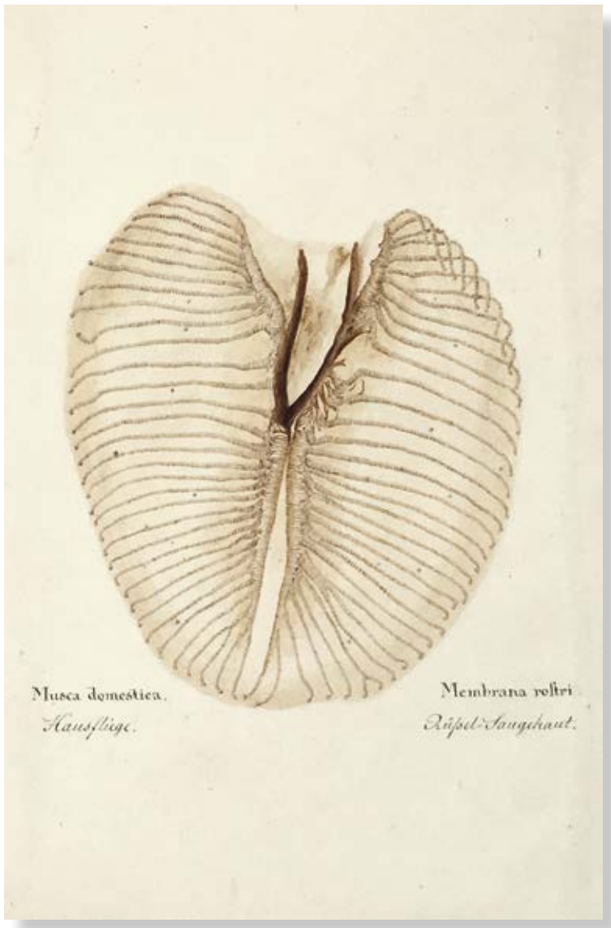


Original salt-print Photographs of Insects created with a Solar Microscope

HEEGER, Ernst.

Album microscopisch – photographischer Darstellungen aus dem Gebiete der Zoologie. 4 Installments (all publ.).- Wien: Ueberreuter, 1860 – 1863. 8vo (260 x 185 mm). 83 pp., 2 Bll., 4 Bll. mounted separate titles and 100 (50 hand – colored) mounted photographs (salt-prints) in square 4to. Text in Orig.-Wrappers, the plates loosely inserted, all in original contemporary embossed cloth portfolio with cover title: Album. Card-boards with gold printed frames and salt-print photographs. The photographs were then colored by hand. In installment 1 the captions are in calligraphy (Latin and German), from the second installment the titles are printed. Almost spotless, text partially a little browned, the plates of the last installment faded a bit more, and here the retouching is clearly prominent. Fine copy.

EUR 60.000.-



Exceedingly rare first & only edition of this first micrographical atlas of insects, printed with salt-prints, an extremely scarce complete set with all text and plates present. Published in four installments and rarely found complete in trade or auction. The photographs, taken with the aid of a solar microscope, show details of various insect species.

The salt-prints are here in contemporary coloring (first 50), and in uncolored state (last 50).

Ernst Heeger (1783–1866) was an Austrian amateur entomologist. He was a graduate of the Academy of Fine Arts in Vienna, a "Privatcadet" in the Napoleonic Wars, and from 1816 an employee of the Magistrat of Vienna. Later he founded a school of languages and drawing in Mödling and work with Auer at the Staatsdruckerei. While Auer worked on the nature-printing process, Ernst Heeger was eager to use photography as illustration technique. As early as 1851, not later than 1852 he sucessfully printed photographs of the larva of a pine spider in 3000x magnification.

Although his book was published from 1860, its production was much earlier.

"1853 wurden die Räume der Fotoabteilung der Staatsdruckerei umgebaut und vergrößert. 1855 beschäftigte man bereits elf Gehilfen im Bereich der Fotografie. Zwölf Kameras, darunter eine für mehr als 500 Quadrat-zoll, standen zur Verfügung. Da uns aus diesem Jahr nichts von einer größeren Fotokampagne des Instituts bekannt ist, müssen wir davon ausgehen, dass sich zwei der bisher nur angedeuteten Aktivitäten der Abteilung nun stärker entwickelten: Einerseits wissen wir, dass unter Leitung von Ernst Heeger eifrig an Aufnahmen durch das Mikroskop gearbeitet wurde, zum anderen intensivierte man die Experimente im Hinblick auf eine Druckfähigkeit fotografischer Vorlagen … Nach den ersten Versuchen, die schon 1850/51 begonnen worden sein müssen und spätestens 1852 in gelungenen Aufnahmen der Larve einer Föhrenspinne in 3000facher Vergrößerung mündeten, beabsichtigte Auer, 'mikroskopische Abbildungen zur Illustration irgendeines größeren naturhistorischen Werkes anfertigen zu lassen, um mit dem Beweiße über die bisherige Vollkommenheit in diesem Zweige, gleichzeitig auch den weiteren Beweiß der Benützbarkeit und Anwendbarkeit solcher Abbildungen für streng wissenschaftliche Arbeiten zu verbinden und zu liefern.' Nach einer Konsultation mit dem Naturforscher Ignaz Rudolph Schiner fiel die Wahl auf die Flügel der Bohrfliege (Trypetiden), die "durch eine unglaubliche Mannigfaltigkeit

in den Flügelzeichnungen sich für den beabsichtigten Zweck insbesondere als geeignet zeigten.' In der Folge wurde der der Akademie der Wissenschaften in Wien verbundene Forscher Ernst Heeger dafür engagiert, in der Staatsdruckerei die mikroskopischen Präparate herzustellen – ob auch die Aufnahmen von diesem selbst gemacht wurden oder von Mitarbeitern des Instituts, lässt sich nicht feststellen … Heegers eigene Forschungen in einem verwandten Bereich, ebenfalls Mikroaufnahmen der Staatsdruckerei, wurden 1860 publiziert, allerdings nicht in deren Verlag. Wir sehen also, dass die Initiative für eine immens aufwendige, auf Jahre hin angelegte Bildproduktion von Auer selbst ausging, Wissenschaftler für die Anwendung der neuen Technologie erst gewonnen werden mussten." (pp. 29 ff.; Stadtpanoramen. Fotografien der k.k. Hof- und Staatsdruckerei 1850-1860. Edited by Monika Faber und Maren Gröning.- Wien: Albertina, 2005).- Nissen ZBI 1875; Horn-Sch. 9971; Heidtmann 13994 (only Lfg. 1-2); not in Encycl. of 19th cent. Photography. Lit.: Albertina (ed.) Fotografie und das Unsichtbare, 1840–1900. no. 47 (two images from the Album from the Property of Hans P. Kraus jr.) and pp. 228 (images are not in the engl. edited by Corey Keller); Simon Weber-Unger, Mila Moschik, Matthias Svojtka. Naturselbstdrucke: dem Originale identisch gleich, pp. 191.

KVK: Müncheberg Entomol. Inst.; ÖNB (27 pp., 100 plates); COPAC: Edinburgh (only 2nd install.); NHM London (40 plates); Oxford (98 plates); BL London (?); OCLC: Harvard, Ernst Mayr; others only e-book.

The Most Beautiful Crab Book

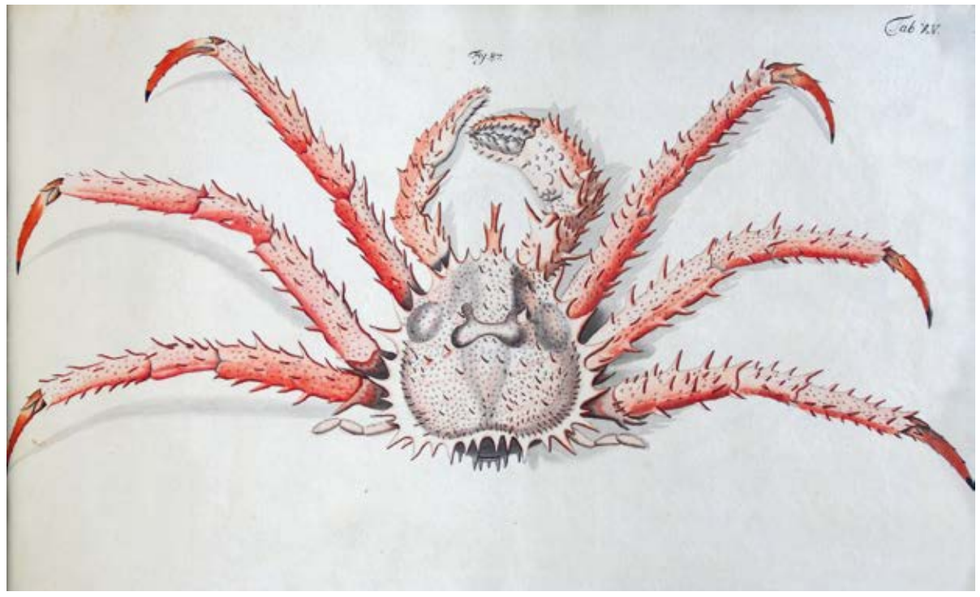
HERBST, Johann Friedrich Wilhelm.

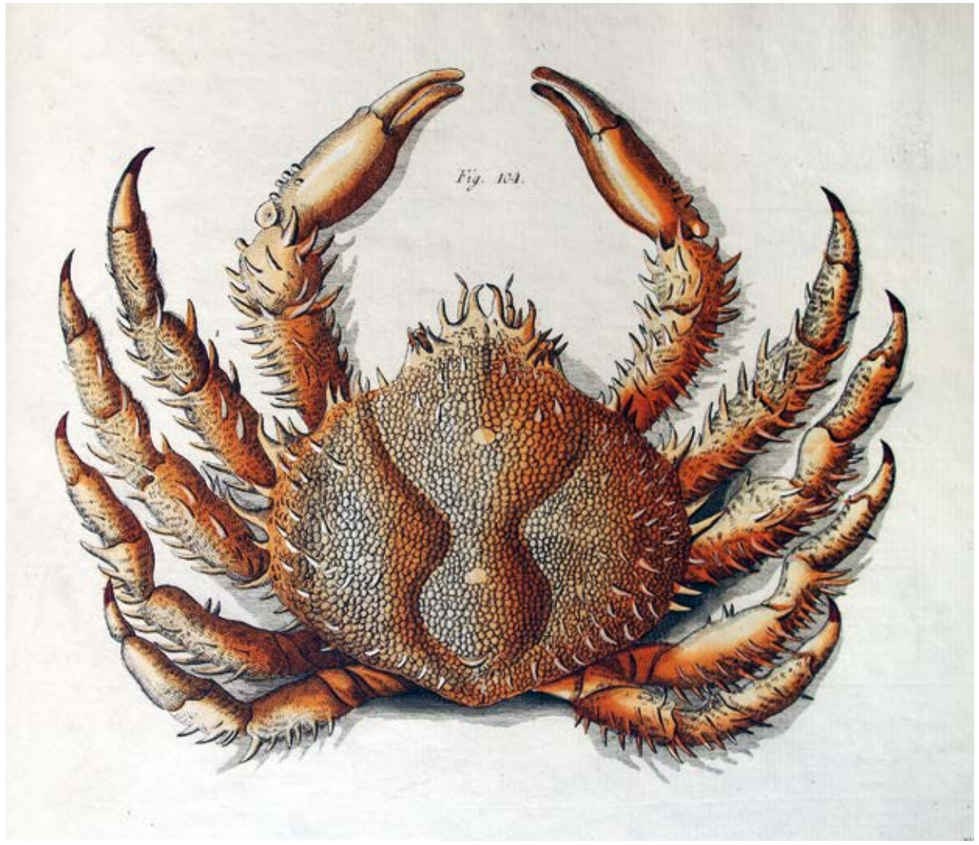
Versuch über die Naturgeschichte der Krabben und Krebse nebst einer systematischen Beschreibung ihrer verschiedenen Arten. 3 text- and 2 plate vols. in 5.- (Zürich), Berlin and Stralsund, bey Gottlieb August Lange, 1790 - 1803. Quarto (280 x 230 mm) and atlas in oblong-fol. (285 x 460 mm). (2), 274 pp., (2) (pp. III/IV bound after); VIII, 225 pp., (1); (2), 66 pp.; (2), 46 pp.; (2), 54 pp. With engraved portrait, 2 engraved title vignettes and one engraved text vignette, with 58 of 62 hand-colored engraved plates, partly folding (Plates 47-58 bound with text vol. 3 and folded), lacking the last installment (49 pp. with four plates). Some foxing and browning to text, slight spotting to plates. Few plates somewhat trimmed as always, partly within image, few plate numbers trimmed. Bound in contemporary calf, spines gilt, text volume 3 in half-calf probably bought after binding of the first two volumes; overall some minor worming to bindings. Fine & clean copy albeit.

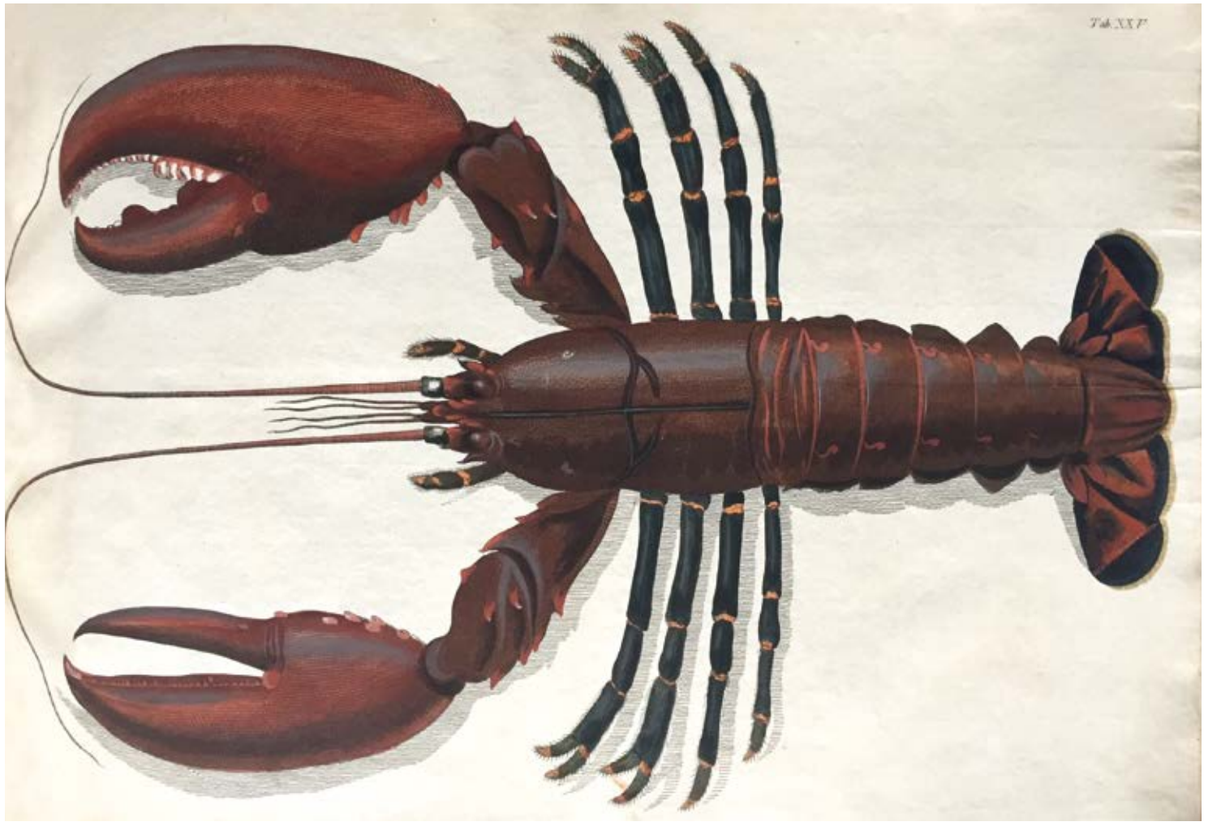
EUR 16.000.-

First full survey of crustaceans, beautifully hand colored at the time.

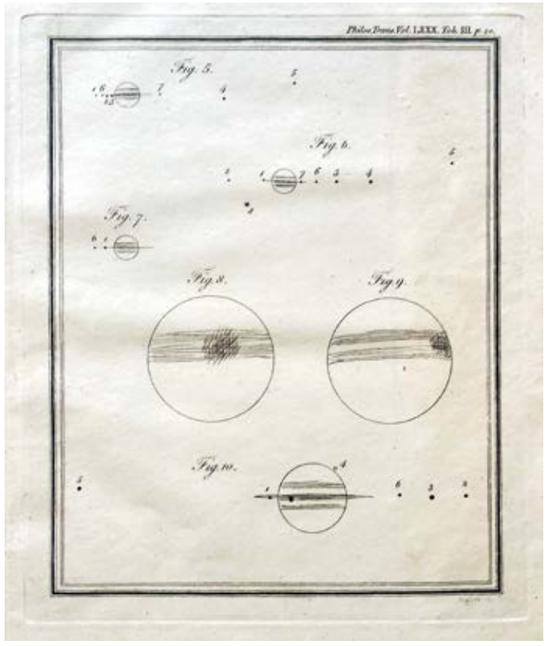
Exceedingly rare in complete form at the market. The last complete copy at German auction was in 2003, and in 1988 was a near complete copy (as here) at auction, otherwise always missing in larger parts and/or uncolored. No copies recorded on ABPC until a copy in 2007 appeared. Our copy missing the last installment as noted above. Ersch/Gruber cites 46 plates only (as the first four volumes here), indicating that complete copies were already unobtainable at that time. Johann Friedrich Wilhelm Herbst (1743–1807) was a German entomologist and naturalist from Petershagen (near Minden; south of Bremen) where his father was superintendent. He had his early education in Berlin and afterwards served as a chaplain in the Prussian army. His marriage in Berlin, 1770, with Euphrosyne Luise Sophie (1742–1805), daughter of the Prussian Hofrat Libert Waldschmidt seems to have been childless. He rose in ecclesiastical rank through several churches in Berlin, attaining the position of archdeacon. "In den Jahren seiner vollen Kraft war er neben Spalding einer der geachtetsten und beliebtesten Kanzelredner Berlins." (Ersch/Gruber). In 1789 he travelled to France, the Dutch Republic, Denmark and Switzerland to study other collections and to improve his knowledge in natural history. He was the joint editor, with Carl Gustav Jablonsky, of Naturgeschichte der in- und ausländischen Insekten (1785–1806, 10 volumes), which was one of the first attempts at a complete survey of the order coleoptera. Herbst's Naturgeschichte der Krabben und Krebse, released in installments, was the first full survey of crustaceans. Agassiz (1853) listed twenty-eight papers by Herbst between 1780 and 1806 mostly on insects. Herbst collections which he obtained with the help of several of his confreres at the Society of Friends of Natural history were deposited in the Berlin Museum of Natural History along with Bloch's collection of fishes. "Sein Kabinett von Insekten, seine Sammlung von Krabben und Krebsen waren ausgezeichnet. . . . Seine Korrespondenz war sehr ausgebreitet und erstreckte sich bis nach Ostindien." (Ersch/Gruber) Herbst's other works included Anleitung zur Kenntnis der Insekten (1784–86), Einleitung zur Kenntnis der Würmer (1787–88) and Natursystem der ungeflügelten Insekten (Classification of the unwinged insects) (1797–1800).- Nissen, ZBI 1896; K. Sakai, 1999. J. F. W. Herbst-collection of decapod Crustacea of the Berlin Zoological Museum, with remarks on certain species. in: Naturalists, Publications of Tokushima Biological Laboratory, Shikoku University 6: 1–45: as noted by Sakai, Herbst treated all species as belonging to the genus Cancer, but during the ensuing two hundred years the vast majority of these species were reassigned to other genera. Sakai was quite correct in stating that his review of the Herbst collection revealed nomenclatorial problems.

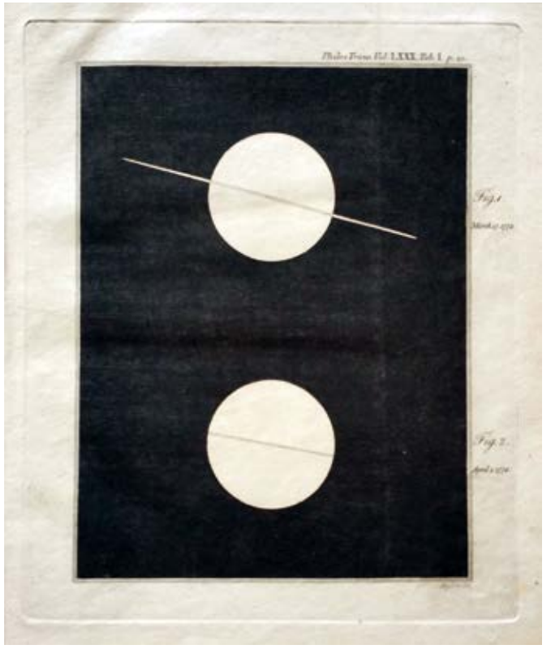






Saturn and its Satellites





HERSCHEL, William.

Account of the Discovery of a Sixth and Seventh Satellite of the Planet Saturn; with Remarks on the Construction of its Ring, its Atmosphere, its Rotation on an Axis, and its spheroidical Figure … [London, J. Nichols, 1790].
[bound with:] *HERSCHEL, William. On the Ring of Saturn, and the Rotation of the Fifth Satellite upon its axis. With Miscellaneous Observations, &c. [London, J. Nichols, 1792]. Two works in one vol., 4to, pp. 20; 27; with three folding engraved aquatints to the first work, and one to the second; the first 11 leaves of the second work with a section of the blank outer margins torn away (well away from text), and with old restoration; otherwise very good, clean copies in contemporary speckled boards; lightly rubbed.*

EUR 6.400.-

The very rare separately paginated offprints from the Philosophical Transactions of two important papers on Saturn and its satellites.

'Besides his discovery of Uranus, Herschel made other contributions to the astronomy of the Solar System … He observed and suggested the name "asteroid" for the small bodies that his contemporaries had begun to discover orbiting the Sun between Mars and Jupiter. His studies of Jupiter's four known satellites revealed that, like our Moon, each rotates on its axis once per revolution. Between 1787 and 1789, he discovered Mimas and Enceladus, Saturn's sixth and seventh satellites' (The Biographical Encyclopedia of Astronomers I, p. 496).

'Saturn exercised a special fascination for Herschel, and between 1789 and 1808 he devoted seven papers and part of an eighth to the planet, its ring and its satellites. On 19 August 1787 Herschel suspected he had found a sixth and previously unknown satellite, but he was not able to confirm this until 28 August 1789, when the forty-foot telescope came into commission. A few days later he found the seventh satellite. For some months he carefully tracked the satellites, establishing for Mimas and Enceladus periods within seconds of their modern values, and giving evidence to show that Iapetus rotates in its period of revolution.

'He also made careful observations of the rings, which he believed to be solid. As the earth happened to be in the plane of the ring structure at the time, he compared the thickness of the ring when seen edge-on with the diameter of Jupiter's satellites; and although his time exceeds modern values, his method showed that the thickness did not exceed a few hundred miles' (DSB).
The miscellaneous observations mentioned on the title of the second work include a cometary observation by Caroline Herschel, notification of the disappearance of the star '55th Herculis', and of a remarkable eclipse of the moon.

A Visible Testimony to Herschel's Mechanical Ingenuity

HERSCHEL, William.

Description of a Forty-Feet Reflecting Telescope. [London, J. Nichols, 1795]. 4to, pp. 65, with 19 folding engraved plates; some light browning and occasional spotting; an excellent copy in contemporary calf-backed boards; minor wear to corners and head of spine.

