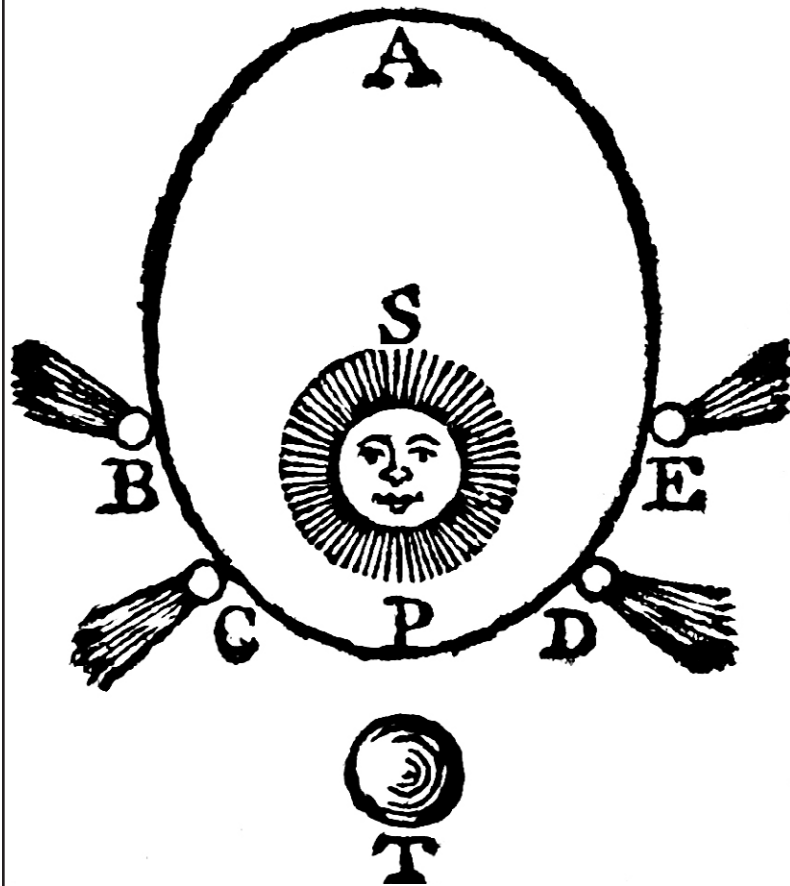


RICHARD C. RAMER



SPECIAL LIST 538
ASTRONOMY

RICHARD C. RAMER

Old and Rare Books

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FEBRUARY 26, 2025

SPECIAL LIST 538

ASTRONOMY

Items marked with an asterisk (*)
will be shipped from Lisbon.

SATISFACTION GUARANTEED:

All items are understood to be on approval,
and may be returned within a reasonable time
for any reason whatsoever.

VISITORS BY APPOINTMENT



SPECIAL LIST 538

ASTRONOMY

1. **ALBUQUERQUE, Luís de.** *Astronomical Navigation*. Lisbon: Comissão Nacional para as Comemorações dos Descobrimentos Portugueses, 1988 (i.e. Spring 1989). Folio (30.2 x 21.6), original printed wrappers. Very good to fine condition. 140 pp., (2 ll.), illustrated. ISBN: none.

\$35.00

First separate Edition in English. These texts appeared as two chapters in Armando Cortesão's *History of Portuguese Cartography*, volume II, 1971. Out of print.

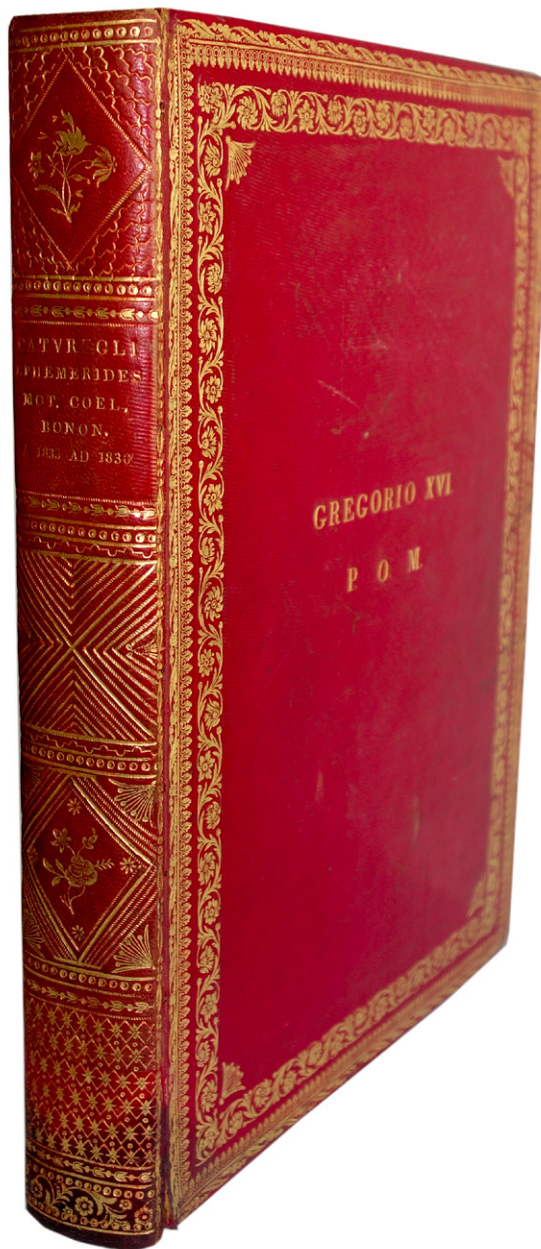
*2. **ALBUQUERQUE, Luís de.** *Astronomical Navigation*. Lisbon: Comissão Nacional para as Comemorações dos Descobrimentos Portugueses, 1988 (i.e. Spring 1989). Folio (31 x 22 cm.), contemporary red cloth, two crimson morocco lettering pieces, original printed wrappers bound in. Very good to fine condition. 140 pp., (2 ll.), illustrated. ISBN: none.

\$75.00

First separate Edition in English. These texts appeared as two chapters in Armando Cortesão's *History of Portuguese Cartography*, volume II, 1971. Out of print.