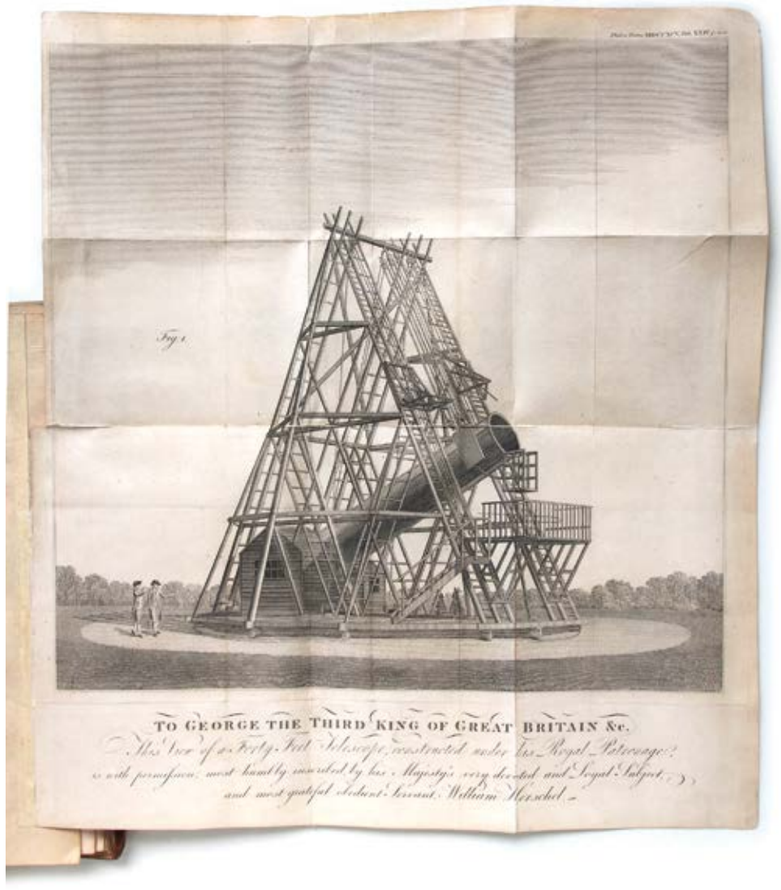
EUR 11.000.-

The very rare separately paginated offprint from the Philosophical Transactions of Herschel's description of his famous telescope.

'[Herschel] seems quickly to have realized that in order to investigate very distant (and therefore faint) objects, he would need telescopes with considerable light-gathering power, for a telescope directed to a faint object must not only magnify it but also collect enough light for the magnified image to be visible to the observer. As he put it in 1800, light-gathering power is "the power of penetrating into space." His need was therefore for reflectors with large mirrors; and as his ambitions grew, he found himself forced to undertake an increasing share of the labor of construction himself. In the grinding and polishing of large mirrors, and in the working of exquisite eyepieces, Herschel was soon without peer; and when in 1782 one of his telescopes was taken to the Royal Observatory for comparison with the instruments there, Nevil Maskelyne, the astronomer royal, conceded superiority to Herschel. For the rest of his life Herschel enjoyed the possession of telescopes which were incomparably the most powerful of the period for the study of faint objects, although he never attempted the carefully mounted and graduated instruments required for exact positional astronomy.

'In 1785 Herschel successfully requested the king to finance a fresh attempt to build a large telescope. "It remained now only to fix upon the size of it, and having proposed to the King either a 30 or a 40 feet telescope, His Majesty fixed upon the largest." Four years of labor followed for Herschel and his team of workmen, during which the original grant of £2,000 was doubled and an annual allowance of £200 was also made. The mirrors of forty-eight-inch diameter were cast in London, but all other work was carried out at Slough under Herschel's direction. In mounting the mirror in the tube Herschel tilted it slightly to one side so that the observer might peer through the eyepiece directly at the mirror, without the need for additional mirrors (the "Herschelian" arrangement).

'The monster telescope was completed in 1789 and immediately revealed a sixth satellite of Saturn. But it was never fully satisfactory: the mirrors tarnished quickly, the structure was cumbersome to turn, and when Herschel in 1790 altered his opinion of the nature of nebulae, he thereby answered the very question of the telescope's great light-gathering power may have been intended to settle. Yet it became one of the wonders of the world and a visible testimony to Herschel's mechanical ingenuity and to the scale of his cosmological ambitions' (DSB).



JACQUIER, Francois

Physica experimentalis a P(adre). Franco. Mae. Jacquier in Sapientia Romana anno 1747. Manuscript in Latin. (Rome, 1747). Quarto (200 x 135 mm) (5) leaves, 315 leaves, 5 blank leaves. Densely written in latin in black ink on strong paper, recto and verso. Around 34 lines each page. With geometrical diagrams within text. Contemporary pig skin, handwritten title on spine: "Physi(…)". Borders of pages little water-stained and ink there little faded.

EUR 3.000.-

An interesting manuscript on experimental physics held by Francois Jacquier (1711–1788) at Collegio Romano in Rome in 1747. The manuscript is not signed and might be written by a student during the lecture course or by the author himself. An interesting insight in the practice of physics lecturing at Catholic universities in the post Newton era. François Jacquier (1711 Vitry-le-Francois–1788 Rome) was an excellent French Franciscan mathematician and physicist working in Rome, known as co-editor of the "Jesuit edition" of Isaac Newton's Principia.

His learning gained for him the patronage of Cardinal Alberoni and Cardinal Portocarrero. He accompanied Cardinal Alberoni on his legation to Ravenna, and was appointed to inspect the work begun by Eustachio Manfredi to prevent the repeated floods of that territory. On his return he was given the chair of Sacred Scripture at the College of the Propaganda, and was also detailed by the general chapter of the Friars Minors, assembled at Marseilles, to work upon the annals of the order. The King of Sardinia named him professor of physics at the University of Turin in 1745, but Cardinal Valenti, prime minister of Pope Benedict XIV had him assigned to the chair of experimental physics at the Collegio Romano. Here he was in demand for consultation on scientific matters. In 1763 he was appointed instructor in physics and mathematics to the young Prince Ferdinand at Parma. He was appointed in 1773 to the chair of mathematics at the Collegio Romano, on the occasion of the suppression of the Jesuits. At his death he was connected with nearly all the great scientific and literary societies of Europe. He had been elected a Fellow of the Royal Society in 1741. He is also known to have studied with Boscovich and LeSuer the cracks in the dome of St. Peter's .- Gilbert Maheut. François Jacquier (1711–1788). The monk mathematician; in: Quadrature, Jan. 2004.

Zaida – The Giraffe for England

JOLY, Nicolas.

Notice sur l' histoire, les moeurs et l'organisation de la Girafe (Camelopardalis Giraffa; Linn.) par … Toulouse: Imprimerie d' Augustin Manavit, 1844. 8° (215 x 140 mm) 30 pp., (2) with two fold. lithogr. plates. One plate showing "Zaida" with "son petit" after a design by Robert Hill, Esq., drawn by Nicolas Joly. Original wrappers, uncut in protective folder. Fine and clean.

EUR 1.200.-

Very rare booklet on the giraffe and especially on "Zaida". A living giraffe was not seen in Europe (again after 340 years) until 1827, when Muhammad Ali, Ottoman viceroy of Egypt, presented a giraffe to both Charles X of France and George IV of the United Kingdom and, two years later, to the Habsburg Emperor Franz II. of Austria. The 1827 giraffes were diplomatic gifts intended to mollify public sentiment at the treatment of the Greeks during their war of independence, and they caused a sensation in art and fashion in "la mode à la giraffe". However, they did not prevent a combined British, French and Russian naval force from decisively defeating the Ottoman Turks a few months later at the Battle of Navarino. Two of the Egyptian giraffes were siblings and upon arrival in Cairo, the French and English Consuls drew lots for them, with the French winning by far the better draw, as later events transpired, since the smallest sibling was awarded to George IV. Sadly this fragile individual was injured during its journey and its legs crippled. The animal arrived in England and was tended in a building in the grounds of Windsor Castle, out of public view. Requiring the aid of a special harness to stand, within 2 years the wretched creature weakened and died. The giraffe presented to Charles X. was more fortunate, traveling by ship to France with every comfort. Because England did not have a giraffe on its own after 1827, and this was seen as a national disgrace, the new king William IV. commissioned a French trader, Monsieur Thibaut, to search for giraffes for England. In May 1836, three males and a female accompanied by their native handlers arrived with Thibaut at the docks in London. Thibaut was paid the enormous sum of GBP 700.- for the animals. The lone female, Zaida, gave birth to her first offspring in 1839 and in subsequent years 17 young were born and these giraffes populated London Zoo until 1881. (Bryan Shorrocks. The Giraffe. 2016) The french zoologist, botanist and physiologist Nicolas Joly (1812–1885) was professor of zoology at the Faculty of Sciences of Toulouse (1840–1878) and human physiology at the School of Medicine and Pharmacy. He was a correspondent of the Academy of Sciences, elected in 1873 and a city councilor of Toulouse. In 1865 he became Knight of the Legion of Honor. He dealt in his scientific work with experimental physiology and zoology and published on various zoological topics (such as the acclimatization of the lama and alpaca from Peru in the Pyrenees or feelings in animals) and also anthropology (prehistoric man). He is known as an opponent of Louis Pasteur (against Félix Archimède Pouchet) in the discussion about spontaneous generation of life.

The Tubercle Bacillus Discovered

BERLINER
KLINISCHE WOCHENSCHRIFT.
Organ für practische Aerzte.
Mit Berücksichtigung der preussischen Medicinalverwaltung und Medicinalgesetzgebung
nach amtlichen Mittheilungen.
Redacteur: Professor Dr. C. A. Ewald. Verlag von August Hirschwald in Berlin.
Montag, den 10. April 1882. № 15. Neunzehnter Jahrgang.

I. Die Aetiologie der Tuberculose.
(Nach einem in der physiologischen Gesellschaft zu Berlin am 24. März gehaltenen Vortrage.)
Von
Dr. Robert Koch,
Regierungsrath im Kaiserl. Gesundheitsamt.

KOCH, Robert.

Die Aetiologie der Tuberculose. (Nach einem in der physiologischen Gesellschaft zu Berlin am 24. März gehaltenen Vortrage). Berlin, August Hirschwald, 1882.

offered with: *KOCH, Robert. Weitere Mittheilungen über ein Heilmittel gegen Tuberkulose. Leipzig and Berlin, Georg Thieme, 1890–91.*

offered with: *KOCH, Robert. Ueber neue Tuberkulinpräparate. Leipzig, Georg Thieme, 1897.*

Together three papers (the second paper in three parts), folio, pp. 219–230; [1029]–1032, 101–102, [1189]–1192; [209]–213, published in (1) Berliner Klinische Wochenschrift, Neunzehnter Jahrgang, no. 15, and (2) Deutsche Medizinische Wochenschrift, Sechzehnter Jahrgang, Extra-Ausgabe, no. 46a, Siebzehnter Jahrgang, nos. 3 and 43, and (3) Deutsche Medizinische Wochenschrift, Dreiundzwanzigster Jahrgang, no. 14; the first three leaves of the 1882 paper with small marginal repairs; excellent copies, respectively bound in modern boards, marbled wrappers, and marbled paper back-strip.

EUR 6.400.-

First editions, the original journal printings, of these famous papers on the discovery of the tubercle bacillus and the treatment of tuberculosis by 'the great German pioneer, who must share with Pasteur the title of the founder of bacteriology' (Guthrie, A History of Medicine p. 286).

'In 1881 Koch's preoccupation with methodology culminated and began to yield a rich harvest. In August, while attending the International Medical Congress at London, he demonstrated his pure-culture techniques in Lister's laboratory and there met Louis Pasteur, who magnanimously termed the methods "un grand progrès." Upon returning to Berlin, Koch launched experiments on tuberculosis, convinced of its chronic infectious nature. In six months, working alone and without hint to colleagues, he fully verified the still-disputed claims of J.-A. Villemin, J. Cohnheim, C. J. Salomonsen, H. E. von Tappeiner, and P. C. Baumgarten that the disease was transmissible. Further, a bacillus of exacting cultural and staining properties was demonstrated and isolated from various tuberculous specimens of human and animal origin; and tuberculosis was induced by inoculating several species of animals with pure cultures of this bacterium.

'Identification of the tubercle bacillus was rendered exceptionally difficult by its small size and often scanty distribution, restricted stainability (due to a waxy coat), fastidious nutritional requirements, and very slow growth in vitro. Eventually Koch found it would retain alkaline methylene blue in tissues counterstained with Bismarck brown. Inconspicuous colonial growth appeared on test-tube "slopes" of heat- coagulated cattle or sheep serum during the second week of incubation at 37 °C. His resolute, singlehanded ingenuity in surmounting difficulties was matched by the thoroughness and completeness of his lecture, entitled simply "Ueber Tuberculose," delivered before the Physiological Society in Berlin on 24 March 1882—a red-letter day in bacteriological history. Although no orator, Koch presented his evidence with such logic and conviction that the audience was too spellbound to applaud or engage in official discussion. Paul Ehrlich, who later recalled that evening as his "greatest scientific event," developed overnight an improved method of staining tubercle bacilli, which Koch adopted. These two very different characters became firm friends. Virchow, who on pathological grounds upheld belief in the nontuberculous nature of phthisis, was absent. Inter alia, Koch's demonstrations of tubercle bacilli in the caseous material from phthisical lungs, as well as in specimens from miliary and other forms of tuber- culosis, refuted this doctrine of duality. Within three weeks Koch's paper appeared in the Berliner Klinische Wochenschrift, as "Die Aetiologie der Tuberculose" …

'Koch's chief findings were confirmed wherever his techniques were carefully followed—in the United States, for example, by Theobald Smith and E. L. Trudeau. The demonstration of tubercle bacilli in the sputum was soon accepted as of crucial diagnostic significance, and his co-workers began investigating such problems as the disinfection of tuberculous sputum. Koch himself continued to amass evidence for converting those who clung to the belief that tuberculosis was dyscrasic rather than infective. By 1883 he had induced the disease in over 500 animals of ten species, of which more than 200 succumbed to pure cultures of the bacillus administered by various routes, and had obtained new data on the cultural properties and modes of spread of the causal bacillus' (DSB).

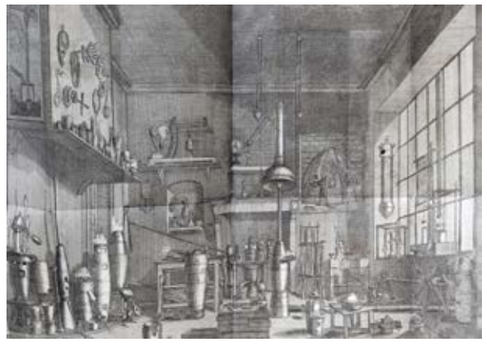
Garrison and Morton 2331 ('Discovery of the tubercle bacillus'); Dibner 134; Grolier, Medicine, 80; Heirs of Hippocrates 2054; PMM 366b; II. Garrison and Morton 2332 ('Introduction of tuberculin in the treatment of tuberculosis' and 'Koch's phenomenon' described); III. Garrison and Morton 2333 ('Koch's new tuberculin (Tuberculin R)').

Platinum, Gold, Glass & Inks

LEWIS, William.

Herrn Wilhelm Lewis,… Der Zusammenhang der Künste philosophisch – practisch abgehandelt; ein Versuch für die Beförderung der Künste, Gewerbe und Manufacturen. Aus dem Englischen übersetzt, und mit einigen Zusätzen herausgegeben von Johann Heinrich Ziegler. Ersten Bandes, erster (und) zweiter Theil in 2 Vols. – Zürich, bey Heidegger und Compagnie, 1764 – 1766. 8° (200 x 115 mm) XXXII, 512 pp. with engraved frontispiece and 4 engraved fold. plates; XLVIII, 591 pp., (1, blank) with one fold. engraved plate. Contemporary cald, gilt spine in compartments, two morocco labels, rubbed, soiled and cuffed, red edges, inside clean and fresh. The frontispiece to vol. one newly fixed.

EUR 1.800.-



First German edition. First authoritative and comprehensive work on the history and the properties of platinum. This work was much consulted for the next three-quarters of a century, and even as late as 1880, scientists referred to it.

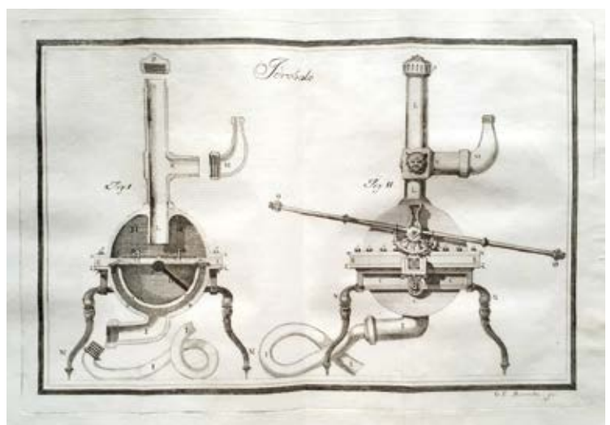
Part translation of William Lewis' "Commercium Philosophico - Technicum" of 1763-1765 into german by Johann Heinrich Ziegler (1738–1818), a classic treatise on applied chemistry and metallurgy contains chapters on the history of gold and platinum and the conversion of glass into porcelain, furnaces, colors, dyes, inks, etc. (in german: Beschreibung eines beweglichen Ofens, Die Historie des Goldes, Versuche über die Verwandlung gläserner Gefässe in Porcelain, Grünes Glass, Die Historie der Farben and Historie der Platina). For his outstanding work on platinum he was rewarded the Copley Medal in 1754.The spectacular frontispiece illustrates a chemical laboratory of the period. "At a time when English chemists were dominated by the mechanical outlook promulgated by Newton, Lewis was quite clear that chemistry is a distinct science, in which such speculations are of very little relevance or value." (Partington) William Lewis (1708–1781) was a skilled experimenter as well as a prolific author, editor and translator; in his time he was the undisputed authority on any subject on which he wrote. He had, in fact, a considerable influence on the chemical technology of the Industrial Revolution. Lewis studied medicine first at Christ Church (Oxford) and later at Emmanuel College (Cambridge). He then settled in London and soon became established as a public lecturer on chemistry and on the improvement of pharmacy and the manufacturing arts. In 1745 he was elected a fellow of the Royal Society and two years later he moved to Kingston-upon-Thames where he equipped a large laboratory.

The translator Johann Heinrich Ziegler (1738–1818) who added some notes, was a Swiss chemist, doctor and entrepreneur. He was involved in the founding of the first chemical factory or laboratory as well as the first spinning mill in Switzerland. There are maybe two german editions at the same time: this edition by Ziegler and in Berlin at Wever (1764–1767) edited by Johann Georg Krünitz (1728–1796). I didn't find references for the differences of the editions. VD18 has not listed the Berlin edition, and has different pagination to our copy. Our copy collates as the one at ETH Zürich. There are also parts of the translation being published in Zürich.- VD18 15344320 (different page numbering & different title-page !); not in Cole, not in Neville Library. For the english ed.: Cole, 822, Duncan 7871, Duveen 355, Neville Library II, 60; Partington II, 762; Wellcome III, 512.- KVK: Freiberg, Tübingen, Schwäbisch Hall, Bamberg, München, Erlangen, etc; COPAC: only the Zürich separate parts edition at Wellcome, Glasgow, not this edition; OCLC:

LITTA, Agostino.

Dissertazione sopra il quesito con qual proporzione di partis possa costruirsi una Machina, non molto composta, per elevare acqua da stagni a mediocre altezza per la irrigazione dè terreni in maggior copia die quella, che ottengasi colle Machine finora ritrovate colla sola azione di un Cavallo. Mantua, heirs of Alberto Pazzoni, 1782. Folio, pp. 45, with a woodcut title-vignette and one folding engraved plate; short tear to blank inner margin of plate; an excellent copy in contemporary carta rustica.

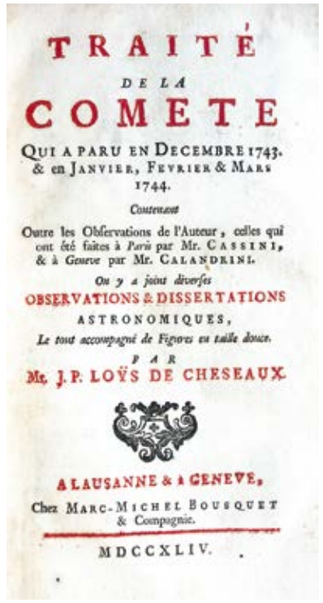
EUR 1.000.-

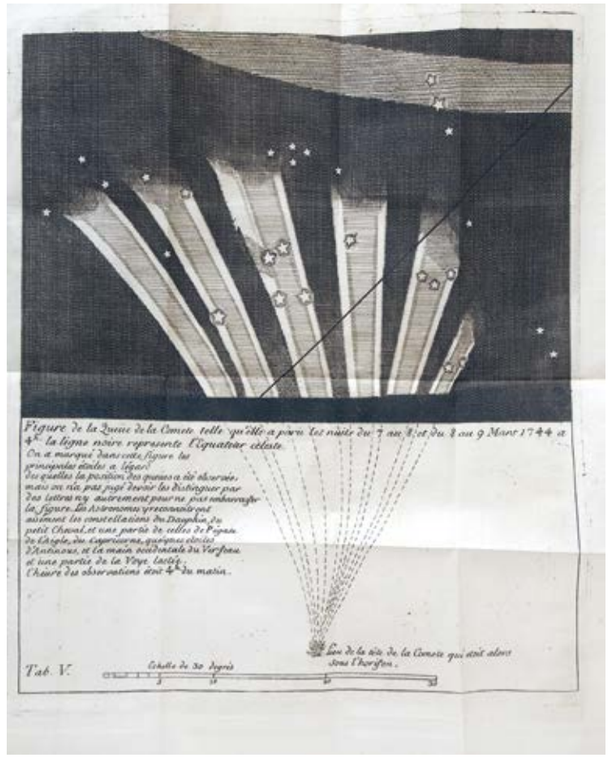


Very rare first and only edition of count Agostino Litta's description of his 'idrobalo', an improved pump for raising water for irrigation purposes. The pump's components and construction are described in detail, with reference to the finely engraved folding plate which shows the pump in two images, one in cross section. Operated by horse-power, the pump's improved design Litta claims to result in a great reduction of friction during operation.
Awarded a prize by the Mantuan Royal Academy of Sciences and Letters, Litta's work was published posthumously, following the author's sudden death. Bound by friendship to the Milanese canon Carlo Castelli, a post scriptum offers the latter's assistance in the construction of the pump to interested parties. Three years later Castelli himself publishes a treatise advertising his own pump, which he names 'Ventilatore Idraulico'.

Riccardi II 45; OCLC locates only two copies outside Italy, at the British Library and Princeton.

"Why is the Sky dark at Night?"


TRAITÉ
DE LA
COMETE
QUI A PARU EN DECEMBRE 1743.
& en JANVIER, FEVRIER & MARS
1744.
Contenant
Outre les Observations de l'Auteur, celles qui ont été faites à Paris par Mr. CASSINI, & à Geneve par Mr. CALANDRINI.
Ou y a joint diverses
OBSERVATIONS & DISSERTATIONS
ASTRONOMIQUES,
Le tout accompagné de Figures en taille douce.
PAR
Mr. J. P. LOYS DE CHESEAUX.
A LAUSANNE & A GENEVE,
Chez MARC-MICHEL BOUSQUET & Compagnie.
MDCCXLIV.



LOYS de CHESEAUX, Jean-Philippe.

Traité de la comète qui a paru en Decembre 1743 et en Janvier, Fevrier et Mars 1744: contenant outre les observations de l'auteur, celles qui ont été faites à Paris. – Lausanne et Geneve: Michel Bousquet, 1744. 8° (190 x 120 mm) (2), 308 pp. with 6 fold. engraved plates. Contemporary half calf, gilt spine in compart-ments, morocco label, upper spine with little defect, marbled endpapers, fine and fresh copy.

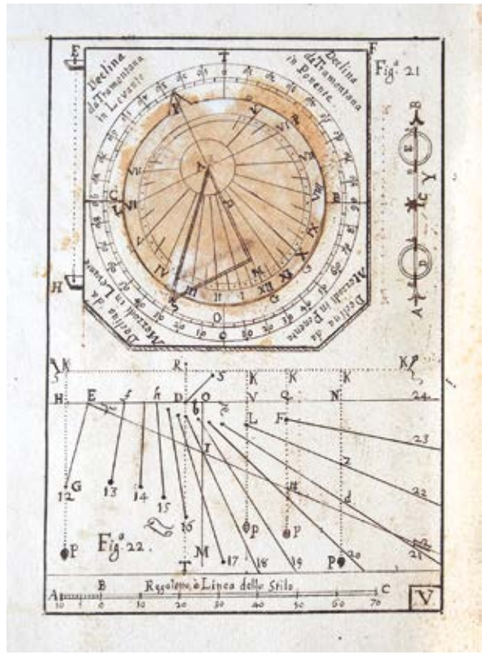
EUR 4.600.-

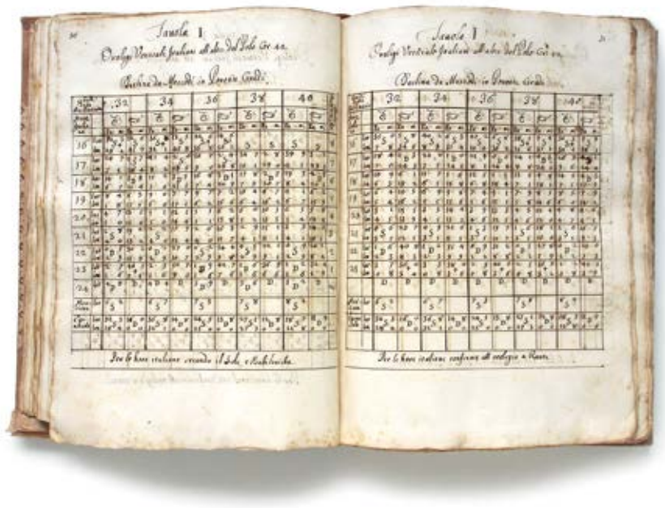
Rare first edition of his book on comets to include the de Cheseaux-Olbers paradox.

Jean-Philippe Loys d Cheseaux (1718–1751) was the grandson of the mathematician & philosopher Jean-Pierre de Crousaz, professor at the Academy of Lausanne and member of the Academie des Sciences in Paris. To acquaint him-self with astronomy, Loys de Cheseaux, a wealthy Swiss landowner, installed an observatory on his father's lands at Cheseaux, seemingly well-equipped, having a pendulum clock, a quadrant made from brass and complete with sights capable of accurately measuring angles as small as 15 sec. of arc and a simple 14-feet refractor and a 2-feet Gregorian reflector. The observations that he made between 1736 and 1747 allowed him to prepare two manuscripts, including the "Traité de la comete" which was published in 1744. The "Nouvelles methodes" remained unpublished.
In his treatise on the comet, Loys de Cheseaux considers all of the observations he made of the comet C/1743 X1 seen from the late 1743 into 1744. He discusses both the instruments and the methods he used, and calculates an ephemeris for the comet. Three sets of observations are presented in the study: those made of the comet in Paris by Cesar Cassini de Thury, those recorded in Geneva by Jean-Louis Calandrini and those by Loys de Cheseaux. He also describes a method for determining the position, the size, and the form of the comet's tail. Calandrini held the first chair in mathematics at the Academy in Geneva along with Gabriel Cramer. At the end, there is a chapter "on the intensity of light, its propagation in the ether and on the distance of the fixed stars, from which Loys de Cheseaux concludes that either the number of stars is finite or it has to be assumed that interstellar space is filled with a light-absorbing fluid. This proposition forms the basis for the Loys de Cheseaux paradox (Olbers paradox).

It can be formulated as follows: Imagine the space surrounding us to be the superposition of spherical shells. In each of these supposed shells, a star is sending out quantities of light that, from our vantage point, varies inversely with the square of the distance. If space itself were infinite, then the sum of all these contributions would produce a sky that was brilliantly illuminated in all directions. However, this conclusion is plainly contradicted by what we observe in the night sky. This is the paradox of the dark night sky that was first recognized by Loys de Cheseaux. In Loys de Cheseaux's time, the Universe was believed to be static; its expansion and subsequent cooling remained unknown before the 20th century. The works of Loys de Cheseaux attracted the attention of the scientific community in his day, like Heinrich Olbers who raised again the question of his predecessor.
He was offered the opportunity of directing the observatory in St. Petersbourg but declined the invitation. (Issac Benguigui) BEA I, 713-714 (Benguigui); Brüning 1668; Struve 38; Edward Harrison. Darkness at Night, pp. 80 ff. KVK: Dresden, Konstanz, Tübingen, Göttingen, Jena, Kiel; Berlin (Kriegsverlust); COPAC: Cambridge.

Manuscript on Sun Dials





LUCHINI, Domenico.

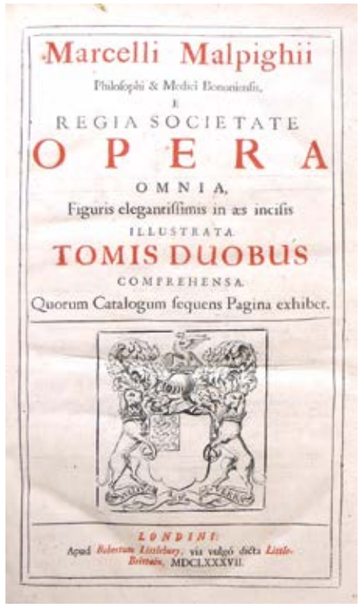
'Practica compendiata, e facilessima per la costruzione degli orologi solari nelle aliezze del Polo Gr. 42.43.44.45 colle Tavole delle Latitudini e Longitudini per le hore italiane, babiloniche, ed astronomiche all uso oltramontano et antiche ò Ineguali s'insegna ancora la fabrica, ed uso dell' orologio universale portatile, detto equinoziale, come ancora ne i Quadranti, e Emisferi, e Riflessi. Di D. Domenico Luchini da Pesaro. 1730'. Apparently authorial manuscript with frequent cancellations, emendations and insertions, some on inserted slips. [Rome], 1730. Small Folio. Title, introductory letter and explanatory text on 141 pages, catalogue of cities with their latitudes on 5 pages, and series of 16 extensive tables for the calibration of Italian sundials and lunar dials at the different degrees of latitude, of azimuths and other astronomical measurements, on 370 pages, index, and figures of sundials eight pages. Altogether approximately 535 pages, variable sizes, approx. 275 x 200 mm. Contemporary leather-backed boards, rubbed & soiled, else fine.

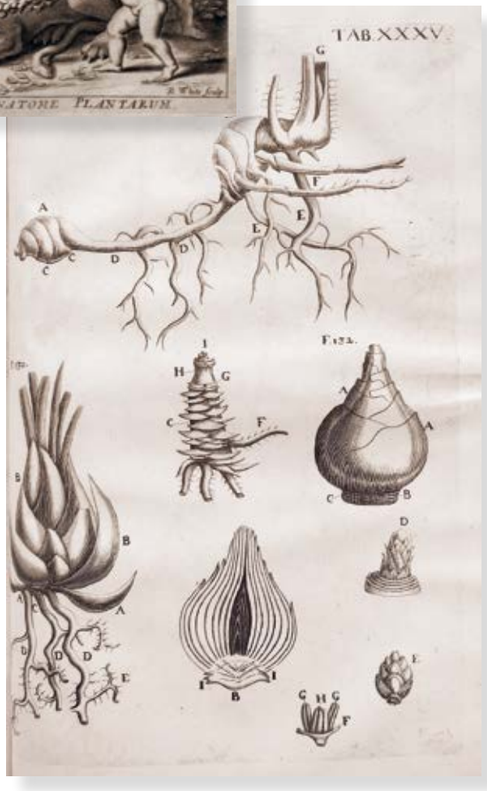
EUR 4.500.-

Authorial manuscript, most probably an earlier version of his "Trattenimenti matematici i quali comprendono copiose tavole horarie per gli orologi a sole orizzontali, verticali, riflessi e portatili. Con le tavole de logaritmi di Don Domenico Luchini da Pesaro" published in Rome in 1730.

The author, a native of Pesaro, was a beneficed clergyman at St John Lateran in Rome, where he died in 1737. He published the work on sundials, Trattenimenti Matematici at Rome in the same year as the present work, a Tariffa overo pratica (Tomash L138, L139) and also contributed to the calendar of the Thesaurus sacrorum rituum (Rome, 1738). About the Tariffa M. R. Williams writes: "This small commercial arithmetic presupposes knowledge of addition and subtraction. It begins with multiplication and division and then treats elementary gauging and square and cube roots. Luchini then discusses some calendar problems. After a two-page table of squares and cubes of all integers from 2 to 100, Luchini deals with the areas of rectangles, triangles and circles. At the end he recommends a set of logarithm tables as being very useful." A sundial is an instrument specifically designed for determining the hour of the day by projecting the sun's shadow or pinhole image on a set of hour lines. These hour lines can be marked on a flat surface (horizontal, vertical or arbitrarily inclined) or a curved surface (spherical, cylindrical or more complex). The shadow is usually cast by an upright or inclined gnomon (Greek: 'pole') but in some cases a small image of the sun is produced by a suitably located pinhole aperture (which is also termed the gnomon). In this respect a sundial has to be distinguished from the simple gnomon or the meridian line. The latter instruments only determine the exact hour of noon, or, if the meridian line is graduated with a calendar scale, the day of the year.

The history of the sundial reaches far back into antiquity and the earliest descriptions and examples date from the Egyptian Period (around 1500 B.C.). Also from ancient Greece and Rome numerous examples, large as well as pocket-sized, are preserved. Especially in the Islamic world the need for observing the daily prayer times, a number of which are mathematically defined by proscribed altitudes of the sun above the horizon, further stimulated the development of instruments for observing the time from the Sun's altitude. In medieval and early modern Europe the sundial was by far the most commonly used instrument for determining the time. From the 16th to the 18th century the steady flow of books and manuals on sundials and their use produced by mathematicians, astronomers and instrument makers attests to the popularity of this instrument and the great variety in its design and construction. Even the development of the mechanical clock from the 14th century onwards by no means made the sundial obsolete, despite improvements in the second half of the 17th century with the introduction of the pendulum and the balance-spring. Until far into the 19th century, an accurate sundial was essential for regularly checking and adjusting the rate of mechanical timekeepers.— Severino: Bibliography pp. 179; Tomash Library L138 & L139.





MALPIGHI, Marcello.

Opera Omnia ... London, Robert Littlebury [for the Royal Society], 1687. Two vols bound in one, folio (352 x 225 mm), pp. [viii, including frontispiece], 15, [4], 78 [recte 82]; [ii], 35, [1, blank]; [viii], 72; [iv], 44l, [iv] 20; [ii], 144, titles in red and black, first title with engraved arms of the Royal Society, with engraved frontispiece, 116 full-page and 7 half page engraved plates; frontispiece creased, first title slightly dust-soiled, some occasional marginal spotting, otherwise a very fresh, crisp copy in contemporary English calf, spine with gilt panels.

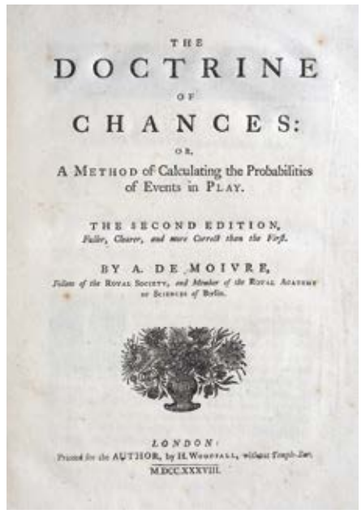
EUR 7.000.-

First edition of the collected works of Malpighi and a handsome piece of book production by the Royal Society.

'Malpighi was the founder of histology and the greatest of the microscopists' (Garrison and Morton). The two volumes contain Malpighi's classic works on plant anatomy, Anatome plantarum; embryology, Formatione de ovo in pulli, his treatise on silkworms, De bombyce; along with his various publications on anatomy. These include his Epistolae Anatomicae, and his De viscerum structura exercitatio anatomica, which contains his anatomical investigations of the circulatory system and the discovery of the capillaries, thus completes the understanding of the circulation of blood discovered by Harvey. It also includes his observations on the tissues of the lungs and their role in oxygenating blood.

Adelmann I p 509; Frati 2; Garrison and Morton 66; Waller 6201a; Wing M 342.

Large Paper Copy – A Work Prized by Gamblers


THE
DOCTRINE
OF
CHANCES:
OR,
A METHOD of Calculating the Probabilities of Events in PLAY.
THE SECOND EDITION,
Fuller, Clearer, and more Correct than the First.
BY A. DE MOIVRE,
Fellow of the ROYAL SOCIETY, and Member of the ROYAL ACADEMY of SCIENCES of Berlin.
LONDON:
Printed for the AUTHOR, by H. WOODFALL, without Temple-Bar.
M.DCC.XXXVIII.

MOIVRE, Abraham de.

The Doctrine of Chances: or, a Method of Calculating the Probabilities of Events in Play. The second edition, Fuller, Clearer, and more Correct than the First. London: Printed for the Author, by H. Woodfall, 1738. Quarto (285 x 225 mm) xi, 259 pp. with wood-engraved title-vignette, ornaments and initials, engraved head & tail-piece, tables, some full-page, with blank leaf at end of preliminaries, occasional spotting, hole to lower margin of O3, a few leaves slightly shorter at foot. Contemporary calf, rubbed, label chipped, spine worn at head.

EUR 6.000.-

Large paper copy of the second enlarged edition of de Moivre's master piece of probability theory. The authors greatly improved edition and the last to be published during his life-time; a classical and groundbreaking work on probability. The first textbook for the calculus of probabilities, offering in this edition for the first time an approximation of the binomial by the normal distribution. Important work on probability by a friend of Isaac Newton's, greatly expanded from the first edition of 1718 which was dedicated to Newton. De Moivre's work, already adumbrated in the Philosophical Transactions in 1711 with his De mensura sortis, was first published in 1718. This is the second and much improved edition with over 75 pages of new material. Mathematically, this is de Moivre's most important work and all editions were rated as "landmark writings in western mathematics.". "In the second edition of the Doctrines part of the material contained in the Annuities together with new material was incorporated.... In it he "developed a series of algebraic and analytic tools for theory of probability, like a ‚new algebra', the method of generating functions, or the theory of recurrent series for the solution of differential equations. In the Doctrine offered an introduction which contains the main concepts such as probability, conditional probability, expectation, dependent and independent events, the multiplication rule, and the binomial distribution." (Ivo Schneider) Macclesfield sale 1422 (large paper copy); Norman 1529 (first edition); Kress 5546c.


Brunn des Heyls/
Das ist:
Ein gründlicher Bericht / was gestallt der Mensch biß auff sein äusserstes Alter gesundt leben, die gemeine Krankheiten und Anligen des leibs und Gemüts vertreiben, bey guetem Verstandt, Gedächtnuß und allen Sinnen unverletzt verbleiben, und endtlich den unvermeidenlichen Beschluß seines Lebens sanfft erreichen möge ...
Durch:
Den Ehrwürdigen Edlen Herrn Stephanum Waletitium Nagium Theologum der Hochfürstl.
Cum Gratia & Privilegio Sac. Cæs. Majestatis
Gedruckt zu Jnßpruckh, bey Daniel Paur.
ANNO, M. DC. XVII.

NAGIUS (Waletitsius; Waletisch), Stephanus.

Brunn des Heyls, Das ist: ein gründtlicher Bericht, was gestallt der Mensch biß auff sein äusserstes Alter gesundt leben, die gemeine Krankheiten und Anligen des leibs und Gemüts vertreiben, bey guetem Verstandt, Gedächtnuß und allen Sinnen unverletzt verbleiben, und endtlich den unvermeidenlichen Beschluß seines Lebens sanfft erreichen möge ... Innsbruck: Daniel Paur, 1617. 2 parts in 1 Volume. Quarto (205 x 145 mm) 14 leaves, 340 (wrongly numbered 240) pages, 4 leaves; 40 pages, with 4 text woodcuts. Contemporary vellum, used, rubbed and soiled, with gilt printed cover, gilt edges and without ties. Inside quite clean and fresh. Pagination jumps at pp. 299, second part with own title-page.

EUR 4.800.-

Very rare work on nutrition and dietics written for an Austrian duke; the only edition of this book.

Nagius, chaplain of Maximilian of Austria, deals in great detail with the various ways and means of achieving a healthy and long life. The author gives seven rules how to come into harmony with the body through moderation in eating and drinking and through other healthy activities. This work not so much advocates restrictions regarding the consumption of particular foods, but advises eminent persons on how to live a healthy life.

Some cultures and religions have restrictions concerning what foods are acceptable in their diet. Only Kosher foods are permitted by Judaism, Halal foods by Islam. Although Buddhists are generally vegetarians, the practice varies and meat-eating may be permitted depending on the sect. In Hinduism, vegetarianism is the ideal. The separately paginated sermon on foot ablution with own title-page: 'Predigt von der Füszwäschung, mit wellicher sich der Herr Christus mit seinen ... Aposteln subjungiert.' BL, German Books 1601-1700, N 19; Wellcome I, 4504, VD 17 12:106009D KVK: Augsburg, Mainz, Strasbourg, Stabi Berlin (lost in the war); Wolfenbüttel; Stabi München; COPAC: BL London; Wellcome, Univ. College; OCLC adds one copy, in Poland.

Nature pressed or printed Butterflies

NAWA, Yasushi

Pressed specimens of Butterflies and Moths. (Gilt title on front boards). Nawa Konchu Kenkyujo (Nawa Entomological Research Center). Choga rinpun tensha hyohon -- Gifu: Nawa Entomological Research Center, before 1919. 2 leaves of text in engl./jap., dedication leaf, 26 double-leaves with together 104 loosely inserted cards (90 x 140 mm) all with one nature-printed specimens of butterflies or moths. The bodies of the animals added in wash-colour drawing. Each card with printed captions in lat./jap. Backside with japanese description. Publisher's binding with leather spine and gilt to front cover. Spine restored.

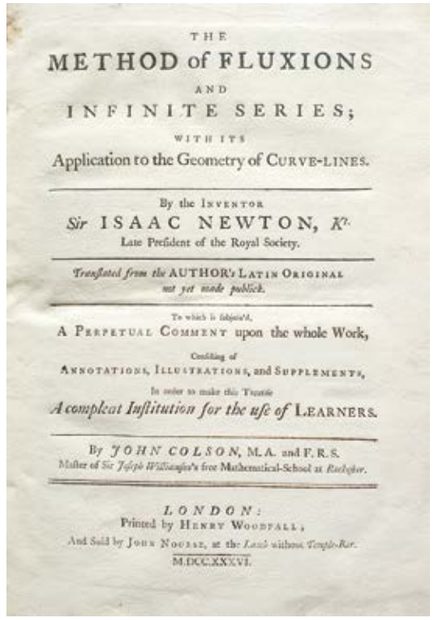
EUR 7.500.-

A rare survival from the Nawa Insect Museum in Gifu/ Japan, founded in 1896 by Yasushi Nawa (1857–1926) as a research center for entomology and opened to the public in 1919. It has so far escaped the bibliographers of nature printing that Nawa also revived the old European technique of transferring original pigments from the wings of butterflies to paper. He even obtained a Japanese patent on this printing technique. For his "new" method of lepidochromy he received a patent: no. 12736. Presumably his butterfly cards (each with printed editor's and patent note on verso) were for sale at the museum and could be purchased at choice. When one of the prefabricated albums was filled, the colophon leaf was written in keen brushstrokes and sealed.

It indicates the exact date of finishing and the copy number resp. his future owner. Thus every album would appear unique. We could not locate any copy in European or American libraries and only a single one in Japan at the National Diet Library / Tokyo. Nawa's nature- printed butterflies are neither mentioned by Ernst Fischer in his classic survey, nor Cave in his recent monograph.- Provenance: Willy Schniewind Fänn (early 20th cent.)


ハゲアンワイタ
Papilio demoleus L.

Differential Calculus invented


THE
METHOD of FLUXIONS
AND
INFINITE SERIES;
WITH ITS
Application to the Geometry of CURVE-LINES.

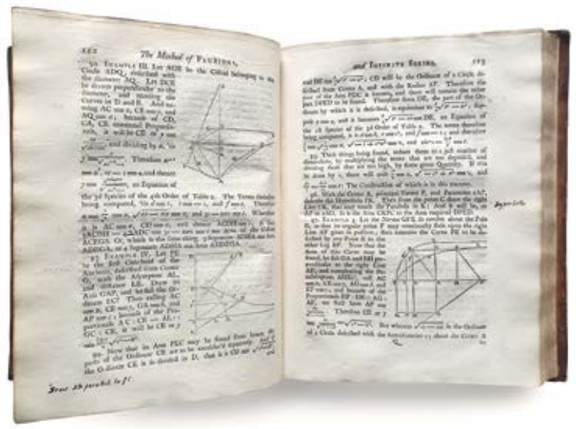
By the INVENTOR
Sir ISAAC NEWTON, Kt.
Late President of the Royal Society.

Translated from the AUTHOR's LATIN ORIGINAL
not yet made publick.

To which is subjoin'd,
A PERPETUAL COMMENT upon the whole Work,
Consisting of
ANNOTATIONS, ILLUSTRATIONS, and SUPPLEMENTS,
In order to make this Treatise
A compleat Institution for the use of LEARNERS.

By *JOHN COLSON*, M.A. and F.R.S.
Master of Sir *Joseph Williamson*'s free Mathematical-School at *Rochester*.

LONDON:
Printed by HENRY WOODFALL;
And Sold by JOHN NOURSE, at the *Lamb* without *Temple-Bar*.
M.DCC.XXXVI.


The Method of FLUXIONS,

and INFINITE SERIES.

NEWTON, Sir Isaac.

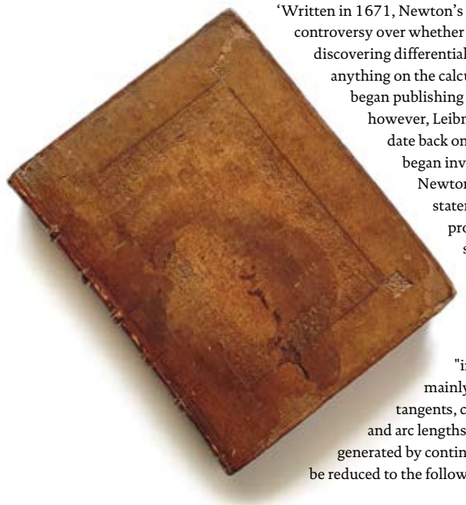
The Method of Fluxions and infinite series with its application to the Geometry of Curve-Lines ... To which is subjoin'd, a perpetual comment upon the whole Work ... London, Henry Woodfall, 1736.

4to, pp. iv, ix-xxiv, 140, 1, [1, blank], [143]-[144], [2], [143-]339, [2], with one engraved plate; horizontal tear to p. xxii repaired without loss; a very few leaves a little stained; the plate a bit browned; overall a very good, clean copy in contemporary English panelled calf, rebacked; the joints now a little cracked.

EUR 31.000.-

First edition, an interesting copy with some early corrections or notes in ink and pencil, of Newton's work on fluxions, 'one of his greatest mathematical works' (Cambridge Companion to Newton).

This is Newton's fullest exposition of the calculus; though the last of his works on calculus to be published, it was the work which he himself intended to publish first, in Latin, in 1671. The first page of the manuscript (preserved in Cambridge University Library) is lost and the title De Methodus Fluxionum was supplied by John Colson when he first published it in this translation, with his own extensive commentary.



'Written in 1671, Newton's Fluxions is a key document in the controversy over whether Newton or Leibniz had priority in discovering differential calculus. Newton did not publish anything on the calculus until after 1700, whereas Leibniz began publishing papers on the subject in 1684; however, Leibniz's manuscript notes on the calculus date back only to 1673, eight years after Newton began investigating the subject. By 1671, Newton was in a position to give his clearest statement to date of the fundamental problem of the calculus, and to present a successful general method' (Norman Catalogue).

'In the Method, Newton gives the solution of a series of problems "in illustration of this analytical art," mainly problems of maxima and minima, tangents, curvatures, areas, surfaces, volumes and arc lengths. With qualities represented as generated by continuous flow, all of these problems can be reduced to the following two (one the inverse of the other).

1. Given the length of the space at every time, to find the speed of motion at any proposed time.

2. Given the speed of motion at every time, to find the length of the space described in the proposed time.

This is among the greatest generalizations in the history of mathematics, reducing the great majority of problems faced by mathematicians of the time to two basic problems' (Cambridge Companion to Newton).

'It was often lamented that the world had had to wait for so many years to see Newton's masterpiece on fluxions. It is astonishing to realize that publication sixty years beforehand would have changed the history of the calculus and would have avoided for Newton any controversy over priority. In 1736 all the results contained in Newton's treatise were well known to mathematicians. However, it was too concise for a beginner, and Colson added almost 200 pages of commentary. His commentary contributed to the establishment of a kinematical approach to the problem of foundations' (N. Guicciardini, The Development of Newtonian Calculus in Britain 1700-1800 pp. 56-57).

Provenance: contemporary corrections and a few side notes by an unidentified reader to several equations or text on pages 50, 53, 60, 68, 79, 87, 93, 94, 95, 96, 107, 108, 110, 111, 112, 113, 114, 119, 120, 132, 135, 138, 157, 275; twentieth-century bookplate of the physicist and writer Edward Neville da Costa Andrade (1887-1971) on front paste-down. Edward Neville studied for a doctorate at the University of Heidelberg and then had a brief but productive spell of research with Ernest Rutherford at Manchester in 1914. They carried out diffraction experiments to determine the wavelengths of gamma-rays from radium, and were the first to be able to quantitate these, thereby showing that they were shorter than the wavelengths of then-known X-ray radiation that was produced by 'Roentgen tubes'.