Richly Tooled Contemporary Papal Binding Subsequently Belonged to the Last King of Italy

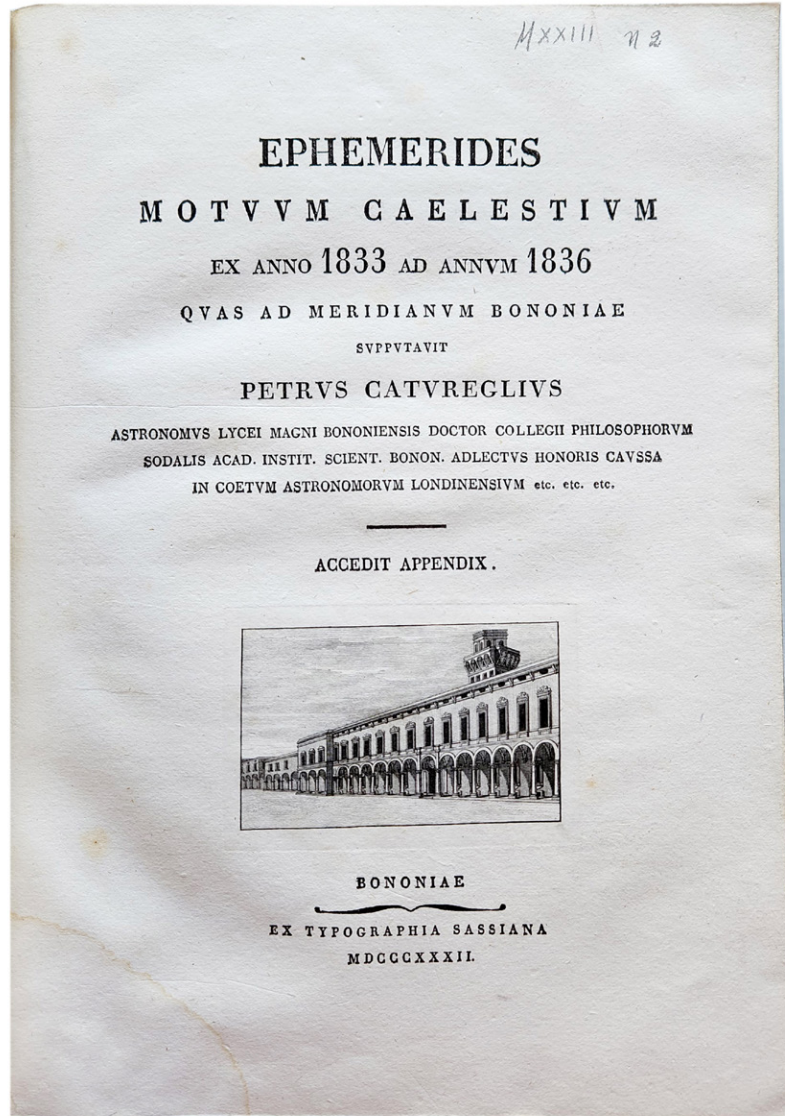
3. **CATUREGLI, Pietro.** *Ephemerides motuum caelestium ex anno 1833 ad annum 1836 quas ad meridianum Bononiae supputavit* Bologna: Ex Typ. Sassiana, 1832. Folio (30 x 22 cm.), contemporary red straight-grain morocco (light wear, a few pinpoint wormholes at the joints), smooth spine richly gilt, sides tooled in gilt with two rolls, "GREGORIO XVI. P.O.M." tooled on upper cover, gilt inner dentelles, cream silk endleaves, red silk endbands and ribbon marker, all edges gilt. Engraved vignette on title-page (perhaps the Piazza Maggiore in Bologna). Clean and crisp. In fine condition. Letterpress shelfmark label ("Hà IV.—34.") and circular stamp ("G V P F") on front flyleaf. From the libraries of Pope Gregory XVI and King Umberto II of Italy. Engraved allegorical frontispiece (allegorical female figure with starry crown studying an



Item 3



Item 3

*Item 3*

armillary sphere), vi, 340, 12, 23 pp., (2 ll.), 2 engraved folding charts. Text consists almost entirely of tables. \$4,000.00

FIRST and ONLY EDITION of these tables of ascension and declination for the sun, moon and stars, with formulas and tables for calculating the same for bodies not included in this volume. The two engraved folding charts show the predicted paths of the solar eclipses of 16-17 July 1833 and 15 May 1836. Caturegli (d. 1833) was professor of mathematics and astronomy at Bologna.

Provenance: Library of Pope Gregory XVI (1831-1846); later in the library of Umberto II, King of Italy (1904-1983; reigned 9 May 1946 to 12 June 1946, although he had been *de facto* head of state since 1944), parts of which were dispersed in Portugal.