Babson 171, Norman 1595; Trente livres de mathématique qui ont change le monde pp. 169-172; Wallis 232.

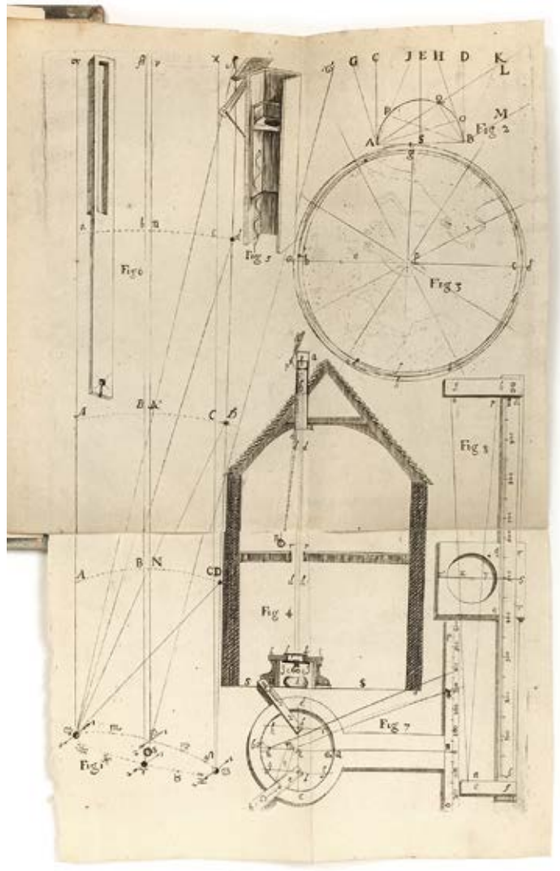
On Gravity

A Rare Newtoniana

HOOKE, (Robert).

An Attempt to prove the Motion of the Earth from Observations, London: for John Martyn printer to the Royal Society, at the Bell in St. Pauls Church-yard, 1674. 4to. (210 x 155 mm) pp. [8], 28, with one folding engraved plate, woodcut initials and head-pieces, title a little browned, closely shaved at head, affecting a few page numbers, a very good copy in modern antique-style calf backed boards.

EUR 19.000.-



Scarce work of Hooke in which he concludes his discussion of parallax with a summary of his ideas on the gravitational attraction of celestial bodies.
The original first issue, separately published and sold, of Hooke's seminal work on orbital motion, a work that antedates much of the basic principles of Newton's gravitational theory, was known and used by Newton, and a work for which Hooke until today has only received partial acclaim.
English scientists, including Robert Hooke and other members of the Royal Society, based their studies of planetary motion on William Gilbert's sixteenth-century work on magnetism. In the 1660s and 1670s, Hooke studied the attractive powers of the Earth, Moon, and Sun, concluding that all bodies in the solar system possess an attractive power like the gravity which holds objects to the surface of the Earth. He further concluded that the planets attract other planets, and that these attractive forces diminish as the distance between the objects increase. Over the next decade, English scientists established that the attraction between celestial bodies must vary inversely with the distance between them squared (the inverse square law), but were unable to prove this mathematically (which first Newton did).

"I shall explain a system of the world differing in many particulars from any yet known, answering in all things to the common rules of mechanical motions" (Hooke). An attempt is the first, and most important, of his Cutlerian Lectures, which contains some of the most pertinent remarks about gravitation that were made before Newton (Allen Chapman, England's Leonardo: Robert Hooke (1635–1703) and the Art of Experiment in Restoration England).

In addition, the work also contains the first record of stellar observation in daylight. This may well have been the first clear statement of what came to be called "Newton s first law of motion" (Nicholas Kollerstrom, How Newton failed to discover the Law of Gravity, Annals of Science 56, 1999). - Keynes, Hooke 16 (sold, stitched, for 1 s); Wing H 2613; Wellcome III, 296.

Newtoniana

PINO, Domenico.

Esame del Newtoniano sistema intorno al moto della terra. Del sacerdote Domenico Pino, ex Domenicano Milanese. 3 Vols.- Como: Tip. di Pasquale Ostinelli, 1802. 8° (205 x 120 mm) XXIV, 10 Bll., 216 pp., 6 Bll. with one fold. plate with tav. I. + II.; 271 pp., (1); 264 pp., (2) Contemporary red morocco, two green morocco lettering pieces, gilt spine in compartments, fine gilt floral cover dentelles, gilt edges, printed on better blueish paper.

EUR 3.200.-

Exceedingly rare contribution to Newtonianism, a philosophical and scientific doctrine inspired by the beliefs and methods of natural philosopher Issac Newton. The author seems to be a relative to the General Domenico Pino (1760–1826) who was the Minister of War in the Italian Republic: a Dominican priest and Priore Del Convento Medesimo who also wrote on Leonardo da Vinci.- not in Babson Coll. KVK: no copy in Germany, COPAC: only Cambridge; OCLC: Toronto, Burndy, Stanford, Univ. California.


IL CALENDARIO
GREGORIANO,
E RIFORMA DELL'ANNO.
Fondamento, e regola del celebrare
LA PASQVA.
Ove si spiega l'Anno Solare, e Lunare per
trouare in perpetuo la decimaquarta Luna
Pasquale, l'Aureo numero, l'Epatta, il
Ciclo Solare, la Lettera Dominicale,
l'Indizione, & altre cosa, come
nella Tauola.
DI GIO: FRANCESCO
DE GLI ODDI.
AL MOLT'ILL. E REVERENDISS. SIG.
IL SIG. CANONICO
HADRIANO BENEDETTONII.
In TODI, per Vincenzo Galassi.
Con Licenza de' Sig. Superiori 1676.

ODDI, Francesco degli.

Il calendario Gregoriano, e riforma dell'Anno. Fondamento, e regola del celebrare La Pasqua. Ove si spiega l'Anno Solare, e Lunare per trovare in perpetuo la decimaquarta Luna Pasquale, l'Aureo numeo, l'Epatta, il Ciclo Solare, la Lettera Dominicale, l'Indizione, & altre cose, come nella tavola. Todi, Vincenzo Galassi, 1676. 12mo, pp. 168; a number of leaves uncut at lower edges; some light spotting or staining; else a very good copy in a pretty binding of contemporary Italian half vellum over flower-patterned boards.

EUR 2.200.-

First edition of degli Oddi's work on the Gregorian calendar allowing for the calculation of the epact in determining the date of easter, and the calculation of the lunar phases. Oddi explains the solar and lunar year, the application of a Golden Number to each year in sequence to indicate the year's position in 19-year Metonic cycle, which approximates to a common multiple of the solar year and the lunar month, the reasons for the calendar reform itself, the calculation of the epact, the solar cycle, etc. Included are a number of tables in aid of explanation and for calculation.
Of mythical Macedonian origin the degli Oddis first settled in Perugia in the second half of the twelfth century to become one of the most powerful families in Umbria. The work itself was printed at Todi in the province of Perugia, and appears to be of great rarity; OCLC does not record a single location.


Della Riforma
il il mese. Poi seguono essi mesi con li suoi giorni uerí & lettere domenicali. Laonde se uorrai saper in qual giorno del mese uero noi siamo: computerai il numero di esso giorno nella prima colonna de numeri: & poi seguirai tanto trattenendo à man destra, che tu perueng. ga sotto'l nome del tuo mese: & iui il numero che trouerai, sarà il giorno uero del tuo mese che desideri sapere. Come per essempio, Io desidero sapere alli 6 di Luglio quanti ne habbiamo del uero mese. Trouo primieramente li 6 nel primo ordine de numeri. Poi seguendo à man destra sotto'l nome di esso mese, trouo 10. Concluso adonq; che alli 6 di Luglio ne habbiamo 10, & non sei. Il simile s'intende anche dell'altri.
SEGVE LA TAVOLA
delli dodeci mesi.
Tauola
Dell'Anno. 17
Tauola della diuersità de gli giorni de mesi uerí dalli comuni.
Gen. Fe. Ma. Ap. Ma. Giu. Lu. Ag. Set. Ott. No. Du.

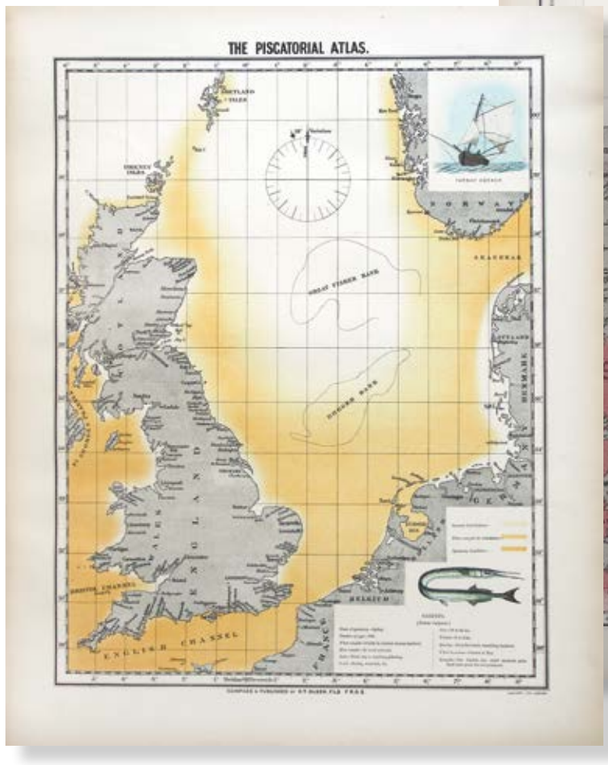
PADOVANI, Giovanni.

Opera sopra la riforma dell' anno composta per D. Giouanni Padouani Veronese, da esse autore nouamente tradotta di latino in uolgare, ampliata, & posta in luce. – Verona: Sebastian dalle Donne & Giovanni Fratelli, 17. Agosto 1576 (colophon). Quarto (195 x 150 mm) 26 Bll. (Sign.: A–A4, B–B4, C–D4, F–F6) Later vellum, spine broken but holding, new endpapers. Book–block rudely cut at lower edge, clean and fresh copy.

EUR 3.000.-

Very rare work on the calendar reform by Giovanni Padovani (or Paduani) (b. c. 1512), an Italian mathematician and astronomer who lived in Verona and was a student of Pietro Pitati. Little is known of Padovani, who wrote a good number of titles, arithmetic and calculating instrument books, virtually all published in the Veneto and most rare. Published the year before in latin (De anno innovando) with only 14 leaves, this is an italian emended translation. The most well-known of his books is a treatise on the sundial called Opus de compositione et usu multiformium horologiorum solarium (1570). This manual includes instructions for the manufacture and laying out of mural (vertical) and horizontal sundials; contains extensive tables of declinations for various latitudes with both occidental and oriental examples; and provides instructions for the calculation of latitudes. This last section includes a description of a sundial calibrated for the measurement of unequal hours, such as those used in the ecclesiastic calendar, which foresaw twelve hours of light and twelve of dark, which was subject to severe seasonal variations.- Riccardi I, 1233 4.2; KVK: only Lübeck; Stabi Berlin (Kriegsverlust), OCLC: only Oklahoma; not in COPAC

A Pioneering Atlas of Fish Distribution


THE PISCATORIAL ATLAS.


THE PISCATORIAL ATLAS.

OLSEN, Ole Theodor.

Piscatorial Atlas of the North Sea, English and George's Channels […] Illustrating the fishing ports, boats, gear, species of fish (how, where and when caught) and other information concerning fish and fisheries. – Grimsby & London: Taylor & Francis, 1883. Folio. (570 mm) 3 Bll. + 50 chromolithographed plates, blue publisher's cloth, gilt title on cover, a little faded and worn, rebacked. Contemporary book label of Walter Heape, probably the pioneering specialist in reproductive biology.

EUR 4.000.-

Rare atlas, a series of 50 lavishly chromolithographed charts recording the distribution – spawning grounds and abundance – of the major edible species of fish, shellfish and crustacea caught in the North Sea and off the coasts of the British Isles. There are insets showing the fish themselves, and the vessels and gear used to catch them, with a table of detailed information covering time of spawning, number of eggs, when and how caught, bait and food, size and weight, 'quality', when in season and other remarks, the product of a decade or more of reports and correspondence with British fishermen. The atlas was published under a joint London and Grimsby imprint, in the year of the International Fisheries Exhibition. Showing the ecosystem of fishes long gone.

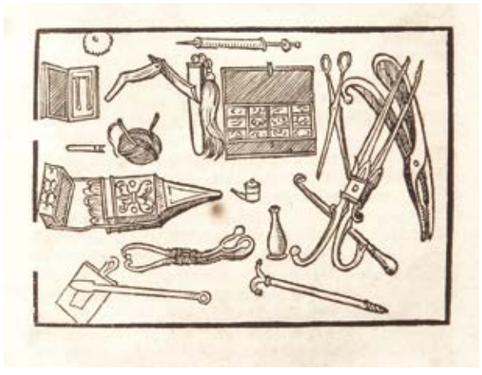
KVK: Coburg; Stabi Berlin (lost); OCLC: some copies incl. Smithsonian, Harvard, et al.; only two copies held in Australian libraries.

His Great Surgery

PARACELSUS, Theophrastus Philippus Aureolus Bombastus von Hohenheim.

Erster [–dritter] Theil der grossen Wundartzney desz weitberühmten, bewerten, unnd erfarnen Theophrasti Paracelsi von Hohenheim, der Leib und Wundartzney Doctoris, von allen Wunden, Stich, Schüss, Brendt, Thierbissz, Beinbrüch, Was nemlich die gantze Heilung, Zufell und Gebresten, gegenwärtig und zukünfftig, in sich begreifft, Auss rechtem grundt und erfahrnuss treüwlich an Tag geben, und auss seinem selbst geschriebnen Exemplar wieder auffs neuw in Truck verfertigt. [colophon:] Frankfurt, Georg Rabe and heirs of Weygand Han, [1563]. Three parts in one vol., 4to (182 x 144 mm), ff. [12], 115,[1]; [12, including final blank], 129, [1]; [74, including terminal blank], title to each part printed in red and black and with a fine woodcut illustration, and two large woodcut illustrations in the first part; small wormhole in blank margins of a few gatherings in third part, a very clean, attractive copy in contemporary German vellum with yapp edges on upper and lower edges as well as fore-edges, ruled in blind, yellow-green silk ties.

EUR 12.000.-



First edition of Paracelsus' Great Surgery to contain these fine title woodcuts, and the woodcut of surgical instruments. The Wundartzney is Paracelsus' most important medical work, and one which had immense influence on the practice of medicine. Besides surgery, it contains the first presentation of his radical medical ideas.

'The most original medical thinker of the sixteenth century, Paracelsus was perhaps the first to apply chemistry to practical medicine ... Paracelsus taught that medicine could not advance solely by clinging to established ideas but that there must also be "experimentation controlled by authoritative literature"... His first book on surgical techniques ... dealt with the complete treatment of wounds caused by piercing, shooting, burning, animal bites, bone fracture, and other injuries. Advocating sound surgical techniques, he also recognized the natural power of the body to heal' (Le Fanu, Notable medical books p. 25).

'Among Paracelsus' practical achievements was his management of wounds and chronic ulcers. These conditions were overtreated at the time, and Paracelsus' success lay in his conservative, non-interventionist approach, which was based upon his belief in natural healing power and mumia, an active principle in tissues' (DSB).

The text was first published in 1536 at Ulm by Hans Varnier in an unauthorized version, which was strongly condemned by Paracelsus in the preface to his own 'first' of the same year.

According to Sudhoff the woodcut of the Weltbild (here on leaf 64 of part I) is an exact copy of the one contained in the Augsburg printing of 1537. The three title woodcuts depict an apothecary shop on the first title, a surgery room and wound management on the second, and a sick room with a patient in bed and a doctor checking astrological positions. The woodcut following the index to the first part depicts several surgical instruments. This Frankfurt edition has undergone minor textual changes. Whether the printers Han and Rabe or a follower of Paracelsus are responsible for these is not clear. Rabe and Han, and heirs, published three issues closely together. The first two volumes are identical in all three variants, which only concern the third volume. This volume is dated 1562 in the colophon of one issue, 1563 in another issue, and undated in ours. In our copy the first two gatherings are identical to those in Sudhoff 51, while the remaining gatherings are from Sudhoff 29 (1553), apart from the final gathering T2 with the colophon. No priority has been established.

Sudhoff 49, 50 and 52; see also 502; cf Durling 3457 and Wellcome 4744; not in Adams, Bird, Parkinson & Lumb, nor Waller.

Anthrax
The Discovery of the First Anaerobic Pathogen

PASTEUR, Louis, and Jules François JOUBERT.

Charbon et septicémie. Paris, G. Masson, 1877. 8vo, pp. 24; margins minimally foxed; but a fine copy, uncut and unopened in the original grey printed wrappers.

EUR 2.200.-

First edition, the very rare offprint from the Comptes rendus de l' Academie des sciences 85 (1877), of this important paper.

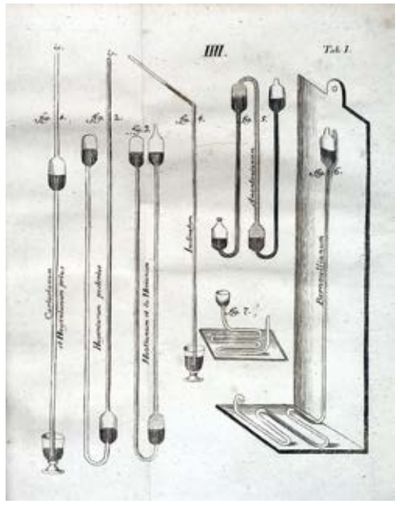
'In the 1870s, the germ theory of disease was in its infancy, and scientists all over Europe raced to prove or disprove its tenets using different diseases, most notably anthrax. At the time, anthrax was endemic throughout continental Europe, having caused several plagues in both livestock and humans. Veterinary physicians performed numerous experiments inoculating test animals with the blood of animals that had died from anthrax after various unsuccessful treatments in the laboratory. Veterinary physicians and scientists disagreed about whether the bacillus commonly found in the blood of these animals caused their disease. Pasteur, already famous for the pure culture techniques he developed in his studies on food spoilage, sought to resolve this confusion by the application of these techniques to the study of anthrax in one of his first forays into veterinary medicine.

'Charbon et septicémie' is a long report, even by the admission of the Academy in a footnote on the first page, yet it was included in its full length, probably because Pasteur did an excellent job of summarizing existing results and explaining the confusion that surrounded them ... In 'Charbon et septicémie', Pasteur presented little original experimental work, although what he presented is worthy of note. His experiment was the most convincing proof to date that anthrax is caused by the bacillus found so often in the blood of dead livestock ... This report was published when the worlds of laboratory microbiology and medicine were just beginning to converge, and, like Pasteur himself, it has a foot placed squarely in both of these worlds' (Erika R. Sams, Marvin Whiteley, and Keith H. Turner, 'The battle for life': Pasteur, anthrax, and the first probiotics in: Journal of Medical Microbiology pp. 1573–1574).

'Pasteur sought to clarify the relationship between anthrax and septicemia, and to demonstrate that CL. Septicum, like the anthrax bacterium, had a dormant spore phase resistant to environmental assault. He also noted the antagonism of Bacillus anthracis to other aerobic micro-organisms, thus foreshadowing the development of antibiosis' (Norman).

This is the very rare offprint, largely for distribution to colleagues by the author himself.

Garrison and Morton 2490 ('Discovery of Vibrion septique (C. septicum), the first pathogenic anaerobe to be found); Norman 1659.



Euler & Bernoulli on Fluids

PONGRACZ, Antal (Anton).

Dissertationum experimentalium ex Comment. Acad. Imperial. Petropol. excerptarum Tomus I. Accedit dissertatio experimentalis de electricitatis theoria et usu quam sub auspiciis Mariae Theresiae Augustae in Duc. Sabaudica Nob. Academia publica disputatione ... Vindobonae (Vienna): Georg Ludwig Schulz, 1762. Quarto (240 x 180 mm) (12), 261 pp., (1) with 15 fold. plates; 124 pp. Contemporary paper card board with printed label, inner hinges refurbished, else good with minor spots. Plate numbering erratic: I, II, IIIIa, IIIIb, VIa–c, IV, V, VI, VII, VIII, VIIII, X, XI.

EUR 2.400.-

Very rare work to include in the first part works by Georg B. Bilfinger (Bülfinger), Daniel Bernoulli, Leonhard Euler, Maier and Leutmann on fluid dynamics and meteorology, here published for the first time in book form and being re-published from the first two volumes of the Petersbourg Academy of Science Series. The works are Georg Bernhard Bilfinger's De directione corporum gravium, De tubulis capillaribus and his De variis barometris sensibilioribus, Daniel Bernoulli's Tentamen nova de motu musculorum theoriae and Experimentum circa nervum opticum, Theoria nova de motu aquarum per canales and De actione fluidorum in corpora solida & motu solidorum in fluidis and Leonhard Euler's Tentamen explicationis phaenomenorum aeris and Friedrich Christoph Siegmund (Meyer) Maier's luce borealis and Johann Georg Leutmann's De bilancibus. The second part of the work is Pongracz's Dissertatio experimentalis de electricitatis theoria et usu of 1762 with separate pagination and title-page.

Highly Original Views

DELLA
NVOVA GEOMETRIA
DI FRANC. PATRICI
LIBRI XV.

Ne' quali con mirabile ordine, e con dimostrationi à marauiglia più facili, e più forti delle vsate si vede che le Matematiche per via regia, e più piana che da gli antichi fatto nō si è, si possono trattare.

AL SERENISSIMO CARLO EMANVELE DVCA DI SAVOIA &c.

NIL DIFFICI. LE VOLENTI.

IN FERRARA,
Per Vittorio Baldini Stampator Ducale. 1587.

82

NVOVA
GEOMETRIA
DI FRANCESCO
PATRICI.

Delle rette Linee parallele.
LIBRO VI.

GLI antichi diffinirono linee parallele essere quelle, che nella medesima superficie da ambi i lati prodotte in infinito, da niuna parte mai non concorrono. Ma questa diffinizione perche dimostrare si puo, per principio chiaro non la accettiamo, e però diciamo. Linee parallele sono quelle che per larghezza l'una al lato all'altra poste, con

PATRIZI, Francesco.

Della Nuova Geometria … Libri XV … Ferrara, V. Baldini, 1587. 4to, pp. [8], 227, [1, errata], with woodcut device on title and woodcut diagrams in the text; occasional light damp-staining, but a very attractive copy in early vellum.

EUR 16.000.-

Very rare first edition of Francesco Patrizi's important work on the concept of 'space'.

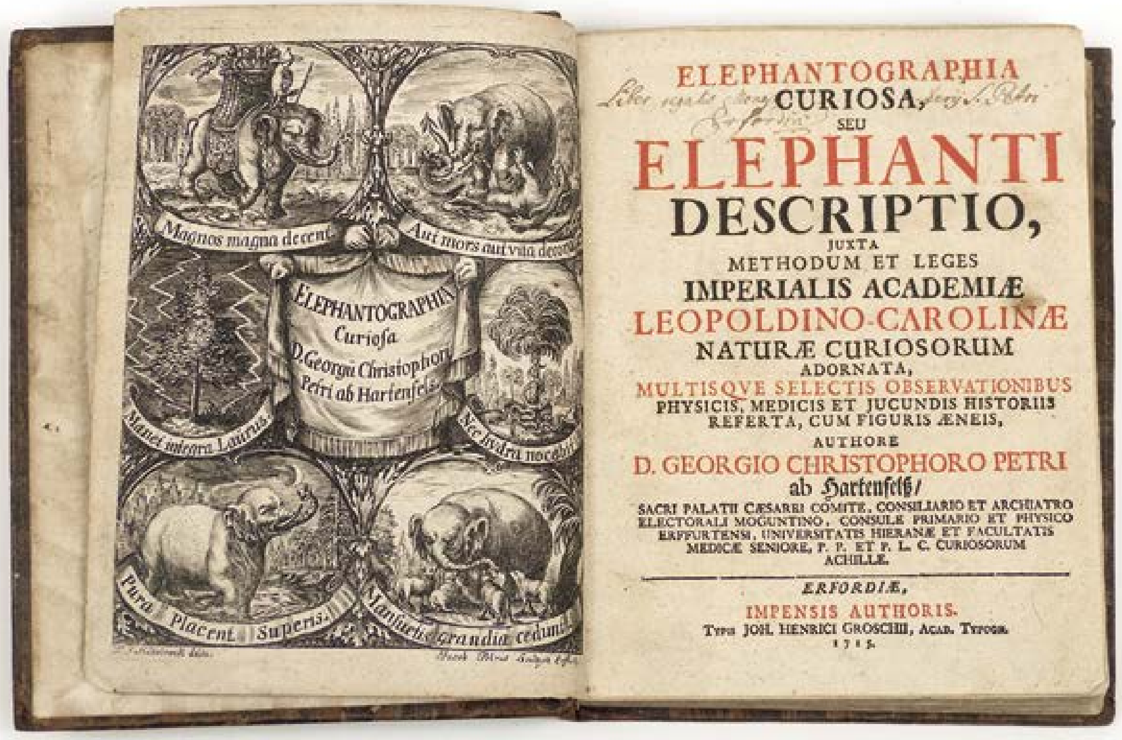
'Patrizi's importance in the history of science rests primarily on his highly original views concerning the nature of space, which have striking similarities to those later developed by Henry More and Isaac Newton. His position was first set out in De rerum naturae libri II priores, alter de spacio physico, alter de spacio mathematico (Ferrara, 1587) … Rejecting the Aristotelian doctrines of horror vacui and of determinate "place," Patrizi argued that the physical existence of a void is possible and that space is a necessary precondition of all that exists in it. Space, for Patrizi, was "merely the simple capacity (aptitudo) for receiving bodies, and nothing else." It was no longer a category, as it was for Aristotle, but an indeterminate receptacle of infinite extent. His distinction between "mathematical" and "physical" space points the way toward later philosophical and scientific theories.

'The primacy of space (spazio) in Patrizi's system is also seen in his Della nuova geometria (Ferrara, 1587), the essence of which was later incorporated into the Nova de universis philosophia. In it Patrizi attempted to found a system of geometry in which space was a fundamental, undefined concept that entered into the basic definitions (point, line, angle) of the system. The full impact of Patrizi's works on later thought has yet to be evaluated' (DSB).

'Patrizi's works seem to have been widely known throughout Europe and directly influenced some of the Cambridge Platonists, notably Joseph Glanville and Henry More. Henry More can be seen as a link between Patrizi and Sir Isaac Newton. Patrizi's long arguments for an isotropic, unchanging, immobile and infinite space, his vehement denunciation of the Aristotelian concept, and his establishment of 'space' as a new philosophical term can finally be said to have taken root when Newton was able to discuss absolute space after writing: 'I do not define space … as being well known to all'' (John Christopher Henry, 'Francesco Patrizi and the concept of space', doctoral thesis, University of Leeds, 1977, pp. 167-168).

Patrizi studied at Ingolstadt, at the University of Padua (1547–1554), and at Venice. While in the service of various noblemen in Rome and Venice he made several trips to the East, where he perfected his knowledge of Greek, and to Spain. He lived for a time at Modena and at Ferrara, before being appointed to a personal chair of Platonic philosophy at the University of Ferrara by Duke Alfonso II d'Este in 1578. He remained there until 1592, when Pope Clement VIII summoned him to a similar professorship in Rome, a post he held until his death.

Poggendorff II, col. 374; Riccardi I 254; Sommerville p. 3; STC Italian p. 493; not in Adams; OCLC records eight US locations, at Chicago, Columbia, Wisconsin, Burndy, Michigan, Illinois, Temple, and Cornell, and a copy at the Fisher Library, Toronto.



PETRI von HARTENFELS, Georg Christoph.

Elephantographia Curiosa, seu Elephanti descriptio, juxta methodum et leges Imperialis Academiae Leopoldino-Carolinae Naturae Curiosorum adornata, multisque selectis observationibus physicis, medicis et jucundis historiis referta … Erfurt, Johann Heinrich Grosch, 1715. 4to (209 x 160 mm), pp. [xxii including frontispiece], 284 [recte 286], [2], with engraved frontispiece, 27 engraved plates, one folding, and one engraved plate in text; a very nice copy in contemporary sheep, minor repairs to spine.

EUR 10.000,-

First edition, presentation copy, of the first monograph on the elephant, by the Leipzig Burgomaster and professor of medicine, Petri von Hartenfels (1633–1718). The copy is inscribed by him to the Monastery of St Peter in Erfurt (see below).

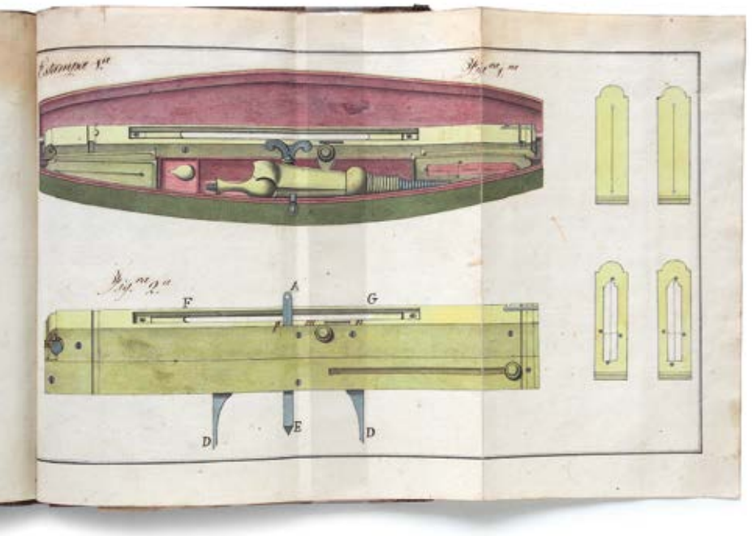
The first part of the work is devoted to fossil remains of elephants, the anatomy of elephants, their lives and habits, and the differences between Indian and African elephants. Much of this section concerns elephant teeth and tusks, their properties, use in art, etc. The second part deals with elephants' moral virtues and attributes, such as sympathy, gratitude, intelligence, courage, etc. The third part is devoted to the use of elephants in war, hunting, construction, etc.

The frontispiece was designed by T.J. Hildebrandt and engraved by Jakob Petri, an Erfurt engraver; the plates are signed by the latter only. They depict a variety of scenes involving elephants, some being depictions of historical events, others showing elephants in their natural habitats engaged in various activities, such as feeding, washing, etc. The folding plate depicts elephant anatomy, with skeleton, skull, internal organs, dissected trunk, etc.

There was a second edition published in 1723.

Provenance: presentation copy from Hartenfels to the Monastery of St Peter in Erfurt, inscribed on front pastedown: 'Instructissimae Bibliotheca Regalis Monasterii Petrensis hunc de Elephanto Tractatum in sui memoriam offert Author. Erfordiae, die 3 Novembris, Anno 1714'; inscription of the monastery library on title; ownership inscription on blank recto of frontispiece of 'H. Graf du Moulin, München 20 Nov. 1839' - Nissen ZBI 3149; C.A. Wood p 377.

Unpublished Manuscript Pantometer



PITHON (or Python), Joao Bento.

Descripcao do novo pantómetro de arta e explicao das operacoens q(ue) com elle se podem fazer. … Portuguese manuscript on paper. No date or place (Porto, Lisboa early 1750–1760's). 4to (210 x 170 mm). (5) leaves (3 blanks), 17 numb. leaves with manuscript text and 7 finely executed coloured wash-colour drawings with the instrument, its parts and function.

EUR 8.500.-

A fine unpublished Portuguese **manuscript on a newly designed instrument called 'pantometro'** by Jean Benoit Pithon (fl. 1755–1766) for the use in gunnery, dedicated to Joseph I. of Portugal. This instrument was intended for measuring angles for determining elevations, distances, etc.
Pithon was commander of an artillery regiment in Porto (as mentioned on the title). In 1752 he participated in a cartographical expedition to the northern part of Brazil (Rio Iguacu) to establish the exact course of the new border between Portugal and Spain according to the treaty of 1750. Pithon's instrument combines 3 distinct devices in one. A gunner's quadrant, a sight and a gauging device. A very fine copy, the text in a professionally calligraphed script, with exceptionally fine watercolor drawings of the instrument.

Not just 'Meteors'


I METEORI
DI CESARE RAO
DI ALESSANO
CITTA DI TERRA
D'OTRANTO.
I QVALI CONTENGONO QVANTO
intorno a tal materia si puo desiderare.
Ridotti a tanta agevolezza, che da qual si voglia, ogni
poco ne gli studi essercitato, potranno facil-
mente e con prestezza esser intesi.
Con la Tauola de i Capitoli, e delle materie, che in essi si contengono.
COL PRIVILEGIO.
IN VENETIA, Appresso Giouanni Varisco,
& Compagni. M D LXXXII.

RAO, Cesare.

I Meteori. I quali contengono quanto intorno a tal materia si puo desiderare. Ridotti a tanta agevolezza, che da qual si voglia, ogni poco ne gli studi essercitato, potranno facilmente e con prestezza esser intesi … Venice, Giovanni Varisco, 1582. 4to, ff. [15], [1, blank], 167, with woodcut device on title and several woodcut initials; a (possibly blind-) stamp obliterated from title (crinkled there, but without any other restauration); eight leaves a bit foxed; else an excellent, clean copy in contemporary limp vellum.

EUR 1.800.-

First edition of Rao's complete course of natural philosophy.
Written in 'Toscano', the language of culture, Rao's Meteori appeared at a time, when 'writing Aristotelian natural philosophies in the vernacular in sixteenth century Italy was not necessarily considered a threat to the intellectual hegemony of universities. Accordingly, its practice became widespread for meteorological writings by the end of the sixteenth century' (Craig Martin, Meteorology for Courtiers and Ladies: Vernacular Aristotelianism in Renaissance Italy). Rao discusses the celestial spheres, atmospheric phenomena and their causes, rivers, the seas, the winds, earthquakes and storms, the rainbow, and so forth. One chapter discusses comets as portents of trouble.
'With I Meteori Rao eclectically intertwines heterogeneous 'opinions' bound to both classic and medieval tradition as well as to that of the Renaissance – Theophrastus, Ptolemy, Alexander of Aphrodisias, Averroes, Albertus Magnus, Thomas Aquinas, Giovanni Pontano, Giovan Camillo Maffei – demonstrating his vast competence in the fields of astrology and natural science' (translated from Dizionario Biografico degli Italiani).

BMSTC Italian p. 549; Cantamessa 6561; Houzeau and Lancaster 2744; Riccardi II 542; outside Italy OCLC locates two copies in France, at the Bibliothèque Nationale, and Lyon, three for the UK, at the British Library, Cambridge, and Aberdeen, a single copy for Germany, at Berlin, one for Holland, at Leiden, and McGill, Smithsonian, Brown University, Oklahoma, Arizona, Harvard, Chicago, University of Brooklyn, Stanford, Michigan, San Diego State University, Us Air Force Academy, Columbia (New York), Wisconsin, and Toronto for North America. There is also a copy at the University of Santo Tomas, Philippines.

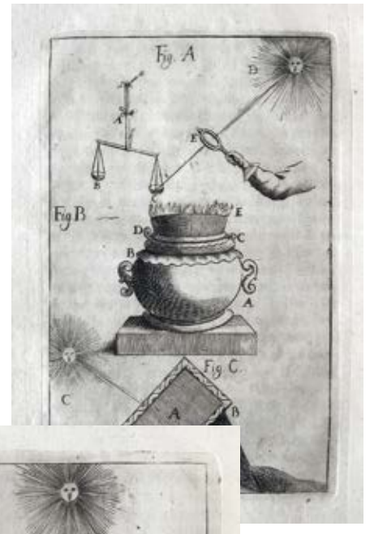
PLANISPHERE
Eckhardt, Christian Leonhard Phillip.

Eckhardt's Sternkarte. Zweite verbesserte Auflage. – Darmstadt: Leske, (after 1835 – before 1853). Folio (405 x 400 mm). Color lithographed star map (diameter 350 mm) with mounted movable part, mounted on heavy paper card boards, dust-soiled.

EUR 1.800.-

Very rare planisphere of the northern hemisphere, first distributed in 1835 and with a third revised edition to appear in 1853, this edition around 1840. Christian Leonhard Phillip Eckhardt (1784–1866) studied law, mathematics, physics, and astronomy in Giessen, and was guided to geodesy by the cartographer J. H. Haas. In the beginnings of the triangulation of the Hessian state (1804–1809) he was supported by Ludwig Schleiermacher (1785–1844). Since 1806 he was a teacher of mathematics and physics at the Gymnasium (College) Darmstadt, but later took over the direction of cadastral surveying. His work served as the basis for Haas' topographic maps and followed the triangulation of Bohnenberger. (Torge. Geschichte d. Geodäsie, 119); NDB 4, 294-293; GV, 31, 172; not in Houzeau-Lancaster & Poggendorff, Kanas. OCLC: Mainz, Halle (only text); BSB München (only map), ÖNB Wien; not in COPAC or OCLC (for USA).

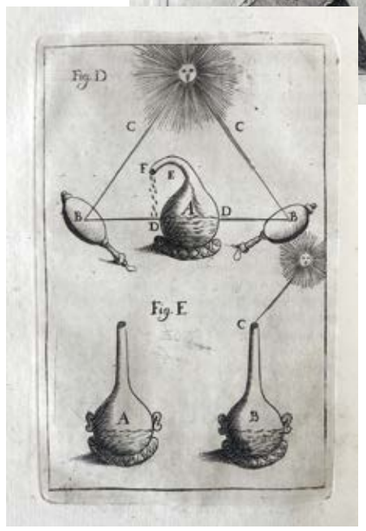
A Voyage to the Moon – A Philosophical Dream



Anon.

Sogno filosofico intorno alle cause della pioggia di moderna autore. – Bologna a Colle Ameno, per Giovanni Gottardi, 1753. 4to (197 x 130 mm) pp. 52, (2) with engraved frontispiece vignette and two engraved plates at pp. 24/25 &40/41. Carta rustica, rubbed and soiled, bookseller ticket at inner cover, else fine.

EUR 3.200.-



Exceedingly rare first edition (see above) of an anonymous meteorologico-chemical work that proposes to explain the phenomenon of rain with experimental methods. The author imagines a journey on a flying ship to the moon, where he discusses the physical phenomena of the vapours that cause rain with the learned Sinopius. He then demonstrates through a series of experiments, and illustrated by two beautiful tables engraved in copper, that the causes of rain are related both to the motion impressed by the Earth onto the particles (through exhalations and fermentation processes), and to the motion impressed onto the particles through the sun's heat.

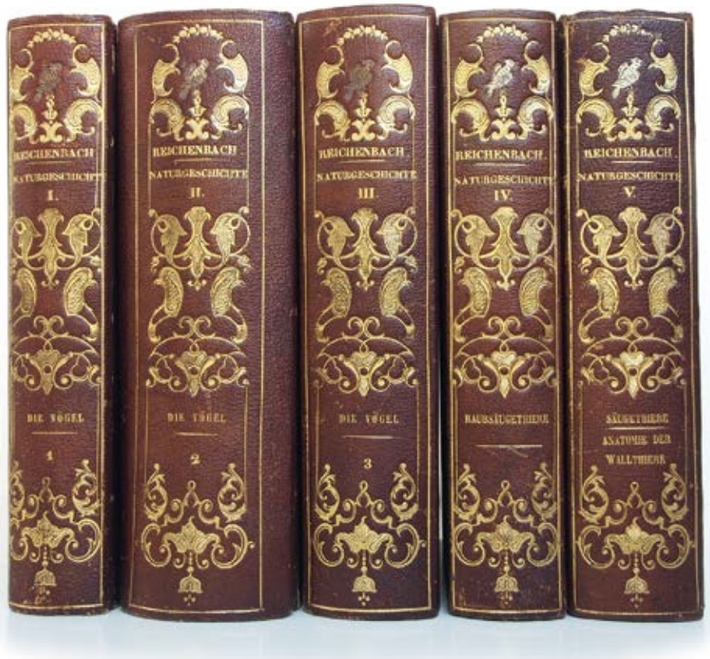
As stated on page 7, the tract's author was inspired by the Jesuit Gabriel Daniel's Voyage du monde de Descartes (1690), a popular work reprinted by 1739 on at least four occasions and translated into English: "An ingenious satire on Descartes' system of vortices put into the form of a cosmic voyage through the Cartesian universe." (Gibson / Patrick, Utopias and Dystopias, 1500–1750"(1961) 662).

Mentioned are Campanella, Benjamin Martin and Fontenelle, the plates show chemical apparatus and the beams of the sun working on them.

The Bibl. Casanatense has a copy dated 1700 (32 pp., 1 plate); other libraries state that ours is the second revised edition, which is not mentioned on the title.

There are only a few copies in libraries (only three in ICCU). The only OCLC holding is the US Air Force Academy (!?) not in Riccardi, not in Dizionario di opere anonime.

Mostly Rare, as well as Confusing to the Bibliographer



REICHENBACH, Heinrich Gottlieb Ludwig.

(Die vollständigste Naturgeschichte des In- und Auslandes, Abtheil. 2: Vögel /Aves. 3 vols. with 10 parts: Handbuch der speciellen Ornithologie. Beschreibender Text zu der vollständigen Kupfersammlung der Vögel aller Welttheile. Continuatio No. 8: Alcedinae/The kings-fishers/ Les martin- pecheurs/ Die Eisvögel. No. 9: Meropinae/ The bee-eaters/ les guepiers/ Die Bienenfresser; No. 10: Scansoriae/ The climbers/ les grimpeurs/ Die Klettervögel; B. The suctorial- birds/ les Tenuirostres/ Die Dünnschnäbler (without 10.A: Sittinae and 10.C: Picinae); No. 1: Aves Natatores oder Schwimmvögel; No. 2: Aves Grallatores oder Sumpfvögel; No. 3: Wasserhühner und Rallen / Fulicariae et Rallariae; No. 4: Tauben und taubenartige Vögel / Clumbariae; no. 5: Hühnervögel / Aves Gallinaceae; No. 15, 1-3: Die neuentdeckten Vögel Neu-Hollands: nach Vergleichung von Exemplaren beschrieben, und in ihrer zum Theil höchst merkwürdigen Lebens- und Fortpflanzungsgeschichte nach den neuesten Beobachtungen von Gould, Gilbert u. a. geschildert; ein Beitrag zur Naturgeschichte Australiens. Arten 1-286; Arten 287-490; Arten 491 - 602 (3 parts). Avium Systema Naturale. Das natürliche System der Vögel mit hundert Tafeln größtentheils Original - Abbildungen der bis jetzt entdeckten fast zwölfhundert typischen Formen. Vorläufer einer Iconographie der Arten der Vögel aller Welttheile, welche, nachdem bereits fast dreitausend Abbildungen erschienen sind.... / Ornithologie methodique ou Expose des genres des oiseaux ... (and) (Die vollständigste Naturgeschichte des In- und Auslandes, Abtheil. 1: Säugetiere / Mammalia. 2 Vols. with 5 parts. Die Raubsäugethiere; Die Säugethiere. Erster Band: Die Cetaceen oder Walthiere, nach den neuesten Entdeckungen monographisch zusammengestellt und durch 78 Abbildungen auf XXV Kupfertafeln erläutert. Der Säugethiere, zweiter Band: Die Pachydermen oder Dickhäuter und die Schweinthiere...; Der Säugethiere dritter Band. (Wiederkäuer) Ruminantia; Mammalia Ruminantia. II. Schaafe und Ziegen. Anatomia Mammalium. Pars I. Cetacea et Pachydermata. A set of 10 parts in 5 vols. Dresden & Leipzig, Expedition der vollstandigste Naturgeschichte, 1845 - 1852. Quarto (247 x 158 mm) IV, 44 pp.; VI, 45-144 pp.; V, 220-336 pp. with 153 plates; (2), 114 plates, (8 pp. Conspectus); (2), 74 plates, (6 pp., Novitiae); (2), 34 plates; (2), 64 plates, 6 pp.; (2), 112 plates, 5 Bll.; XII, 248 pp.; IV, 172 pp.; IV, 173-366 pp., (2); IV, VIII, 36 pp., XXXII, (4); 100 uncolored plates; VIII, 398 pp. with 102 plates; (2), VI, 17-172 pp., (2), with 25 plates; (4), 64 pp. with 15 (instead of 21 ?) plates; VI, 166 pp. with 51 plates; (2), 22 plates; IV, 23 pp., (3) with 65 plates. Together with 12 sepia etched part titles, 767 hand - colored engraved plates, 165 uncolored plates, occasional spotting and soiling, some damp-staining to lower outer corners in volume one. Uniformly bound in 19th century contemporary half morocco gilt, ornately tooled spines, slightly rubbed.

EUR 19.000.-

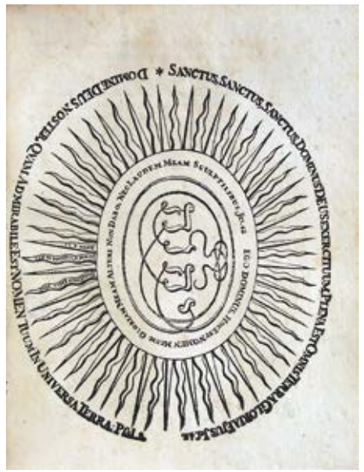
An attractively bound part set of Reichenbach's in any part rare work, including a substantial portion of published parts on the iconography on German, foreign and exotic birds and mammals with over 760 finely colored plates of birds and animals, many of which were copied from the likes of Gould and Naumann.

Die Vollständigste Naturgeschichte der Vögel... was eventually published in 14 or 15 volumes with a total of over 1050 illustrations, between 1845 and 1862. It is a bibliographical nightmare: Casey A. Wood describes Reichenbach's works in general as "mostly rare", and 'commonly regarded with despair by the cataloguer's.

Reichenbach's intention had been to cover the entire avian world with the Vollständigste Naturgeschichte (a task he left unfinished), but he was frequently adding new sections, different title pages, and new classifications, leading Zimmer to state in desperation: "extremely puzzling as to arrangement and method of appearance", and could "find no complete and accurate collation of the various components". However, the present set includes the first 10 of Nissen's 15 parts relating to birds, and a few of the parts on mammals. The set comprises the following parts: vol. 1.) Handbuch der Speciellen Ornithologie, 1851: Alcedineae; Meropinae; Scansoriae. B. Sittinae; vol 2.) Aves Natatores oder Schwimmvögel; Aves Grallatores oder Sumpfvögel; Wasserhühner und Rallen / Fulicariae et Rallariae; Tauben und taubenartige Vögel / Clumbariae; Hühnervögel / Aves Gallinaceae; vol. 3.) Die neuentdeckten Vögel Neuhollands, 1845; Avium systema naturale. Das natürliche System der Vögel, 1849; vol. 4.) Die Raubsäugethiere (1852); vol. 5.) Die Säugetiere: Die Cetaceen oder Walthiere (1846); Die Pachnodermen (1846); Ruminantia (1845); Anatomia mammalium (1845).

Heinrich Gottlieb Ludwig Reichenbach (1793–1879), botanist, ornithologist and artist, was born in Saxony in 1793. He studied medicine and the natural sciences at Leipzig, gaining his doctorate in Philosophy in 1815 and Medicine in 1817. He moved to Dresden in 1820 as professor of natural history at the college of medicine, where he became director of the natural history collection, the zoological museum and director of the botanical garden, which he helped founding. For the rest of his life he remained in these posts, whilst also publishing an enormous corpus of work on ornithological & botanical subjects. He probably first made a name for himself in the wider scientific world with his botanical works, and in this he was greatly helped by his artistic abilities which enabled him, for instance, to engrave all 1000 copper plates for his Iconographia botanica (1823–1832). This combination of accurate description with accurate and pleasing illustration was a keystone of his success and was to stand him in good stead throughout his career. If the Iconographia botania is Reichenbach's greatest early success in the botanical field, then the present work was to become his greatest ornithological work.- Fine Bird Books, 133; Nissen IVB, 765-766; Wood 531; Zimmer, 505-514; Gebhardt 286.

Physica Sacra



REYHER, Samuel

Mathesis mosaica, sive loca pentateuchi mathematica mathematice explicata, cum appendice aliorum S. Script. Iocorum mathematicorum. – Kiel, Reumann, 1679. Quarto (185 x 150 mm) ff. 4, pp. 808 with one fold. engraved plate (pp. 631), one full-page woodcut plate (after pp. 388) and numerous text woodcuts. Contemporary vellum, handwritten title on spine. Unknown Ex Libris on inner front cover. Fine copy.

EUR 3.400.-

Very rare first edition of this baroque work on natural philosophy and mathematics related to the Bible; partly the texts had been published before in small dissertations which his students at Kiel University had to defend.