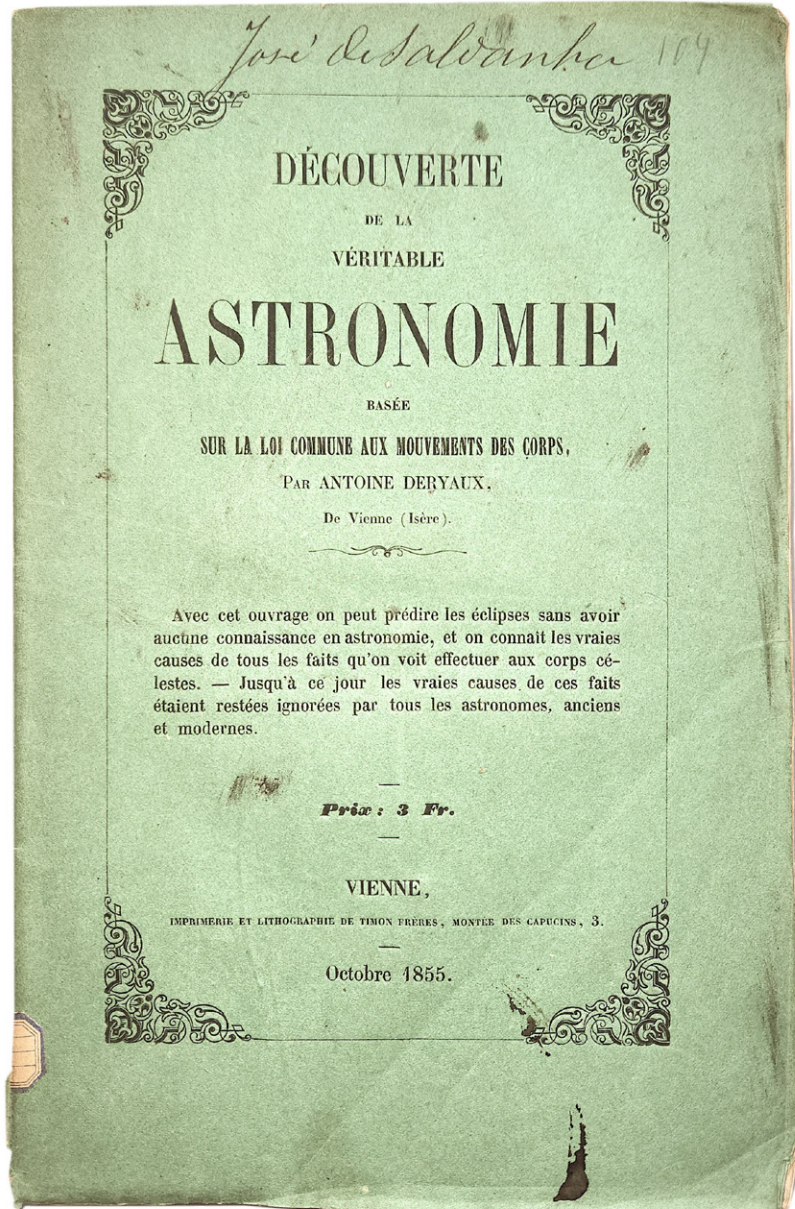
* Not located in *NUC*. OCLC: 32507349 (giving same years in the title as this copy, but a date of printing of 1882 [*sic?*], and a collation of 380 pp., at Bibliothèque de l'Observatoire de Paris); 24155684 (years in the title are given as 1833 to 1837, date of printing 1832-1836, collation as 2 volumes). ICCU: Biblioteca dell'INAF—Osservatorio astronomico di Capodimonte—Napoli. Not located in *Jisc*.

4. DERYAUX, Antoine. *Découverte de la véritable astronomie basée sur la loi commune aux mouvements des corps*. Vienna: Imprimerie et Lithographie de Timon Frères, Monté des Capucins 3, 1855. 8°, original blue-green printed wrappers (light soiling; slit of about 5 cm. at head of spine; slight defect at foot). Some foxing, light dampstaining. Soiling on pp. 16-17. Overall good condition. Page of early manuscript notes laid in, with an astronomical diagram. Signature on upper wrapper of José de Saldanha (see below). At foot of spine, old paper tag with blue border and faded manuscript shelfmark. 126, (2) pp., 2 very large folding celestial maps. \$300.00

Third edition, following those of Paris, 1853 and Vienna, 1854. The large folding plates show the positions of the zodiac and the solar system. The work includes chapters on centrifugal and centripetal force, on tides, on predicting eclipses without training in astronomy, Kepler's Laws, and more.

A summary on the title page and front wrapper states, "Cette importante découverte peut profiter à la navigation, et elle sert de point de départ pour se rendre compte de l'origine de tous les faits astronomiques qu'on voit effectuer aux corps célestes.—Jusqu'à ce jour l'origine de ces faits était ignorée par tous les astronomes, anciens et modernes." The printed wrapper advertises, "Avec cet ouvrage on peut prédire les éclipses sans avoir aucune connaissance en astronomie, et on connaît les vraies causes de tous les faits qu'on voit effectuer aux corps célestes..."

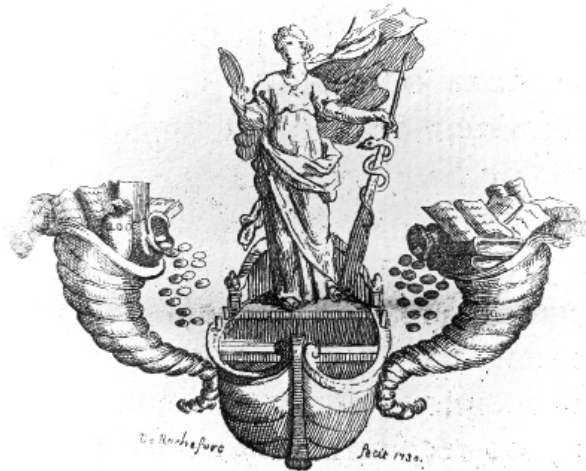
Provenance: most probably D. José de Saldanha Oliveira e Souza, who also used the name José Luiz de Saldanha (1839-1912), was a son of D. João de Saldanha Oliveira Juzarte Figueira e Sousa, 3° conde de Rio Maior, and brother of António José Luís de Saldanha Oliveira Juzarte Figueira e Sousa, 4° conde and 1° marquês de Rio Maior. A chemist and mineralogist, parliamentary deputy, and high government official, he studied mathematics and philosophy at Coimbra University, wrote on subjects as varied as agriculture, finance, and engravings, and amassed an important library. He was a devoted proponent of progress in the national agricultural sector, which he considered one of the