Samuel Reyher (1635–1714) was the first Prof. of mathematics at the newly founded University of Kiel (Northern Germany). He had studied in Leipzig and at Leiden University before, travelled through Holland to make contacts to colleagues, was member of the Berlin Academy of Sciences and was in correspondence with Leibniz.
Reyher was a polymath of a Baroque style, leaving behind a barely manageable work. He dedicated numerous writings not to mathematics but to jurisprudence and universal history. As a scientist he dealt with astronomical, meteorological and marine related scientific works and experiments, he set up an observatory in Kiel and built a camera obscura. He also became a specialist in military architecture. His work is also important in the development of phonetic vowel systems. It contains a particular way of assigning vowels resembling today's order of vowels. He arranged the view numbered vowels… along a semicircle, assigning the sixth position on the far right to the schwa vowel, which is central vowel often elided in German. He wrote that vowels do not just differ in the shape of mouth and tongue, but also tone height. Reyher soll als einer der ersten die Resonanzen des Ansatzrohres an geflüsterter Sprache untersucht haben (Ungeheuer, 2013. pp. 3)

"So sind der 'Mathesis mosaica …, Kiliae 1679, 808 Seiten in 4°', zahlreiche Disputationen einverleibt, welche sich auf die verschiedenartigsten Dinge beziehen. Dies sonderbare Werk, welches noch im folgenden Jahrhundert manchen ähnlichen Schriften als Fundgrube diente, entsprach der damaligen Zeitrichtung, die Wissenschaften durch den Nachweis ihres usus in theologia zu verherrlichen. Auf Grundlage von Bibeltexten ließen sich wissenschaftliche Kenntnisse verbreiten und durch die Hinzufügung mancher Curiosa die Aufmerksamkeit fesseln. Loca mathematica waren dabei alle Stellen, die, wenn auch nur entfernt, eine Beziehung zur Mathematik in ihrem weitesten Sinne haben konnten. So kommen von den juristischen, dem Werke einverleibten Disputationen vor: die schon erwähnte 'De jure primogeniorum', dann 'De mappa geographica Palestinae', 'De columnis templi Salomonici', 'De aeneo Salomonis mari' u.s.w. Bei der Erwähnung des ersten Regenbogens wird die Cartesische Theorie des Regenbogens vorgetragen. Zu der in das Buch eingefügten Disputation 'De diluvio Noachico' wird auf die Angabe der Dauer vom 17. bis 27. Tage des zweiten Monats hingewiesen, doch ließ sich Reyher hierbei, wie Weyer bemerkt, die merkwürdige Beziehung entgehen, daß diese Dauer dem Unterschiede der Tage des Sonnenjahres und Mondjahres entspricht. Bei den Mauern Jericho's wird das Mitklingen von Tönen abgehandelt und dergl. mehr" (ADB XXVIII, 354 ff.). – Poggendorff II, 617; Kantor III, 524; M. Büttner. Samuel Reyher und die Wandlungen … Sudhoff's Archiv LXIII (1979), 239-260.

The Famous Droz Automata on Show in Italy

RICCHINI, Paolo.

Su gli automi de' Signori padre e figlio Droz, elveti e su due recentissimi effalmatori che ora viaggiar fannosi per l'Italia a Pubblico-Prezzolata Mostra di se: Dissertazione archeologica con note critiche e spiegativa di Paolo Ricchini, Patrizio Vogherese, Membro della Romana Accademia d'Archeologia. – Voghera: Tip. Sormani. 1828. (175 x 110 mm) (2), 86, (2). Gray printed original wrappers, little spotted, else fine.

EUR 2.800.-

First edition account of the Jacquet - Droz automata, precursors to modern robots and computers, known as the Writer, the Lady Musician, and the Draftsman - which were on tour in northern Italy at the time. The Jacquet- Droz automata, among all the numerous automata built by the Jaquet - Droz family, refer to three doll automata built between 1768 and 1774 by Pierre Jacquet - Droz, his son Henri-Louis, and Jean-Frédéric Leschot. They are considered to be among the remote ancestors of modern computers.- KVK: no copy in Germany (?); BL London; Schweizerische Nationalbibl. Bern, Luzern, Neuchatel, Locle; Smithsonian, Getty Research, Stanford. not in Tomash Library.

Uranoscope – Mechanical Instrument

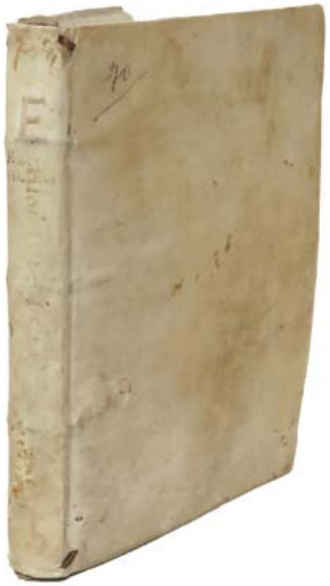
ROUY, Carlo or Charles

Descrizione dello Spettacolo Uranografico del Sig. Rouy, Prof. di Astronomia ossia Nozioni elementari di cosmografia intelligibili da tutte le classi di persone. – Milano: per Cairo e Compagno, 1808. 8° (145 x 225 mm) pp. 32 with one folding plate (360 x 340 mm) Blue wrappers, dog eared, otherwise quite fresh. Old annotations in ink cancelled on wrappers by the same hand.

EUR 2.200.-

Exceedingly rare pamphlet on an astronomical instrument (planetarium) invented by Charles Rouy. Probably the first edition, as we could trace only a later french edition (Panorama céleste, ou Description et usage du mécanisme uranograpique, 1817) called "deuxieme edition".

The German author Fürst Pückler-Muskau visited a model during his travel to England & London: "Das ist eine sehr ingenieuse Maschine, um den Lauf der Planeten unsers Sonnen-Systems anschaulich zu machen. Ich mag nicht läugnen, daß ich nie vorher eine so klare Idee vom Grunde der Jahreszeiten, der Mondwechsel u.s.w. hatte, als nach einer Stunde, die ich hier verbrachte. Mündlich werde ich Dich näher davon unterrichten, ja, wenn Du 1200 Franken daran wenden willst, kannst Du eine Copie der ganzen Maschine im Kleinen erhalten, die in keiner ansehnlichen Bibliothek fehlen sollte." - KVK: no copy; COPAC: only BL London; OCLC: no copy ?



ROCCO, Antonio.

Esercitationi filosofiche di D. Antonio Rocco filosofo peripatetico. Le quali versano in considerare le positioni, & obiettioni, che si contengono nel Dialogo del Signor Galileo Galilei Linceo contro la dottrina d'Aristotile. Alla santita di N.S. Papa Urbano VIII. Venice, Francesco Baba, 1633. 4to, pp. 16; 226, with printer's device on title and 2 woodcut diagrams (one heliocentric) in text; faint inscription deleted from title, slight paper loss to blank area, otherwise a very clean, crisp copy in contemporary stiff vellum.

EUR 24.000.-

First edition of this important and rare critique of Galileo's Dialogo, published within a year of the Dialogo, and the work to which, as a consequence, much of the Galileo's Discorsi e dimostrazioni mathematiche, intorno a due nuove scienze (1638) was written as a reply.

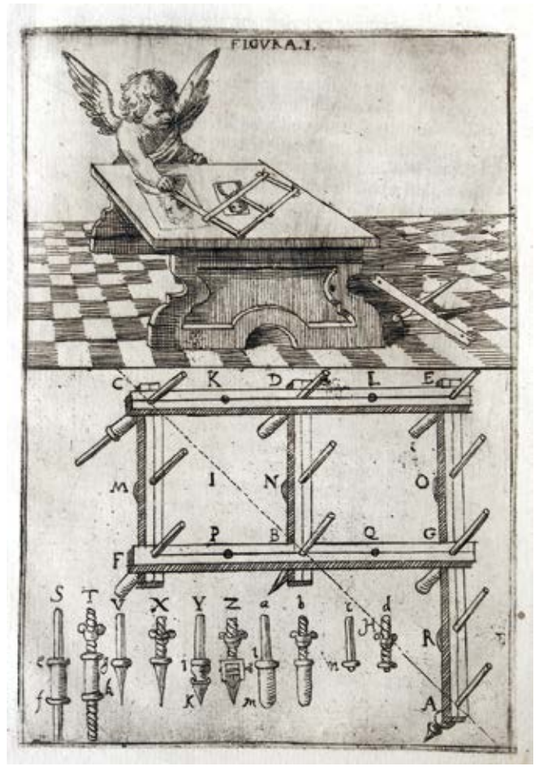
Rocco's Esercitationi prompted Galileo to explain 'how he detected and corrected the falsehood in Aristotle's law of free fall' (Shea) and formulated his own law of falling bodies. Wallace, examining the reasons why the Aristotelians are accorded better treatment in the Two new sciences, as compared to that in the Dialogo, remarks that 'a factor that is noteworthy was the publication of a book in late 1633 and dedicated to Pope Urban VIII that defended Aristotle's teaching against the attacks made by Galileo in the Dialogo. The author of the work entitled Esercitationi Filosofiche, was Antonio Rocco, and it is to Galileo's credit that he read and annotated Rocco's critique and even wrote out a series of replies to him, some of which later appeared in the Two new sciences'.

'Micanzio suggested that Galileo consider Rocco's book while writing his new treatise on motion. About the end of February Galileo sent to Micanzio seventy-five marginal notes on Rocco's book, to which he later added some longer comments on separate sheets. These are of importance as containing material incorporated into the First Day of Two New Sciences later the same year' (Drake). Stillman Drake and Wallace discuss at length, and Drake quotes from these replies to Rocco, known as the postils to Rocco.

This work is especially interesting in the light of Pietro Redondi's recent thesis that the condemnation of Galileo was motivated by his undermining of the tenets of peripatetic philosophy, and thus the philosophical edifice on which the Eucharistic mystery of transubstantiation was based. This was considered so threatening that the Jesuit scholars put on a 'show trial', with heliocentricity being Galileo's alleged offence, in order to cover up the more serious Eucharistic crisis.

Rocco's text is arranged in eight sections. The first treats of general philosophical questions. The second is devoted to circular motion and velocity. The third is devoted to the composition of the heavens, the nature of matter, its form and substance, and the reality of substantial transmutation. The fourth is on the corruptibility of the heavens, comets, sunspots, novas, Galileo's telescopic observations, etc. The fifth is on the moon and its relation to the earth. The sixth is on movement, and whether the earth moves or not. The seventh argues the immobility of the earth. The eighth is on various related topics, such as tides, etc.

Carli and Favaro 138; Riccardi I 386; See Stillman Drake, Galileo at work, pp. 359-67; Pietro Redondi, Galileo: Heretic; William Shea, Galileo's intellectual revolution, pp. 142-183; William Wallace, Galileo and his sources: the heritage of the Collegio Romano in Galileo's science pp. 312-4; OCLC locates four copies in North America, at the Smithsonian, Harvard, Columbia, and Toronto.



Scheiner, Christoph; Giulio Troili.

Pratica del parallelogrammo da disegnare, del P. Christoforo Scheiner della Compagnia di Giesù. Nella quale s'insegna una nuova Arte di Disegnare qual si veglia cosa veduta, si Piana, come Relieno, … Con altri Secreti di Prospettiva, & Pittura maravigliosi … Verona: per Francesco Rossi, 1652. 4° (190 x 143 mm). 20 pp. with woodcut vignette on title, 2 engraved plates, one woodcut diagram. Later wrappers, stamped and deceased on wrappers. Fine.

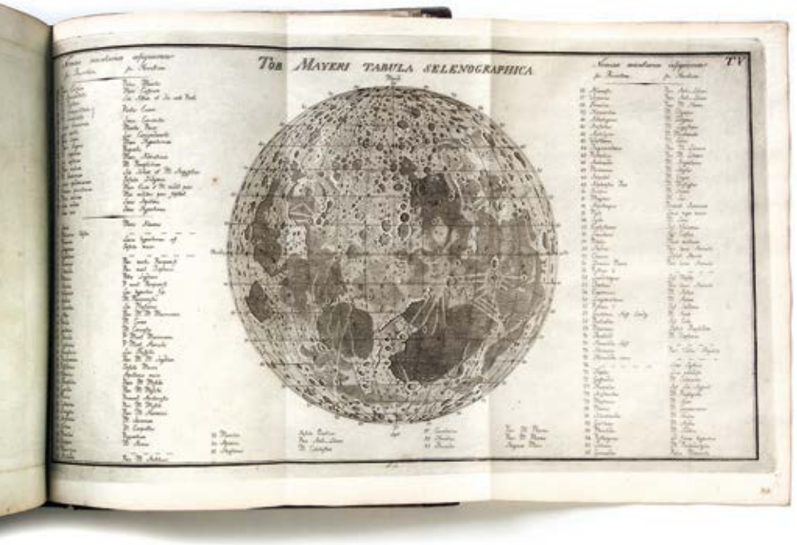
EUR 3.800.-

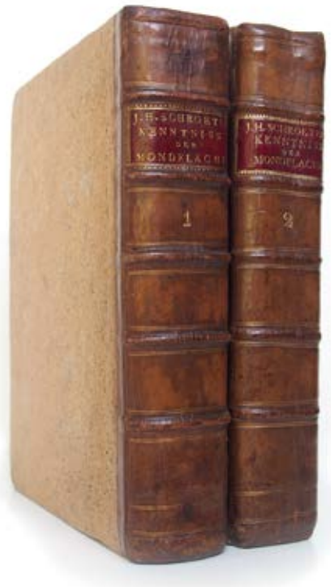
Third edition of Scheiner's book on the pantograph.

Christoph Scheiner (1573–1650), a Jesuit priest, was thoroughly embedded in the Jesuit theological tradition with its strong emphasis on argumentative skills and close textual exegesis of the bible. Although he also mastered such verbal skills, he ventured far beyond this frame of reference to become a pioneer in several visual techniques within the drawing arts, astronomy, optics and anatomy. From 1603 he taught mathematics and Latin in the small town of Dillingen on the river Danube. It was there that he met an artist who gave him a glimpse at a device for copying drawings not only 1:1 but also on an enlarged or reduced scale. Even though the artist (Georgius) did not let Scheiner take a closer look at the device, Scheiner soon came up with his own ingenious solution. the so-called pantograph ("everything-drawer"). Scheiner's published account of this device appeared as late as 1631, but news about it spread much faster in the tightly knit Jesuit order. The Paris natural philosopher Pierre Gassendi (1592–1655) enthusiastically called this simple and efficient instrument: "the egg of Columbus". Having heard about Scheiner's invention, the abdicated Duke of Bavaria, Wilhelm V., invited Scheiner to Munich in 1603 in order to be instructed in the art of using this drafting aid. (Hentschel, Visual Culture 114/115)

This work is probably a translation by Giulio Troili (il Paradosso) (1613–1685) and also a truncated version of the latin edition published by Christoph Scheiner under title: Pantographice in Rome in 1631. Similar editions were published in Padua 1637 and Verona 1653 (but all very rare): it concerns itself solely with the pantograph's use in art and engineering and contains none of the theoretical material found in the earlier version of Scheiner (1631). The earlier version describes the invention of the pantographice in 1603 and how it can be used in a wide variety of fields, from astronomy, through civil engineering and military work, to the fine arts. The work was accompanied by an extensive theoretical work on parallelograms in general which the translator Troili left out. Giulio Troili (1623–1685) also known as il Paradosso was one of the few 17th cent. italian painters to publish on perspective. He settled in Bologna around 1650 and specialized in perspective paintings. In his book on Scheiner, Troili illustrated how the pantograph can be used to enlarge and reduce a picture. In his example he chose a portrait, but it also could be used in engineering.- Tomash Library S 36; Andersen. The geometry of an Art (2007), pp. 381 – 385. KVK: in Germany only microfiches; COPAC: BL London, Cambridge (Verona 1652 ed.), Oxford Univ. has only microfiche; OCLC: Columbia, Michigan, Pennsylvania.

Monument of Moon Mapping





SCHROETER, Johann Hieronymus.

Selenotopographische Fragmente zur genaueren Kenntniss der Mondfläche, ihrer erlittenen Veränderungen und Atmosphäre, sammt den dazu gehörigen Specialcharten und Zeichungen. Lilienthal, for the author, 1791-1802. Two vols., 4to, pp. [18], xx, 676, [1]; [8], xxii, 565, [1], with engraved title vignettes to both volumes, and 75 engraved plates, five folding; a very few leaves with the odd spot; contemporary half calf over speckled board, red leather labels.

EUR 29.000.-

A superb copy, crisp, clean, entirely uncut, and complete with the very rare second volume, of Schroeter's famous work, 'the foundation of modern selenography' (Brown).

'Schröter studied law at Göttingen but also attended lectures in mathematics, physics, and astronomy, the last under Kästner … Through his appreciation of music he met the Herschel family, who revived his interest in astronomy. In 1781 he became chief magistrate at Lilienthal, a post that left him free time to devote to astronomy. With the aid of the optician J.G. Schrader he built and equipped an observatory that subsequently became world-famous for the excellence of the instruments. Some were made in his own workshop; others he bought from Herschel, the latter including a reflector with a twenty-seven-foot focal length, the largest on the Continent. George III of England enabled Schröter to continue his astronomical work by buying all of his instruments, with the stipulation that they remain in Schröter's possession until his death, when they would become the property of the University of Göttingen. Schröter was also awarded a grant to hire an assistant. K.L. Harding and, later, F.W. Bessel were among those who held the post.

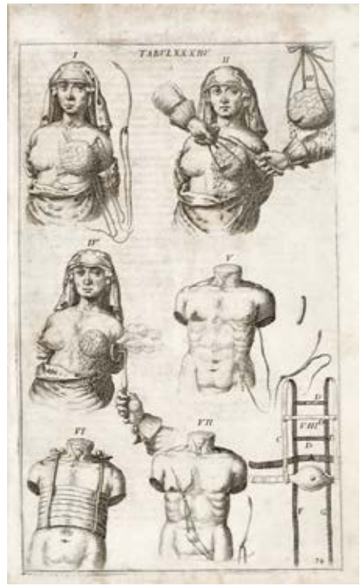
'For thirty years the observatory at Lilienthal was a center of astronomical research and was visited by foreign astronomers. On 21 September 1800 it was the site of the congress organized to search the space between Mars and Jupiter for a planetary body. Lilienthal was occupied during the Napoleonic Wars by the French, who looted and partly destroyed the observatory, although most of the instruments were saved. In the ensuing fire Schröter lost all copies of his own works, which he had published himself …'Schröter was the first to observe the surface of the moon and the planets systematically over a long period. He made hundreds of drawings of lunar mountains and other features, and discovered and named the lunar rills' (DSB).

'The face of the moon is not only furrowed with craters, valleys, and seas, but it is laced with narrow clefts, or rills, and the honor of discovering the first lunar rills lies squarely in the lap of Johann Schröter … His Fragments of Lunar Topography contains the results of a dozen years of observing; it has a large re-engraving of the Mayer moon map, and more importantly, dozens of engraved views of particular features of the lunar landscape. Especially noteworthy in Schröter's lunar studies was his practice of studying the same feature under different angles of illumination, by which he was able to get a much better idea of actual lunar topography. He even calculated altitudes of many lunar mountains' (Linda Hall exhibition catalogue).

Whilst most copies of Schröter's work were destroyed in 1813 during the occupation of Lilienthal by the French, the second volume, published closer to the event than the first, is of the greatest rarity.

Complete with all the plates, the copy offered here is further enhanced through the addition at the time of binding of three folding plates by Bode, including a large chart illustrating the parabolic paths of 72 comets, and a fine stereographic celestial map, measuring 76.5 x 76.5 cm and 67.5 x 66 cm respectively (these with short tears to folds and lightly offset). The large, apparently separately printed maps by Bode are of similar rarity, with the chart of cometary paths recorded at the Staatsbibliothek zu Berlin, and Technische Universität Bergakademie Freiberg only, and - whilst a number of different examples of the stereographic celestial chart are recorded in German libraries – the only copy recorded as engraved by the Berlin engraver 'C.C. Glassbach', as here, is at the Burndy Library (giving a date of 1787, whereas the present is undated).

The Face of the Moon 14 (vol. I only); see Ewen Whitaker, Mapping and Naming the Moon, pp. 89-109, and Sheehan and Dobbins, Epic Moon, chapter 6 'A compulsion to observe', pp. 59-73; for Bode's celestial chart, see Warner, The Sky explored p. 37.



SCULTETUS, Johannes.

Cheiropotheke [in Greek], seu… Armamentarium Chirurgicum XLIII. tabulis aeri elegantissime incisis, nec ante hac visis, exornatum. Opus posthumum, medicinae pariter ac chirurgiae studiosis perutile & necessarium…. Ulm, Balthasar Kühn, 1655. Folio (354 x 225 mm), pp. [ii], 10, 132, [4], title in red and black, with 43 engraved plates; with some occasional browning and marginal spotting, generally a very good copy in contemporary German vellum, spine a little worn.

EUR 36.000,-

First edition and the only folio edition of one of the most important surgical texts of the seventeenth century, of exceptional rarity.

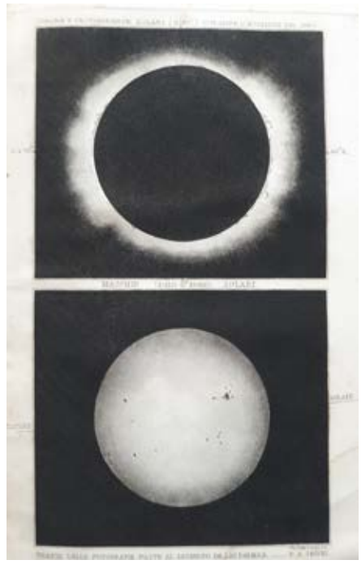
'At the time of his death in 1645, Schultes [Scultetus] ranked with Fabry von Hilden as the leading German surgeon of his era. He invented many devices and bandages, among them the many-tailed bandage ("Scultetus's bandage") used for abdominal wounds. Schultes's Armamentarium, published a decade after his death by his nephew Johannes Schultes the younger, contains a complete catalogue of all known surgical instruments of the period, of the methods of bandaging and splinting, and of a vast number of operative procedures, all of which are portrayed in the book's forty-three engraved plates. Among some of the procedures illustrated are amputation of the breast, reduction of dislocations, passage of sounds, forceps delivery of dead fetuses and neurosurgery. Through its numerous… editions and translations Schultes's work became the most widely published illustrated treatise on surgery of the seventeenth century. The first edition was published in folio format, but all of the later editions were in quarto and octavo' (Norman catalogue).
This work is important for its recording of gynaecological surgery. 'The first edition contains … pictures of vaginal specula, metal and cork pessaries and tampons. It presents the first known illustrations of gynaecological operations and other therapeutic measures such as excision of a hypertrophied clitoris, cauterization of haemorrhoids, insertion of a pessary for the control of a prolapsed uterus, and the administration of a vaginal douche. He stated that with the help of a vaginal speculum ulcers of the rectum, vagina and uterus could be seen and treated with care according to their extent and kind. To illustrate the method of using the speculum, he portrayed a woman with the instrument in situ… (Ricci, The development of gynaecological surgery and instruments, pp. 124-143, q.v., with detailed discussion of Scultetus's techniques, and with several plates reproduced).

This work also is important in the history of oral surgery. 'Scultetus describes and illustrates stomatological operations and includes fine illustrations of extraction instruments' (Garrison and Morton).

Scultetus (1595-1645) studied medicine at Padua under Fabricius ab Aquapendente and Adriaan van der Spieghel, for whom he served as prosector. He gained his doctorate in 1621 and, after practising briefly in Padua and Vienna, returned to his native city Ulm, where he was appointed city physician and practised until his death in 1645. See Zimmerman and Veith, Great ideas in the history of surgery, pp 249-252.

Provenance: contemporary or eighteenth-century inscription on front free endleaf: Ex libris Antonii Mariani Med. D[octo]ris' - Garrison and Morton 5571 and 3669.1; Krivatsy 10476; Norman catalogue 1912.

Solar Observations and a New Barometer



SECCHI, Angelo.

Relazione delle osservazioni fatte in Spagna durante l'eclisse totale del 18 Luglio 1860. Rome, Tipografia delle Belle Arti, 1860. [bound with at the end:] Sopra un nuovo barometro. Rome, Tipografia delle Belle Arti, 1857. 8vo, pp. 48, 16 ('Aggiunte'); [8], with a large folding engraved plate to the main work; a smaller plate to the Aggiunte; the plates with traces of water-staining, but largely visible on versos only; a very good copy in later vellum-backed marbled boards.

EUR 750.-

First edition of Secchi's observations of the total solar eclipse of July 1860.

'Secchi made use of a good helioscopic eyepiece and projections to observe, on the photosphere, a great number of small luminous granules. These granules were of a variety of sizes and shapes, although the commonest were oval: they stood out upon a darker (although not entirely black) ground. This granulation was broken, most notably at the edges of the disk, by luminous tongues, which Secchi named "facole," and by the small black holes (which he called "pori") that are the points from which sunspots originate. Secchi noted that the luminous granules represented the extremities of columns of the warmer gases that arise from the cooler and less luminous solar surfaces. Having observed that the formation of sunspots, which generally appeared after a period of surface agitation, was usually accompanied by the appearance of less brilliant luminous tongues (now called "flares"), Secchi determined to investigate them. He concluded that these flares were, in fact, complex groups of gases with several nuclei (or dark central shadows), surrounded by halfshadows. Secchi also observed the chromospheric eruptions that cross the nuclei of sunspots and split them into segments. It was clear to him that such wide, rapid, and complex surface movements could not occur in a solid substance, and he therefore suggested that the entire photosphere must be composed of an elastic fluid, similar to a gas, through which the sunspots move in a manner similar to terrestrial cyclones. He noticed that these vortices are more frequent during a period in which sunspots are being formed, when the surface movements that create the spots create currents that converge toward the nuclei. This represented further evidence of the gaseous nature of the sunspots and of the photosphere. Secchi lastly applied the law of diminution of angular velocity to the movement of sunspots from the equator to the poles of the solar surface to ascertain that the sun, or at least the photosphere, moves in accordance or at least the photosphere, moves in accordance with the laws that govern a fluid mass' (DSB).

Appended here is an offprint of a brief paper by Secchi on a new, improved barometer, published at Rome in 1857.

Brownian Motion

This paper, together with Einstein's Independent Study, marks the Start of the Study of Stochastic Processes in Mathematics

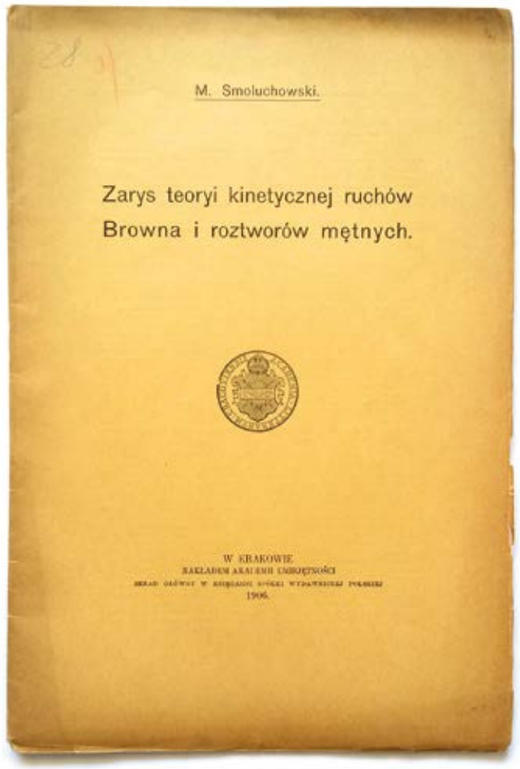
SMOLUCHOWSKI, Marian von.

Zarys teoryi kinetycznej ruchów Browna I rotztworów mętnych *[Outline of the kinetic theory of Brownian motion of turbid media]. Cracow,* Nakładem Akademii Umiejętności Skład Główny w Księgarni Spółki Wydawniczej Polskiej *1906.*

offered with: *SMOLUCHOWSKI, Marian von. Essai d'une théorie cinétique du movement Brownien et des milieu troubles. Cracow, Imprimerie de l'Université, 1906.*

Together two offprints, 4to, I: pp. [2], 25; II: [ii], [577]-602; excellent copies, the first uncut and unopened, both in their original beige printed wrappers; the wrapper of the Polish original minimally dust-soiled around the edges; preserved together in a cloth box.

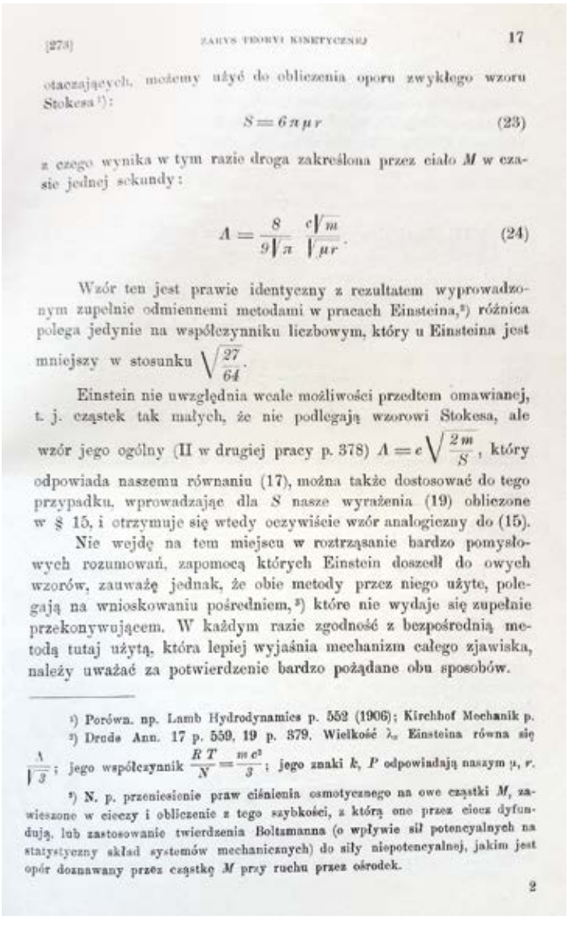
EUR 16.000.-



M. Smoluchowski.

Zarys teoryi kinetycznej ruchów
Browna i roztworów mętnych.

W KRAKOWIE
NAKŁADEM AKADEMII UMIEJĘTNOŚCI
1906.



[273] ZARYS TEORYI KINETYCZNEJ 17

otaczających, możemy użyć do obliczenia oporu zwykłego wzoru Stokesa[1]):

$$S = 6\pi\mu r \qquad (23)$$

z czego wynika w tym razie droga zakreślona przez ciało M w czasie jednej sekundy:

$$A = \frac{8}{9\sqrt{\pi}} \frac{c\sqrt{m}}{\sqrt{\mu r}}. \qquad (24)$$

Wzór ten jest prawie identyczny z rezultatem wyprowadzonym zupełnie odmiennemi metodami w pracach Einsteina,[2]) różnica polega jedynie na współczynniku liczbowym, który u Einsteina jest mniejszy w stosunku $\sqrt{\frac{27}{64}}$.

Einstein nie uwzględnia wcale możliwości przedtem omawianej, t. j. cząstek tak małych, że nie podlegają wzorowi Stokesa, ale wzór jego ogólny (II w drugiej pracy p. 378) $A = e\sqrt{\frac{2m}{S}}$, który odpowiada naszemu równaniu (17), można także dostosować do tego przypadku, wprowadzając dla S nasze wyrażenia (19) obliczone w § 15, i otrzymuje się wtedy oczywiście wzór analogiczny do (15).

Nie wejdę na tem miejscu w roztrząsanie bardzo pomysłowych rozumowań, zapomocą których Einstein doszedł do owych wzorów, zauważę jednak, że obie metody przez niego użyte, polegają na wnioskowaniu pośredniem,[3]) które nie wydaje się zupełnie przekonywującem. W każdym razie zgodność z bezpośrednią metodą tutaj użytą, która lepiej wyjaśnia mechanizm całego zjawiska, należy uważać za potwierdzenie bardzo pożądane obu sposobów.

[1]) Porówn. np. Lamb Hydrodynamics p. 552 (1906); Kirchhof Mechanik p.
[2]) Drude Ann. 17 p. 559, 19 p. 379. Wielkość λ_n Einsteina równa się $\frac{A}{\sqrt{3}}$; jego współczynnik $\frac{RT}{N} = \frac{me^2}{3}$; jego znaki k, P odpowiadają naszym μ, r.
[3]) N. p. przeniesienie praw ciśnienia osmotycznego na owe cząstki M, zawieszone w cieczy i obliczenie z tego szybkości, z którą one przez ciecz dyfundują, lub zastosowanie twierdzenia Boltzmanna (o wpływie sił potencyalnych na statystyczny skład systemów mechanicznych) do siły niepotencyalnej, jakim jest opór doznawany przez cząstkę M przy ruchu przez ośrodek.

2

The extremely rare separately paginated offprint of the original, and largely unknown, Polish version, here offered together with the contemporary French translation, of Smoluchowski's famous publication on Brownian Motion. Published one year after Einstein's famous paper, but independently conceived, both contain 'experimental predictions for fluctuation phenomena … [which] provided striking empirical successes for statistical mechanics' (J. Uffink, Compendium of the Foundations of Classical Statistical Physics (2006), p. 59).

'Smoluchowski made many contributions to physics and mathematics, particularly to the theory of Brownian motion, stochastic processes and related problems, of which the most important are the "Smoluchowski equations" bearing his name. At Lvov he found the theoretical explanation of Brownian motion, the piece of work for which today he is best known … This theory marks the start of the study of stochastic processes in mathematics' (O'Connor and Robertson, MacTutor of Mathematics, online).

'Brownian motion, the erratic movement of microscopic particles suspended in a liquid, was discovered in 1827. Toward the end of the last century its cause came to be seen in the atomistic structure of matter. Nothing more than this qualitative connection was made with the kinetic theory, and the first theories of Brownian motion had to wait until Einstein in 1905 and Marian von Smoluchowski in 1906 … Von Smoluchowski's theory of Brownian motion was directly based on probabilistic hypotheses concerning collisions between the Brownian particle and the molecules of the medium it is in. Einstein's theory, instead, started from a more traditional physical basis and had a specific continuous time random process as its end result …

'Brownian motion is a particular result of a fluctuation. Von Smoluchowski had been postponing the publication of his theory of Brownian motion for several years. But when Einstein published his famous theory in 1905, von Smoluchowski felt that he, too, had to give out his version. It is built up differently from the one of Einstein's, being more directly probabilistic in character: The individual motions are described as consisting of a succession of nearly linear parts with randomly changing directions at points of collision. The random changes occur at discrete intervals. Being based on assumptions about collisions, it is an approach in the style of kinetic theory, whereas Einstein's theory has the abstract character of statistical mechanics' (Jan von Plato, Creating Modern Probability, 1994, pp. 123-30).

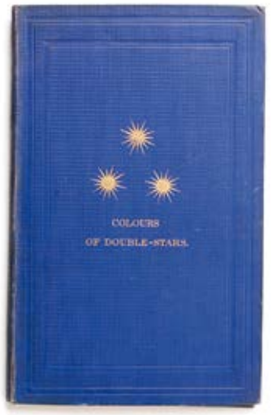
'With some further improvements by the French physicist Paul Langevin in 1908, [Smoluchowski's] has become the standard treatment. In modern expositions of the theory of Brownian motion, physicists today genuflect in the direction of Einstein and then invariably proceed à la Smoluchowski-Langevin' (Hans C. Ohanian, Einstein's Mistakes p. 124).

Smoluchowski's paper was published in the Annalen der Physik of 1906, with the date of submission dated 'Lemberg' (i.e. Lvov or Lviv, now Ukraine), 'Juli, 1906' and includes the note: 'bearbeitet nach einer am 9. Juli 1906 der Krakauer Akademie vorgelegten und demnächst in dem Bullet. Int. Crac. erscheinenden Abhandlung' ('edited from a treatise presented and soon to be published in the International Bulletin of the Cracow Academy'). This – previously unrecorded – separately paginated offprint in Polish also appeared as an article in the journal Rozprawy Wydzialu matematyczno-przyrodniczego Akademii Umiejętnoęci and then in the Bulletin International de l'Académie des Sciences de Cracovie, a periodical published in French and German and issued in monthly fascicules, except August and September. The Annalen issue itself containing the paper was, however, only published on November 27, 1906, the year after Einstein's interpretation of Brownian motion had been published in same journal, with the Polish version most certainly preceding this German translation.

Whilst bibliographical information remains elusive, the Polish version appears as the first entry in Smoluchowski's Oeuvres, vol. I, 1924. A very few copies (probably less than 30) were produced in offprint form of both Einstein's and Smoluchowski's Annalen article. Considering when and where published, it is unlikely that the present, original, Polish version of Smoluchowski's publication was distributed in a large number. We have not been able to trace the separate paper offered here in any of the available bibliographies. OCLC does not record a single copy.

We offer it here together with the contemporary French offprint, published as an Extrait du Bulletin de l'Académie des Sciences de Cracovie, Classe des Sciences Mathématiques et Naturelles, July 1906.

When the Stars were Colored



Smyth, William Henry.

Sidereal Chromatics; being a re-print, with additions, from the "Bedford Cycle of celestial objects", and its "Hartwell Continuation", on the colours of multiple stars. - London: printed for private circulation by John Bowyer Nichols and Sons, 1864. (cover title: Colours of Double-Stars) 8° (265 x 170 mm) IX, 10-96 pp. with one hand-colored plate. Original blue publisher embossed cloth binding, author's presentation copy to J. W. Jeans, 1865 with Ex Libris of Smyth and Lee (?). Very fine.

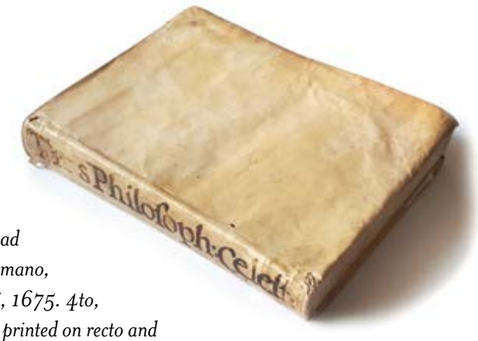
EUR 1.600.-

First edition of William Henry Smyth's (1788–1865) classic work on the colours of stars.

Back in the 19th century, it was still possible to be confused about the nature of open clusters versus globular clusters, emission nebulae, reflection nebulae vs. galaxies. The visual evidence was generally inconclusive even in Parsons' Leviathan. Astrophotography completely eliminated any ambiguity in all but a very few cases, and today the categorical confusion is essentially zero. There are a number of physical reasons why star color cannot accurately display star temperature - extinction being a big one - and the huge range of color index values within each spectral category and that human visual perception is just not capable of accurately and reliably parsing point objects at very low luminance levels and very small separation under scotopic adaptation. It's made to see reflecting surfaces as luminance shapes in the dark and chromaticity under sunlight. The extreme conditions of astronomical observation produce all kinds of wackiness in astronomical color perception, of which complementary color contrast is only the best known. Smyth knew nothing of spectral classes and the "supposed" colors that go with each spectral class. Free from the shackles of the science, Smyth was at liberty to believe he saw lilac and green stars. Perhaps the most egregious example of impossible star color reported by the Admiral Smyth is Alpha Lyra (Vega) which Smyth dubbed "green" (which you probably see if you are using an achromat slightly defocused).

His Cycle of Celestial Objects has long been regarded as the patriarch of celestial observing guides, particularly the second volume, which was named The Bedford Catalogue after the site of Smyth's private observatory. What makes it so special is that it is the first true celestial Baedeker and not just another "cold" catalogue of mere numbers and data. Like the original Baedeker travel guidebooks of the last century, this work is full of colorful commentary on the highlights of the heavenly scene and heavily influenced several subsequent works of its type, even to the present day. In 1825 Smyth established a private observatory in Bedford, England, equipped with a 5.9-inch refractor telescope. He used this instrument to observe a variety of deep sky objects over the course of the 1830's, including double stars, star clusters and nebulae.

The 'Systema Placidus'



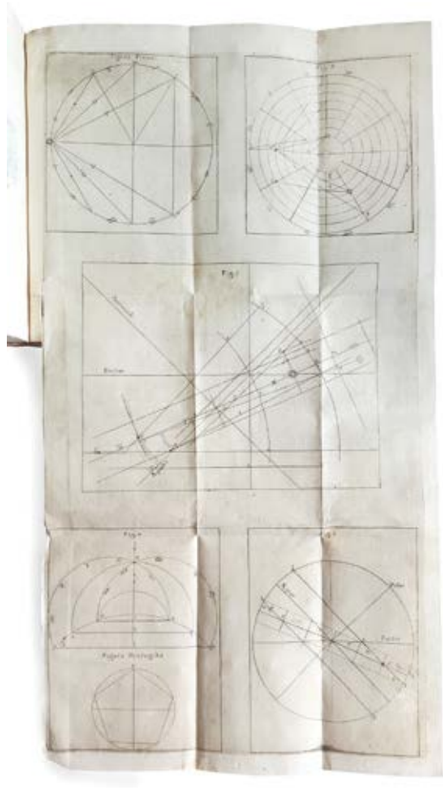
TITIS, Placido de.

Physiomathematica, sive coelestis philosophia naturalibus hucusq[ue] desideratis ostensa principijs. Cum nuperrimis ad Placidianam doctrinam additamentis, excerptis ex III libro Astronomicarum rerum praemittendarum ad futuram Astrologiam Italicam, à Cursino Francobacci ex Africano Scirota Romano, in hac secunda aeditione ad operis calcem appositis. Milan, Francesco Vigoni, 1675. 4to, ff. [8], pp. 319, [8], with one large folding engraved table with 9 diagrams printed on recto and verso, and a few astrological woodcut diagrams in the text; the first four leaves with a narrow strip of blank paper added at the top at the time of binding to extend the upper margins; a little foxing; some inoffensive dampstaining to lower outer corners; otherwise an excellent and fresh copy in contemporary vellum; small nick to head of spine.

EUR 2.600.-

A very attractive copy of the second edition (first 1650) of de Titis' important and influential astrological work, enlarged by the additamenta of his pupils Brunnaccio and Onorato.

'De Titi's here treats the problem already confronted by Ptolemy of the moment at which to calculate a birth horoscope, a moment difficult to ascertain due to the imprecision of timekeepers. He resolves it by affirming that the true moment of birth is the one determined by the planet dominating the conjunction of sun and moon, or their opposition at the moment immediately preceding birth. The work also includes a treatment of the criteria for housing, a topic already addressed in his De motibus directionum: De Titi chooses 7 examples (including those of Regiomontanus and Campano), as well as his own, and it is still used today in an almost exclusive manner as the Sistema Placidus' (translated from Cantamessa). Placed on the Index in 1687, de Titi's work was of some major influence, especially in Protestant England. An English translation edited by E. Sibly appeared in 1789 under the title Astronomy and elementary philosophy together with A collection of Thirty Remarkable Nativities, followed by John Cooper's extensively annotated Primum Mobile of 1814. - Cantamessa 8022; Gardner 1224; Bezza I 196; Houzeau and Lancaster 5173; Piantanida 1618; Bruni-Evans 5322; see Wilhelm Knappich, Placido de Titi's Leben und Lehre for an extensive analysis of the work; outside Italy OCLC locates two copies for the UK, at Cambridge, and UCL, three in France, and three for the United States, at Harvard, Michigan, and Chicago.



Description of the Elephant of Charles of Bourbon

A present of Mahmut I.

SERAO, Francesco.

Opuscoli di fisico argomento 1. Descrizione dell'elefante. 2. Saggio di considerazioni anatomiche fatte su d'un leone. 3. Osservazioni sopra un fenomeno occorso nell'aprire un cinghiale. - In Napoli, per Giuseppe De Bonis, 1766. Quarto (225 x 175 mm) XII, 99 pp., (1), with woodcut title- vignette, head-piece, initial, text engraving and an engraved folding plate showing the elephant. Contemporary vellum, a broad-margined copy with only minor spots. Bound with a late 18th century original drawing of an elephant.

EUR 2.400.-

Description on the elephant presented in 1742 by the Ottoman Sultan Mahmud I to Carlos of Bourbon, King of the Two Sicilies, accompanied by two reports of the dissection of a lion and of a wild hog. The large plate shows the elephant, maybe as well as the hand drawing. First published in a private printing in 1742 (only about four copies in libraries), this is the first commonly available edition, which is also rare.

"In 1742, Charles of Bourbon hired the architect Ferdinando Sanfelice to oversee the construction of a zoo at Naples at the Maddalena Bridge over the Sebeto River, on the road to the Royal Palace of Portici. It housed lions, ostriches, and camels, along with other animals that had been given by ambassadors and diplomatic envoys or purchased by the king. The lake even housed dolphins, and there was an amphitheater for animal fights. Many artists, among them the Vassallo brothers, visited Portici's zoo and gardens to study the anatomy of animals that they were sculpturing for creches. But the animal that aroused the greatest astonishment and wonder in the eighteenth-century Naples was also the one that Charles most insisted on acquiring: the elephant. The king's goal was finally achieved on November 1, 1742 when a pachyderm landed in the port of Brindisi, sent as a gift from Constantinople by Mahmut I. As soon as the elephant arrived in Naples, Charles showed it to his family. The naturalist Francesco Serao recorded the event, including a precise description of the animal's anatomy. Serao also reported that the king kept the elephant "on display, to satify the understandable curiosity of the whole populace." Charles next ordered his artists to study and depict the animal. This resulted in many works, including a painting by the court painter Giuseppe Bonito, which was sent to Spain, and a terracotta sculpture by Gennaro Reale, an animal sculptor for the king's creche. Recently, a marble model of the elephant, dated 1742, was found in the collection of the Museo di Capodimonte. It matches the engraving that appears with the published version of Serao's text." Francesco Serao (1702–1783) was an Italian physician, physicist & geologist who was since 1732 professor of anatomy and of medicine in Naples. He was member of several learned societies (Paris, Berlin, London).- Wood 563.

KVK: Stabi Berlin (lost ?), Göttingen, Jena, Weimar (Fragment); ETHZ, Paris MHN; COPAC: Edinburgh, BL London, NHM London; Wellcome; OCLC: NHM N.Y., Smithsonian, Chicago, Kenneth Spencer, Cornell, Berkeley; McGill, NLM Bethesda.

‘Uniformiter Difformis‘
The Law of Falling Bodies Well Before Galileo

SOTO, Domingo de.

Super octo libros Physicorum Aristotelis. Commentaria. Secunda aeditio nuperrimè ab Authore recognita, multisq[ue] in locis aucta & à mendis quam maximè fieri potuit repurgata. Salamanca, [Andreas à Portonaris],1551[-1552]. Two vols. in one, folio, ff. 129, [1, blank]; 108, [1], with printer’s device in woodcut to both titles, large device at the end of volume II, woodcut initials, and a few woodcut diagrams in the text; numerous errors in foliation, especially to volume I; the first two leaves with a faint dampstain to upper margins, occasional browning and the occasional brown stain; the title to volume II with a tear to lower outer corner (paper-flaw); a few early notes in brown ink to volume II (a couple just shaved); an excellent copy in near contemporary Spanish limp vellum, yapped edges, spine lettered ‘Physica de Soto’ in ink.

EUR 40.000.-

The extremely rare first complete edition of the Spanish Dominican’s famous commentary on Aristotle’s Physics, substantially amended from the first printing of 1545 and with the highly important second volume entirely new. Completion of this extensive commentary having been interrupted by de Soto being called to attend the council of Trent, this is the **first printing to contain his formulation of the law of falling bodies (Vol. II, Questio tertia-quarta), and with which he largely anticipates that by Galileo by over 80 years.**

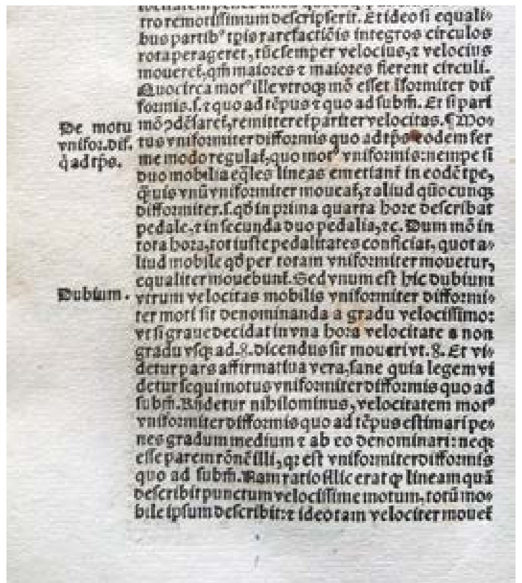
‘[De Soto’s] works on the Physics are particularly important for the history of science, since in the question on Book VII Soto was the first to apply the expression “uniformly difform” to the motion of falling bodies, thereby indicating that they accelerate uniformly when they fall and thus adumbrating Galileo’s law of falling bodies’ (William A. Wallace in DSB VII, p. 548).