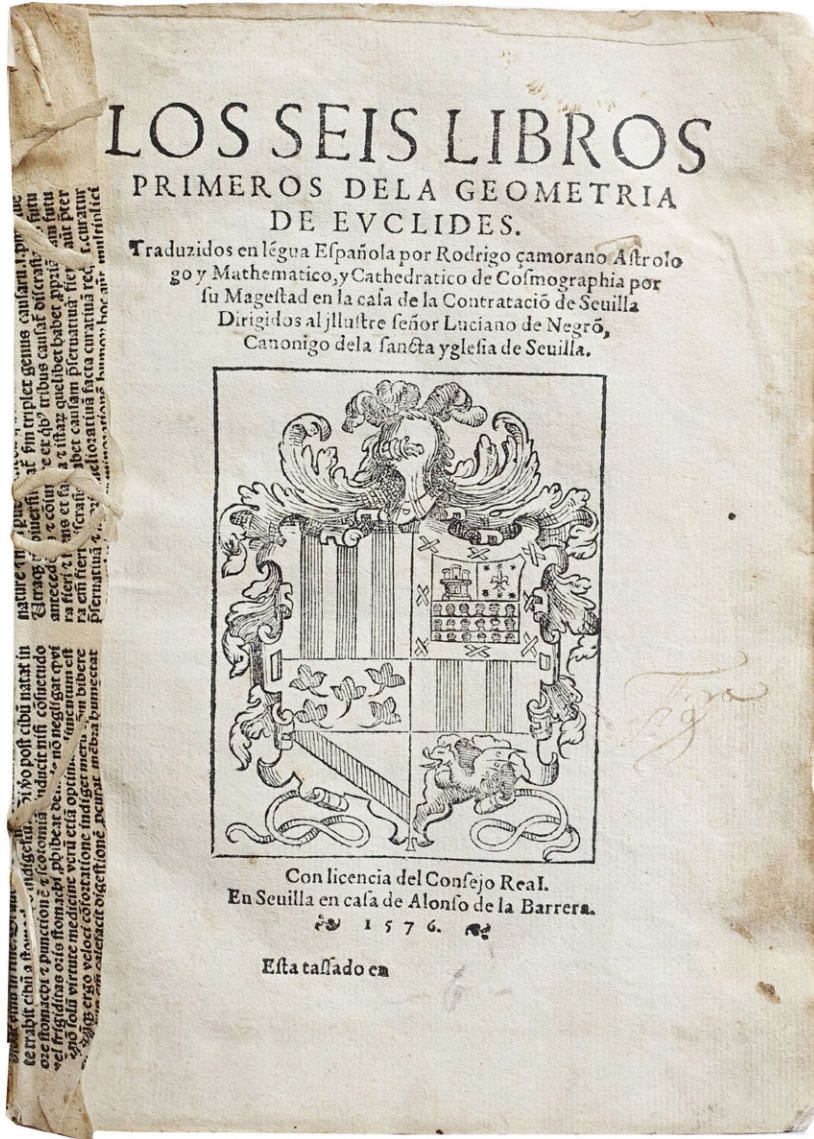


Item 4



Item 3





Item5

primary sources of public wealth. See *Grande enciclopèdia* XIX, 402; Innocèncio XIII, 66-7; *Aditamentos*, pp. 254-5. The Casa da Anunciada library of the counts of Rio Maior was one of the best private libraries ever formed in Portugal. It was dispersed for the most part not long after the April 1974 Portuguese revolution.

* OCLC: 457679265 (Bibliothèque Nationale de France, 128 pp.); 557956607 (British Library, 126 pp.); 431497990 (Biblioteca Nacional de España, without collation); 457679250 for the 1853 edition (Bibliothèque Nationale de France, 41 pp.); 457679257 for the 1854 edition (Bibliothèque Nationale de France, 61 pp.). Jisc repeats British Library only.

First Appearance of Euclid in Spain

5. EUCLID. *Los seis libros primeros dela geometria de Euclides. Traduzidos en lengua española por Rodrigo Çamorano astrologo y mathematico, y cathedratico de cosmographia por su Magestad en la casa de la Contratacion de Seuilla. Dirigidos al jllustre señor Luciano de Negron, canonigo dela sancta yglesia de Seuilla.* Seville: En Casa de Alonso de la Barrera, 1576. 4°, contemporary limp vellum (ties missing, light stains), vertical manuscript short author and title on spine, in a recent quarter brick-red morocco over reddish-orange cloth folding box. Large woodcut arms of dedicatee on title-page. Numerous woodcut geometric designs in text. Large (13-line) woodcut initial on first page of text; a few 4- and 5-line initials. Woodcut vignette tailpiece. Crisp. Light dampstain in lower blank margin of final 20 leaves. In fine condition. Bookplate from the Landau library, number 64704. 121, (1) ll., signed A⁴, B-P⁸, Q⁴, R². A4 missigned "4", M2 missigned "M3". Leaf 11 unnumbered, 51 misnumbered 42, 78 misnumbered 70, 84 misnumbered 76, 103 misnumbered 102, 105 misnumbered 108, and 116 misnumbered 108. \$18,000.00

First Edition in Spanish, and the only edition of this translation prior to a Salamanca 1999 reprint. It is also the first printing of any text by Euclid in Spain, in any language. Zamorano (b. 1542) was professor of cosmography at the Casa de la Contratación de las Indias, as well as an astrologer and mathematician. He later became *piloto mayor* to King Philip II and wrote the official navigation manual of the Spanish Navy at the time of the Armada. In the present book, he emphasizes the sciences of mechanics, astronomy, and cosmography.

Thomas-Stanford comments that this volume has the appearance of a schoolbook, which would account for its rarity, and notes that the few copies he had been able to examine were rather worn (pp. 16-17).

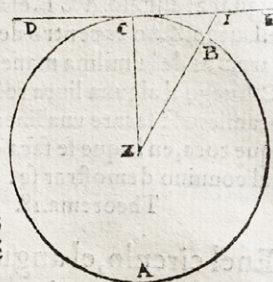
Euclid's *Elements*, a collection of definitions, axioms, theorems, and proofs in 13 books (of which six are included in this translation) is the oldest extant deductive treatment of mathematics, and played an important role in the development of logic and modern science. One of the world's most successful and influential textbooks, it was first published in Venice, 1482, and has appeared in over a thousand editions.

* Thomas-Stanford 43. Adams E1018. BL, *Pre-1601 Spanish STC* p. 74 (British Library copy with title-page mutilated). Palau 84721. Beardsley 95 (listing copies at the Biblioteca Nacional de España and University of Michigan). *Catálogo colectivo* E903. Salvá 2570.

EVCLIDES.

57

Z. y desde Z. asta en C. tirese por la. 1. petición, Z C. digo q̄ ZC es perpendicular sobre la. D E. Porque sino, tirese por la. 12. del primero desde Z. sobre. D E. la perpendicular. Z I. Pues porque el angulo. Z I C. es recto, luego el angulo. I O Z. es agudo. Luego mayor es el angulo. Z I C. q̄ el angulo. Z C I. y debajo de mayor angulo (por la. 19. del. 1.) se estiende mayor lado, luego mayor es. Z C. q̄ no. Z I. y es yqual la. Z C. a la. C B por ser del cẽtro a la circunferencia, luego mayor es. Z B. que. Z I. la menor q̄ la mayor, q̄ es imposible. Luego. Z I. no es perpendicular sobre. D E. Luego si alguna linea recta tocara al circulo, y lo q̄ mas se sigue. Lo qual conuino demostrarse.

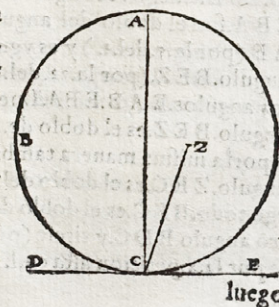


Theorema. 17.

Proposicion. 19.

¶ Si alguna linea recta tocara al circulo, y desde el tocamiento se le sacara alguna linea recta en angulos rectos, en la que es sacada estara el centro del circulo,

¶ Al circulo. A B C. toque una linea recta. D E. en el punto. C. y desde. C. por la. 11. del. 1. Tirese C A. en angulos rectos. Digo que en la misma. C A. esta el centro del circulo, Porq̄ sino, si es posible este en. Z. y por la. 1. petición tirese. C Z. Pues porq̄ la linea. D E. toca al circulo. A B C. y desde el centro al tocamiento se tiro. Z C



Heredia 4494. Steck III, 88. Duarte, *Euclides, Arquimedes, Newton* pp. 46, 48. Honeyman 1011. Riccardi, *Bibliografia euclidea*, 1576 (1). Not in HSA. NUC: MiU, MB. OCLC: 23621006 (Burndy Library, Indiana University, Houghton Library-Harvard University, University of Michigan, Brown University, Cambridge University, National Library of Wales), 560851127 (British Library); 266086700 (Cambridge University); 57317460 (microfilm copy: Center for Research Libraries, ProQuest). CCPBE locates sixteen copies. Not located in Rebiun (which cites Salamanca 1999 and Mairena del Aljarafe 2006 editions). Jisc repeats the two copies at Cambridge University. Not in Orbis (which lists the Salamanca 1999 edition at SML). KVK (51 databases searched) adds one copy at Biblioteca Nazionale Centrale-Roma, and one at Biblioteca Casanatense-Roma.

Encyclopedic Work on Oriental Languages and Cultures

6. HERBELOT DE MOLAINVILLE, Barthélemy d'. *Bibliothèque Orientale ou Dictionnaire Universel contenant Generalement tout ce qui regarde la connoissance des Peuples de l'Orient. Leurs histoires et traditions veritables ou fabuleuses, leurs religions, sectes et politique. Leurs gouvernement, loix, coütumes, moeurs, guerres, & les révolutions de leurs empires. Leurs sciences, et leurs arts. Leurs théologie, mythologie, magie, physique, morale, médecine, mathématiques, histoire naturelle, chronologie, géographie, observations astronomiques, grammaire, & réthorique. Les vies et actions remarquables de tous leurs saints, docteurs, philosophes, historiens, poètes, capitaines, & de tous ceux qui se sont rendus illustres parmi eux, par leur vertu, ou par leur savoir. Des jugemens critiques, et des extraits de tous leurs ouvrages, de leurs traitez, traductions, commentaires, abrezes, recüeils de fables, de sentences, de maximes, de proverbes, de contes, de bons mots, & de tous leurs livres écrits en Arabe, en Persan, ou en Turc, sur toutes sortes de sciences, d'arts, & de professions.* Paris: Par la Compagnie des Libraires, 1697. Folio (38.5 x 26.5 cm), a distinguished binding in a sorry state: early full mottled calf (scuffed, edges much worn), gilt spine with raised bands in seven compartments (crude repairs to spine, especially at head and foot, both joints cracking), gilt-tooled arms on spine of Rohan-Soubise (see below). Title page printed in red and black; elaborate woodcut headpieces, tailpieces and initials. Scattered foxing and light browning; paper defect in margin not affecting text on Rrr iii; tear in text without loss on Hhhh ii. Internally very good; overall in good condition. Bound for Charles de Rohan, Prince de Soubise et d'Epinoÿ, duc de Rohan-Rohan (1715-1787) (see below). Scattered early marginal notes in various hands. On title page, a three-line purchase inscription dated 1921 and four-line purchase inscription from Santos (?), dated 1922, noting offer to Salazar (?). Engraved frontispiece portrait, (16 ll.), 1059 (1) pp., with frequent mispagination (see below). \$1,400.00

FIRST EDITION of an encyclopedic work on oriental languages and cultures: Herbelot de Molainville read Arabic, Turkish, Persian, Aramaic, Syriac, and Hebrew. An ambitious

work 3 decades in the making, the *Bibliothèque orientale* was completed and published posthumously by Antoine Galand. It is largely a translation of the Arabic bibliography of Hadji Khalfa, but incorporates many other Arabic and Turkish compilations: about 100 are cited as sources in the preliminary leaves. It is written in the form of a dictionary, from "Ab" to "Zouzeni," with a supplement (pp. 941-1032) and a lengthy subject index (pp. 1033-59). As set out on the title page, the *Bibliothèque* covers topics ranging from poetry, fables, mythology, and morals to mathematics, medicine, and astronomy.

Brunet noted that from 1697 to 1776 no new compendium had been written, so that although it was somewhat out of date, the *Bibliothèque* continued to be "toujours très-recherché." It was printed again at Maastricht, 1776, with a supplement of 1780 by Claude de Visdelou. Editions also appeared in Paris, 1781-84, and The Hague, 1777-99.

Barthélemy d'Herbelot de Molainville (Paris, 1625-Paris, 1695) was one of the leading scholars of oriental languages of the seventeenth century. After studying Asian languages at the University of Paris, he sought to gain fluency by speaking with Asians in Italian seaports. After living on a pension in Fouquet's home, he was appointed secretary and interpreter of Eastern languages for the king of France. Grand-Duke Ferdinand II of Tuscany tried to lure him away, but Colbert persuaded Herbelot to return to France. In 1692 he became chair of Syriac at the Collège Royal.