‘In seeking an appropriate global measure of the velocity of a uniformly accelerating object such as a falling heavy body, de Soto notes “if the moving object A keeps increasing its velocity from 0 to 8, it covers just as much space as [another object] B moving with a uniform velocity of 4 in the same period of time.” He was thus the first to apply mathematics to this physical problem – without experimental verification, but in a way that, because it was mathematically precise and physical, constituted an exceptionally clear invitation to experimental verification for such inquisitive minds as were prepared to recognize it. If de Soto’s writings did influence Galileo, as seems quite probable, they may have influenced his thinking on dynamics as well as on kinematics. According to Juan José Pérez Camacho and Ignacio Sols Lucía, de Soto’s concept of the resistentia interna of a body foreshadows Galileo’s resistenza interna in being intrinsic to the body itself rather than to its medium, and proportional to the weight of the body’ (Jorge Mira-Pérez, ‘Domingo de Soto, early dynamics theorist’, in Physics Today, January 2009, p. 10).

Referred to above as of ‘probable influence’ on Galileo, William A. Wallace, the first historian of science to examine this question in depth in a number of articles, traces de Soto’s influence and his formulation of the law of motion through the decades prior to Galileo’s own statement in his Discorsi via Jesuit teaching, including through that of de Soto’s favourite pupil, Franciscus Toletus, who first became an instructor at the Collegium Romanum in 1559. Showing that de Soto himself was likely to have witnessed actual experimental work conducted by Italian scientists, physicians and philosophers prior to the completion of this much amended 1551 edition, Wallace also draws attention to an early notebook by Galileo, recording Jesuit teaching notes in which de Soto is referred to, as well as to the fact that the penultimate edition of de Soto’s commentary was published in Venice in 1582, at a time when Galileo was beginning his studies of the Physics in Pisa:

‘Born at Segovia in 1494, Soto did his early studies in logic and natural philosophy under Thomas of Villanova at the University of Alcala, earning the baccalaureate there in 1516. He then traveled north to the University of Paris to pursue higher studies in the College of Santa Barbara … [Paris] was the starting point for innovations that would prompt the great French historian of science, Pierre Duhem, to hail him as the “Scholastic precursor” of Galileo …

‘The basic text [in the arts faculty at Paris] was the Summulae logicales of Peter of Spain. This gave rise to the “summulist” tradition, a series of textbooks used in the Parisian colleges to drill schoolboys in dialectical subtleties . . . Soto’s reaction to the drilling associated with summulist teaching at Paris was quite different from that of [his contemporary there, the Catalan humanist, Juan Luis] Vives. Probably he realized that the Summulae were never intended to be the whole of logic; rather, they were simply a propadeutic that would exercise students in abstract logical forms and so prepare them for the more difficult discipline of Aristotle’s Organon, culminating in the material logic of the Posterior Analytics. The Posterior Analytics provided a methodology essential to scientific reasoning that would find its best exemplification in mathematics and in the science embodied in Aristotle’s Physics. More persevering scholars like Soto could endure the summulist training and pass beyond it to do original work that would bear fruit in the Scientific Revolution of the seventeenth century. Two innovations were particularly important: the development of the demonstrative regressus found in the first book of the Posterior Analytics, and the search for new ratios of motions, including the uniformiter difformis relationship, that could be used to revise Aristotle’s teaching on falling motion in the seventh book of the Physics. Both of these


rro remotissimum descripserit. Et ideo si equalis
bus partib' tpis tā perfactū et integros circulos
rota peragerent, tūc semper velocius, & velocius
moueret, qm maiores & maiores fierent circuli.
Quocirca mot' ille vtroq; mō esset ūformiter dif
formis. s. & quo ad tēpus & quo ad subm. Et si pari
De motu mō pdēclaret, remitteret pariter velocitas. ¶ Mo
vnifor. dif. tus vniformiter difformis quo ad tpa eodem fer
q ad tpe. me modo regulat, quo mot' vniformis: nempe si
duo mobilia eqles lineas emetiant in eodē tpe,
& vnū vniformiter moueat, & aliud qūocunq;
difformiter. s. qd in prima quarta hore describat
pedale, & in secunda duo pedalia, &c. Dum mō in
tota hora, tot iuste pedalitates conficiat, quot a
liud mobile qd per totam vniformiter mouetur,
equaliter mouebunt. Sed vnum est hic dubium
Dubium. vtrum velocitas mobilis vniformiter difformi
ter moti sit denominanda a gradu velocissimo:
vt si graue decidat in vna hora velocitate a non
gradu vsq; ad. 8. dicendus sit moueri vt. 8. Et vi
detur pars affirmatiua vera, sane quia legem vi
detur sequi motus vniformiter difformis quo ad
subm. Videtur nihilominus, velocitatem mot'
vniformiter difformis quo ad tēpus estimari pe
nes gradum medium & ab eo denominari: neq;
esse parem rōnē illi, q: est vniformiter difformis
quo ad subm. Nam ratio illic erat q lineam quā
describit punctum velocissime motum, totū mo
bile ipsum describit: & ideo tam velociter mouet

can be traced back to Soto, whose path in this respect differed markedly from that of Vives’ (William A. Wallace, ‘Domingo de Soto and the Iberian Roots of Galileo’s Science pp. 114–115, in: Domingo de Soto and the Early Galileo, Variorum Collected Studies Series, 2018).

‘We should note that Soto had finished writing his commentary and questions on the Physics up to book VII, where the passages I have quoted are to be found, early in 1545, at which time he was called to the Council of Trent. To make them quickly available to students his texts were printed in an incomplete edition of 1545, which does not contain the passages about falling motion. But Soto returned from Trent in 1550 and then finished both texts, printed at Salamanca in 1551. While en route to or while present at Trent, in northern Italy, Soto could have become acquainted with experimental work being done there on laws of fall, and this would have buttressed his rejection of the traditional Aristotelian teaching. Little is known about such experimental work, but what is known is suggestive. As early as 1544, it appears, tests were being performed to show that Aristotle was wrong in his claim that heavy bodies will fall to the ground at uniform speeds directly proportional to their weights. Benedetto Varchi, in his Questioni sull’Alchimia finished by that date, in a discussion of experimental evidence relating to the motion of heavy bodies, mentions the findings of Francesco Beato, a Dominican philosopher at Pisa, and Luca Ghini, a Bolognese physician and botanist, as contesting Aristotle’s claim. Likewise, Giovanni Battista Bellasco of Brescia, in a work entitled Il vero modo di scrivere in cifra published in 1553, inquires why it is that a ball of iron and one of wood fall to the ground at the same time. In the same year Giovan Battista Benedetti published his Resolutio omnium Euclidis problematum, and a year later his Demonstratio … contra Aristotelem, in both of which he also attacks Aristotle’s ratios of motions. Now Benedetti held in high regard another Spanish Dominican, Petrus Arches, who had told him that criticisms of Aristotle’s dynamic laws were being discussed in Rome the summer before he prepared his Demonstratio. Evidence such as this implies that tests of Aristotle’s laws of falling bodies were being performed in Italy in the early 1550s. The fact that Beato, Arches, and Soto were all Dominicans enhances the possibility that Soto learned of such experimentation during his travels through Italy to Trent. If so, it could have provided the background for the example he gave of uniformly accelerated motion upon his return to Salamanca.

‘A second enigma associated with the famous passage in Soto’s Physics is whether or not the passage was known to Galileo and so could have influenced his formulation of the principle of uniform acceleration in free fall. Now Soto’s Physics, both commentary and questions, became quite popular and went through nine editions in the second half of the sixteenth century, the penultimate of which was published at Venice in 1582, just as the young Galileo was beginning his study of the Physics at the University of Pisa. So it is not impossible that Soto’s text was known to Galileo and, if so, could have been the direct source from which the latter took the law of falling bodies. Supporting this conjecture is Galileo’s having mentioned Soto’s Physics in one of his early notebooks … This new argument, like Duhem’s, uses the uniformiter difformis doctrine deriving from Soto, but adds another link in the person of Franciscus Toletus, Soto’s favorite student at Salamanca. After himself teaching in the arts faculty at Salamanca, and already a priest, Toletus entered the newly formed Society of Jesus at Toledo in 1558. In 1559 he was sent to Rome, while still a novice, to teach at the Collegio Romano. There he wrote a series of philosophy textbooks that set the pattern for Jesuit teaching in philosophy over the next three decades. In brief, Toletus brought Soto’s doctrine to Rome, and through his influence it was so widely propagated that it ultimately reached the ears of Galileo’ (William A. Wallace, ibid, pp. 121–123).

The titles to both volumes are dated 1551; as per colophon the second volume was completed in February 1552. Published with separate title pages the two volumes are not always found together.

A text of great interest and importance in the history of science and philosophy this is also an extremely rare work in this field to originate from a Spanish author.

Palau 320117; Ruiz Fidalgo 366 (volume I) & 369 (volume II). This first complete edition is extremely rare outside the Iberian peninsula: USTC (which only shows the collation of volume I in their census) locates two copies for the UK, at Oxford and Dublin, to which OCLC adds one for Colombia, and a single copy for North America, at Yale; USTC’s listing of a copy at the Biblioteca Nazionale, Milan, is erroneous, with their online catalogue only showing copies of the 1555, 1557, and 1582 editions only.

Salts

STAHL, Georg Ernst

Ausführliche Betrachtung und zulänglicher Beweiß von den Saltzen, daß dieselbe aus einer zarten Erde, mit Wasser innig verbunden, bestehen. – Halle, in Verlegung des Waysenhauses, 1723. 8° (166 x 100 mm) 8 Bl., 432 pp. Contemporary halfcalf, red morocco lettering piece, rubbed and soiled, front-fly and title stamped with "Hallesche Pfännerschaft", title and last leaves with heavier browning, else fine.

EUR 1.800.-

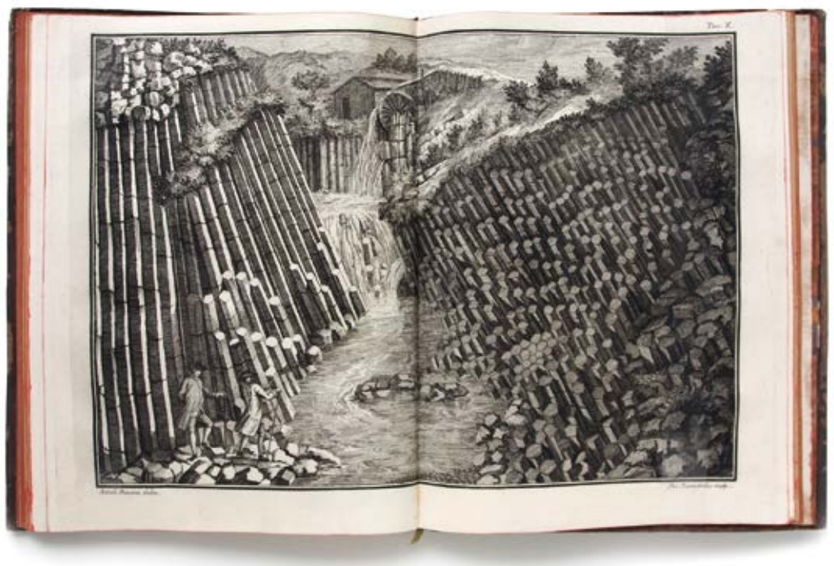
Very rare. The first appearance of Stahl's (1660–1734) important treatise on all types of salts. Numerous experiments are described, and he concluded that salts are the result of certain ‚earths' combined with water. Acid and alkalies were classified by Stahl as salts. These ‚salts' produced salts (in the modern sense) when combined with ‚earths' (i.e. bases) under the correct conditions. Stahl describes experiments when mixtures of different salts are heated together and the precipitates produced when various solutions of salts are combined. Stahl's theory of the formation and composition of salts is one of his most significant contributions to chemistry at that time. The book was translated into French by the famous Baron d' Holbach in 1771.- not in Bolton, Cole, DSB, Duveen, Edelstein; Blake 429; Ferchl 514; Ferguson II, 397; Pratington II, 662; Neville Historical II, 508; Kopp I, 69: "Wichtige chemische Beobachtungen enthaltende" Schrift, bedeutsam durch die in ihr dokumentierte Abkehr Stahls von alchemistischen Gedanken (im 36. Kapitel über Goldmacherei).

Basalt in Northern Italy

STRANGE, John (Giovanni).

De monti colonnari e d' altri fenomeni vulcanici dello stato Veneto. – Milano: Giuseppe Marelli, 1778. Quarto (278 x 210 mm) LXX, (2, blank) with 11 partly fold., mostly double-page engraved plates. Contemporary calf, rubbed and soiled, title and pages heavily browned due to paper quality, but the engraved plates fresh & clean.

EUR 3.200.-



Rare book on the basalt of Northern Italy by the English consul to Venice who followed the lead of Sir William Hamilton in Naples and investigated the geology of the Veneto. He was surprised to discover columnar basalt formations as impressive as those of the Giant's Causeway. John Strange did not doubt that this basalt was of igneous origin, but he was puzzled as to why it occured here in vast horizontal beds, and why there were no volcanoes in evidence. He concluded that some other factor was at work, and that volcanoes were hardly adequate to explain "the production of a Giant's Causeway, or the basaltine organisations of Auvergne and Velay. James Hutton and J.W.v. Goethe both read his books and papers.- KVK: Lübeck, Leipzig, Göttingen, Stabi Berlin (lost ?); COPAC: BL London, Edinburgh, Bristol; OCLC: NYPL, McGill.

Troilite –
The First documented Fall of a Meteorite

TROILI, Domenico.

Della caduta di un sasso dall' aria ragionamento. Modena, heirs of Bartolomeo Soliani, 1766. 4to, pp. [viii], 120; some very light marginal foxing, but a fine copy, entirely uncut, in the original Italian carta rustica; end-papers foxed; covers lightly soiled.

EUR 4.900.-

Very rare first edition of this fascinating scientific report by the Italian Jesuit and student of Boscovich, Domenico Troili, recognized through the present publication as the first person to document the fall of a meteorite.

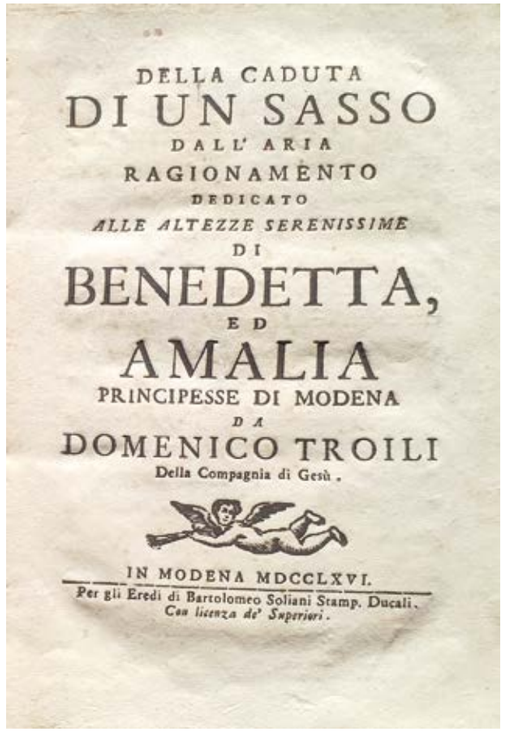
'In 1766, Troili witnessed the fall of a stone from the sky near the town of Albareto, in the Duchy of Parma, Italy. He collected reports from many other eyewitnesses, closely examined the stone and detected in it small grains of a brassy mineral. He called the material "marchesita" (from Italian "little marchioness"). Troili summarized the results of his research in [his] Ragionamento della caduta di un sasso ("Concerning the fall of a stone from the air") published in Modena in 1766.

'The report by Troili said that at about five hours after midday, when the sky was clear except for some clouds over the mountains on the far horizon, many people leaving their fields suddenly saw distant flashes of lightning and heard thunder. This rose in a crescendo of cannonading with loud explosions overhead. Numerous people saw a body streak across the sky and plunge to the ground. To some, the trail looked bright and fiery; to others, dark and smoky. The body hit the ground with such a force that a cow was knocked off its feet and two women clung to trees to avoid falling. The stone made a hole a meter deep in the earth and instantly broke into many pieces. It was a stone that was very heavy, irregular in shape, and magnetic. The outer surface looked as though it had been burned by fire. The inner parts looked much like sandstone with small steely sparkles.

'Approximately 2 kilograms of the stone were recovered. Today its small fragments are dispersed in numerous museums and laboratories, with the largest piece of 605 g located in the Museum of the University of Modena. The main component of the meteorite was long assumed to be pyrite, FeS2. However, in 1862, German mineralogist Gustav Rose analyzed the composition and determined it as FeS, an iron sulphide. Rose named this new mineral troilite after Troili'" (Wikipedia).

Highly erudite, Troili traces back recordings of meteorite falls through history, with references to and quotes from Pliny, Aristotle, Titus Livius, and more recent and contemporary authors such as Gesner, Cardano, Gemma Frisius, Gassendi, Descartes, Cabeo, the English natural theologian and natural philosopher, William Derham, Redi, Daubenton, Vallisnieri, Josef Stepling, Boscovich, and the pioneer of conchology, Niccolò Gualtieri.

He also refers to samples preserved in various museums or private collections, such as those of Anselmus de Boodt and Johann Joachim Brackenhoffer, and discusses 'related' electrical phenomena and lightning, as studied by Beccaria and Franklin. The work was republished by the same printers in the following year.- Poggendorff II, 1136; Riccardi I/2, 560. 2; Sommervogel VIII, 252; not in Houzeau and Lancaster or Sinkankas; KvK records two locations only, at Göttingen, and Österreichische Nationalbibliothek; OCLC locates copies at the Smithsonian, Harvard, University of California, Berkeley, and Columbia University, New York.



Mixture of Cartesian & Keplerian Elements

WING, Vincent.

Astronomia Britannica in qua per novam, concinnioremq[ue]. Methodum, hi quinq[ue] tractatus traduntur. 1. Logistica astronomica… 2. Trigonometria… 3. Doctrina sphaerica… 4. Theoria planetarum… 5. Tabulae novae astronomicae, ex quibus singulorum motus, & luminarum eclipses, Mira promptitudine colligantur; congruentes cum observationibus accuratissimus nobilis Tychonis Brahei. Cui accessit observationum astronomicarum Synopsis compendiaria… Cui additur Postscriptum de Refractione [by Sir Robert Markham]. London, John Macock for George Sawbridge, [1668-]1669. Folio, [xx], 244, [2], 192, [2], 193-366, [2], 367-369, [1], with an engraved frontispiece portrait of the author by Cross, woodcut diagrams, engraved illustration, each of the five books with separate title page (books I to III dated 1668, the others 1669); a very good copy in contemporary sprinkled calf, neatly rebacked with red morocco lettering-piece and spine gold-tooled in period style, traces of chaining staple on upper cover, covers slightly rubbed.

EUR 9.600.-

First edition of 'the most significant English astronomical work of its time' (ODNB).

Wing's earliest works were Ptolemaic, but by 1651 he had accepted the fundamentals of Keplerian astronomy as modified by Ismael Boulliau. 'Like many astronomers in the second half of the seventeenth century, Wing, following Boulliau and Seth Ward, opted for an "empty-focus" variant of Kepler's second law, holding that a planet moving in an elliptical orbit describes equal angles in equal times about the focus not occupied by the sun. In works published in 1651 and 1656 Wing, adopting Boulliau's method, had his elliptical orbits, including that of the moon, generated in purely geometrical fashion by circles and epicycles. In his posthumously published Astronomia Britannica, however, he discarded the epicycles in favour of a refined version of the theory proposed by Ward in the latter's Astronomia geometrica (1656), in which the elliptical orbits were assumed to be physically generated. Wing's celestial mechanics contained a mixture of Cartesian and Keplerian components, with a rotating sun and celestial vortex pushing the planets around in their orbits' (DSB).

Newton owned a copy of the present work, 'heavily perused and dog-eared' according to Harrison (p. 300). 'When in 1669 [Newton] read carefully through Vincent Wing's Astronomia Britannica (which among other innovations paraded a neat transfer of the modified Boulliau hypothesis to the ellipse's centre as a correcting factor on the central anomaly) he added to the endpapers of his library copy of the book a new equant law, centred again on the empty second focus of orbit but now preserving the true elliptical shape of the orbit itself only approximately' (D. T. Whiteside, in Before the Principia: The maturing of Newton's thoughts on dynamical astronomy, 1664-1684 I, p. 9). There is some confusion in the literature about the date of the first edition of this work (and indeed of some of Wing's other works). Some bibliographers give the date of the Astronomia as 1652, but this is incorrect, perhaps arising from a confusion with his Urania practica. DSB incorrectly gives the date of this latter work as 1649 rather than 1652 (and states that it is Wing's first book, which it is not). - ESTC R23367; Wing W2986.

Rimini Earthquake in 1786

VANNUCCI, Giuseppe Arciprete.

Discorso istorico – filosofico sopra il tremuoto che nella notte del di 24. venendo il 25. dicembre dell'anno 1786. dopo le ore 9. d' Italia scosse orribilmente la Citta di Rimini, e varj Paesi vicini, dato in luce … Edizione terza corredata di note d'un appendice e di riposta ad una critica anonima e ad un estratto del Giornale Enciclopedico di Bologna. – in Cesena: per Gregorio Biasini all' Insegna di Pallade, 1787. 8° (230 x 150 mm) 191 pp., (1) pp. with two fold. engraved plates. Without Wrappers, plain bound gatherings, uncut copy. Fine.

EUR 1.800.-

Very rare work on the earthquakes in Rimini on 24. December 1786, which aroused a dispute with Bartolomeo Gandolfi on the causes of earthquakes. Third much enlarged edition, the other editions being pp. 34 and 42; in any edition very rare.

G. Vannucci described the earthquake in Rimini (Italy) of December 25, 1786 in a book that had considerable success. In this text, he supports the hypothesis that the origin of earthquakes is due to underground electric fluids. B. Gandolfi, unlike Vannucci, believed that underground ores generated earthquakes. In order to respond to various criticisms, Vannucci wrote a lengthy dissertation and sent it to the Royal Academy of Sciences Letters and Arts in Mantua to be discussed by its members. This unpublished document is kept in the Historical Archives of the Virgiliana National Academy of Mantua. The text by Vannucci allows a better knowledge on the thought of 18th century naturalists and physicists about the causes that can generate earthquakes and the remedies that can be implemented to mitigate their disastrous effects. The earthquakes destroyed severl buildings including some important castles in Rimini. Around 50.000 people were left homeless.- Lit.: Fulvio Baraldi L'origine dei terremoti in una diatriba settecentesca tra Giuseppe Vannucci e Bartolomeo Gandolfi; in: Atti Soc. Nat. Mat. Modena 149 (2018) pp. 103 ff.- KVK/OCLC: McGill, Smithsonian, Univ. Chicago; Univ. Illinois, Berkeley; Hertziana/ Rome.

A new Heliometer, Pendulum Clocks and a Transit of Venus Observed

ZUCCONI, Lodovico.

De altera Machinula parallatica ad Heliometrum erigendum liber unus ubi de Apparatus Astronomico ad observandum Transitum Mercurii, & Veneris sub Solis disco : & de novo Horologio Proscillatorio ad Astronomiam, & Nauticam perutile, addita observatione insignis Eclipsis Lunae, ut contigit die 18. Maii anni hujus 1761. Venice, Domenico Lovisa, 1761. 4to, pp. xii, [4], with a woodcut vignette on title, and two engraved plates; the sheet of plates detached from lower stitching; a fine copy in contemporary wrappers.

EUR 2.200.-

First and only edition of Zucconi's description of his new heliometer and parallactic instrument, here employed to observe a transit of Venus over the sun's disk in July 1761.

Besides the heliometer, the astronomer also set up an 18 foot Montanari telescope, a 6.6 foot telescope, partly based on a design by Maximilan Hell and equipped with a micrometer, and a catoptric 1.9 foot Selva telescope, as well as three pendulum clocks. The four unnumbered pages at the end contain observations of solar and lunar eclipses. Zucconi wrote a number of works on astronomy, especially on comets, including one on Halley's, published in 1759. The present work was preceded by another work explaining the structure and use of another heliometer, and documenting his meticulous observations of sunspots. Interested too in natural history, he assembled his own cabinet, which also included a number of instruments (see Antonio Lombardi, Storia della letteratura italiana nel secolo XVIII, vol. 2, p. 250).
An explanation regarding the numbering 'Tab.XXII' of the instrument plate, and referred to under that same number in the text, eludes me. Even if considering the present work a continuation of his earlier work, De heliometri structura, and with which it is sometimes found, that work already contained 22 plates. The second plate contained here is unnumbered.- Riccardi I/2 673 4; outside Italy OCLC locates copies at Geneva (without a mention of plates), ETH Zurich (the two works bound together), Basel, and Berlin (one plate) only.

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