The volume includes numerous errors in pagination and quire signatures: pagination skips 305-306 but text follows. Page 324 misnumbered as 316. Page 461 is misnumbered as 469. Leaf Rrr iij is not signed. Leaf Yyy iij is missigned as Zzz iij. Pages 800-801 repeat, but text follows. Page 871 is misnumbered as 863. Page 1040 is misnumbered as 1400. Leaf Zii is misbound following Ziii.

Provenance: gilt-tooled arms on the spine are Olivier plate 2034, Stamps 8 and 9. Charles de Rohan was a bibliophile who led an impressive military career and rose to the rank of Marshal of France. He was an intimate of King Louis XV and Madame de Pompadour.

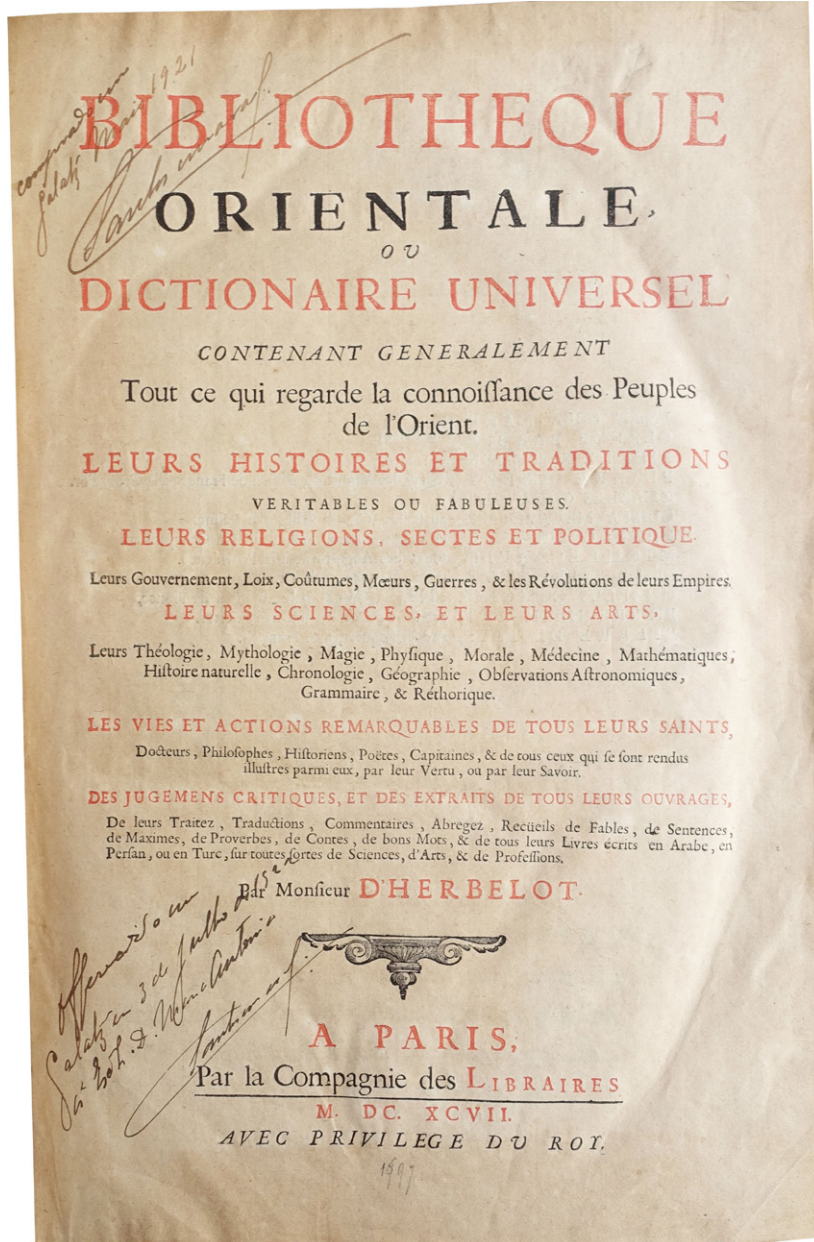
* Brunet II, 664. Zischka 15. Graesse II, 376. Hamilton, *Europe and the Arab World*, 36: "one of the landmarks in Arabic studies." Not in the Atabey sale, which had the editions of Maastricht, 1776 and Paris, 1781-84 (lots 563-564).

7. INSTITUTO GEOGRAPHICO E HISTORICO DA BAHIA. *Revista comemorativa do Quarto Centenario do Brazil. Anno VII, Vol. VII, N. 23.* Bahia: Typ. e Encadernação Empreza Editora, 1900. Large 8°, original illustrated wrappers, printed in green and gilt (front cover detached, some chipping and spotting). Small coat of arms on title page. Decorative headpieces, initials, and ornaments. Light browning. Overall in near-good condition. Old oval stamp (illegible) with inked date "23/6/1900". Old paper tag on back wrapper with red border and penciled shelfmark ("922"). 77 pp., a few illustrations in text (a constellation, an astrolabe, a king's signature). \$40.00

Single issue of this periodical published to celebrate the fourth centenary of Cabral's voyage. It includes reprints of a letter by one of Cabral's crew (pp. 4-11); a letter dated 1500 from Mestre João, a royal physician who was also on the voyage (like the previous letter, much concerned with navigation, pp. 11-14); a translation of Cabral's letter on the discovery of Brazil, translated from Italian (pp. 31-36), a letter of Pero de Magalhães Gandavo on the discovery of "Santa Cruz" (and why it was not named "Brazil", pp. 37-40); and accounts of the discovery of Brazil from P. Simão de Vasconcellos, Gabriel



Item 6



Item 6

Soares de Souza, Ramusio, Camões and other poets, plus more recent sources such as Varnhagen. The illustrated wrapper shows Indigenous Americans watching the arrival of European ships.

* Not located in OCLC. Not located in Porbase. Not located in Jisc. Not located in KVK (51 databases searched).

8. MATA, José Melitão da. *Compendio do calculo da latitude no mar pela observação meridiana dos astros.* Lisbon: Na Officina de Simão Thaddeu Ferreira, 1789. 4°, recent olive Oasis morocco, spine with raised bands in five compartments, gilt letter, marbled endpapers. Finely engraved vignettes on title-page and p. 1; 58 engraved diagrams in text (see below). Some minor staining and soiling. Overall clean and crisp, in very good to fine condition. (1 l.), 134 pp. \$1,200.00

FIRST EDITION. Gives rules for fixing one's position at sea by the stars, with sample diagrams and calculations.

The title-page vignette shows Poseidon and an allegorical female flanking the Portuguese coat of arms; behind them are a row of columns topped by Muses and the ocean, with a tall ship approaching and seagulls. On the first page, the half-page vignette shows three putti holding navigational tools at the lower left; at the right are two tall ships and a castle (the Torre de Belém?); at the top of the semicircular frame is the sun. Outside the frame, two putti supply wind to move the ships. The 58 diagrams demonstrate how to calculate latitude at sea; each shows the zenith and the globe with meridians and compass directions, plus one other factor (e.g., the position of the sun, moon, or a star) that is required to calculate the latitude. Among the stars used are the North Star, Procyon (the brightest star of Canis Minor), Rigel (Orion constellation), Spica (Virgo constellation), Aldebaran (Taurus constellation), Castor (Gemini constellation).

Mata (d. 1809) taught navigation in Lisbon and wrote several other handbooks for pilots.

* Not in Innocêncio; cf. V, 74-75. *Ticknor Catalogue* p. 521. NUC: NN; a copy with the date [1788] is cited at MB, but the *Ticknor Catalog* gives the date as 1789. OCLC: 39555943 (New York Public Library). Not located in Porbase. Not located in Jisc.

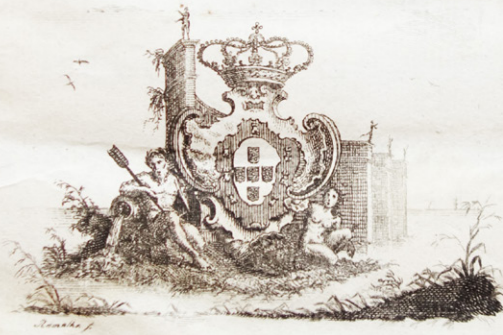
Who's Afraid of a Comet?

9. [MORGANTI, Bento]. *Breve discurso sobre os cometas, em que se mostra a sua natureza, sua duração, seu movimento, sua influencia, e a sua Região &c. Escrito por B.M.* Lisbon: Na Officina de Francisco Borges de Sousa, 1757. 4°, twentieth-century half tan sheep over machine-marbled boards (slightly warped), smooth spine blank; on upper cover, red leather lettering piece with gilt border and lettering. Woodcut ornament on title page. Woodcut headpiece, six-line woodcut initial on p. 3. Browning. Overall in good to very good condition. 21 pp., (2, 1 blank pp.).

\$800.00

FIRST EDITION, published to counter the idea that a comet predicts a major disaster or disasters. The work explains that comets are natural phenomena, giving a good idea

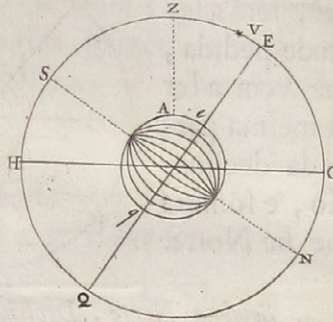
COMPENDIO
DO
CALCULO DA LATITUDE
NO MAR
PELA OBSERVAÇÃO MERIDIANA
DOS
ASTROS,
POR
JOSÉ MELITÃO DA MATA.



LISBOA,
NA OFFICINA DE SIMÃO THADDEO FERREIRA.
A N N O M. DCC. LXXXIX.
*Com Licença da Real Meza da Comissão Geral, sobre
o Exame; e Censura dos Livros.*

104 COMPENDIO

Zenith, a sombra do Observador he Sul,
a declinação de
Rigel nesse an-
no, e dia he de
8.º 27' 25" Sul;
logo neste caso
a Estrella se
achará em V
entre o Zenith,
e o Equador;
e por consequencia deve-se sommar a dif-
tancia VZ da Estrella ao Zenith, com a
sua declinação VE, e a somma será a
latitude pedida, que será Sul, por ser
a parte da declinação, e sombra.

*Sombra Sul, Declinação Sul.*

VZ Distanc. da Estrel. <i>Rigel</i> ao Zenith	25.º 10' 0"
VE Declinação de <i>Rigel</i> Sul	8. 27 25
EZ Latitude pedida Sul	33. 37 25

A

in lay terms of their astronomical significance, and explains that they have no influence on earthly events. Halley's Comet duly appeared in 1759. The printing of a second edition in 1818 coincided with the appearance of a different comet, and was also meant to quiet rumors of impending doom.

Morganti was born in Rome in 1709. He had a degree in canon law from Coimbra University, was a secular presbyter, and had a benefice at the Basilica de Santa Maria.

* Innocência I, 350 (calling for only 21 pp.), XVIII, 249. Fonseca, *Pseudónimos*, p. 102. Coimbra, *Miscelâneas* 6439, 8053. OCLC: 64234425 (Houghton Library, Newberry Library, Bayerische Staatsbibliothek). Porbase locates three copies at the Biblioteca Nacional de Portugal (with 21, [2] pp.) and a Lisbon, 1818 edition (*Breve discurso sobre os cometas, em que se mostra a sua natureza, a duração do tempo da sua aparição, sua nenhuma influencia sobre o mundo, e nos diversos acontecimentos que no mesmo se observão*) at the Biblioteca Nacional de Portugal. Not located in Jisc.

Comets do not Influence Events on Earth

10. [MORGANTI, Bento]. *Breve discurso sobre os cometas, em que se mostra a sua natureza, a duração do tempo da sua aparição, sua nenhuma influencia sobre o mundo, e nos diversos acontecimentos que no mesmo se observão.* Lisbon: Na Impressão Regia, 1818. 8°, recent buckram, in a blue morocco folding case by Invicta, lined with marbled paper. Woodcut on title-page depicting the Sun, Earth, and four comets (or possibly a single comet in orbit around the sun, at four positions). In very good condition. Color abstract pictorial bookplate of Joaquim Pessoa. 31 pp. \$500.00

Second edition? The work was first published in 1757 to counter rumors that a comet would predict a major disaster or disasters; the case of the Lisbon earthquake of 1755 is discussed (p. 28). The work explains that comets are natural phenomena, giving a good idea in lay terms of their astronomical significance, and explains that they have no influence on earthly events. Halley's Comet duly appeared in 1759. The printing of a second edition in 1818 coincided with the appearance of a different comet, and was also meant to quiet rumors of impending doom.

Morganti was born in Rome in 1709, had a degree in canon law from Coimbra and was a secular presbyter. He had a benefice at the Basilica de Santa Maria.

Provenance: Joaquim [Maria] Pessoa (1948-2003), poet, artist, publicist, student of Portuguese pre-history, and book collector, was the author or co-author of many Portuguese television programs, and for six years (1988-1994) was director of the Sociedade Portuguesa de Autores. He also founded the artistic cooperative Toma Lá Disco, with Ary dos Santos, Fernando Tordo, Carlos Mendes, Paulo de Carvalho and Luiz Villas-Boas, among others. See Álvaro Manuel Machado in Machado, ed., *Dicionário de literatura portuguesa*, p. 379.

* This edition not in Innocência (see I, 350 for the 1757 edition). Not located in Houzeau & Lancaster. Not located in OCLC. Porbase cites a single copy of this edition in the Biblioteca Nacional de Portugal, as well as three copies of the original edition at the same institution. Not located in Jisc. This edition not in Hollis, which lists the 1757 edition. Not in Orbis. Not in Melvyl. Not in Library of Congress online catalog. Not in Josiah. Not in Catnyp.

B R E V E
D I S C U R S O
S O B R E O S
C O M E T A S ,

EM QUE SE MOSTRA A SUA
natureza, sua duração, seu movi-
mento, sua influencia, e a
sua Região &c.

E S C R I T O

P O R B. M.



L I S B O A :

Na Officina de FRANCISCO BORGES DE SOUSA.
Anno de 1757.

Com todas as licenças necessarias.

20

11. NASCIMENTO, Aires A., ed. *Innocentia Victrix: Siue Sententia Comitiorum Imperii Sinici pro Innocentia Christianae religionis. = Vitória da inocência, ou sentença das Assembleias do Império Chinês em prol da inocência da Religião Christã.* Lisbon: Biblioteca Nacional / Instituto Português do Oriente, 1999. Documenta, 2. 8° and small folio (29.5 x 18.5 cm.), original printed wrappers and publisher's boards. As new. 113, (1) pp.; (1, 2), 43, (1) ll. One of 1,000 sets. ISBN: 972-565-264-9 (BNL); 972-8013-14-8 (IPOR). \$45.00

The octavo volume is a study of the work originally printed in Canton in 1671. It has an introduction by Horácio P. Araújo. The folio volume is a facsimile reprint of the third in a series of eleven books printed between 1662 and 1718 from xylographic blocks, in various cities of China, under Jesuit auspices. All books printed in China by the Jesuits are rare. Europeans were amazed that the Jesuits were able to produce books in Chinese; such books have attained both a mythic and mystic character, and are highly valued by collectors of books about the Far East in general and China in particular, as well as collectors of Jesuit material.

This extraordinary document prints the text of an imperial rescript promulgated at Peking, regarding toleration for the Christian religion. It is printed in old, modern, and cursive Chinese characters, with phonetic transcriptions and a Latin translation. Also included are mathematical calculations and astronomical observations by the Jesuits that correct errors made by Chinese astronomers in their calculations for the calendar. Several references are made to the Jesuits' astronomical observatory in Peking (2v, 7r-v, 16r-v, 17v, 23v, 28v, 40r) and to the astronomical activities of Matteo Ricci, Schall von Bell and especially Ferdinand Verbiest.

The Jesuit mission suffered a severe setback in 1664, when imperial regents moved against them, resentful of the influence at court of Ricci's successor, Adam Schall von Bell. The old charge that the missionaries were emissaries preparing the way for a Portuguese occupation of the country was revived, and Schall von Bell, already 73 years old, was condemned to death along with five Christian converts.

Schall was reprieved and died a natural death the following year. But in the meantime, the five Chinese had been executed and most of the thirty-eight priests in China (including Gouvea) were collected in Canton so that they could be expelled from the country. Once again the wind changed. In 1667, the great Emperor K'ang-Hsi, then aged fourteen, began to take a hand in the affairs of government. He soon made friends with Schall's colleague and successor, the Flemish Father Ferdinand Verbiest, who had been imprisoned at Peking and who shared the astronomical and scientific interests of the teenage Chinese Emperor.

This work is generally attributed to the Portuguese Father Gouvea, who was vice-provincial heading the group of Jesuits imprisoned at Canton from 1667 to 1671, but it may have been by the Italian Padre Lubelli, or the Fleming Father François de Rouge-ment. The wood blocks from which it was printed were possibly cut by Father Intorcetta's protégé Paul, as he must have returned from Goa about this time.

* See Backer-Sommervogel III, 1637. Boxer, "Some Sino-European Xylographic Works, 1662-1718," 3. Cordier *Bibliotheca Sinica* II, 822-5; *Imprimerie Sino-Européenne en Chine*, 126. Braga, *The Beginning of Printing in Macau*, p. 12. Lilly Library, *Exotic Printing and the Expansion of Europe, 1492-1840*, 86. Reiss & Auvermann, *Auction 40: Travel and Exploration, Portugal and Spain* (3-4 April 1989), 541 (that copy, with the repairs to its upper margin and upper outer corner, sold for an aggregate price of DM 46,000.00, the equivalent of approximately US\$ 27,000.00 at the time, to the late Portuguese bookseller J.A. Telles da Sylva). Brunet III, 441. See also Pfister, *Notices biographiques et bibliographiques sur les Jésuites de l'ancienne mission de Chine, 1552-1773* (Shanghai, 1932).

BREVE DISCURSO
 SOBRE
 OS
 COMETAS,

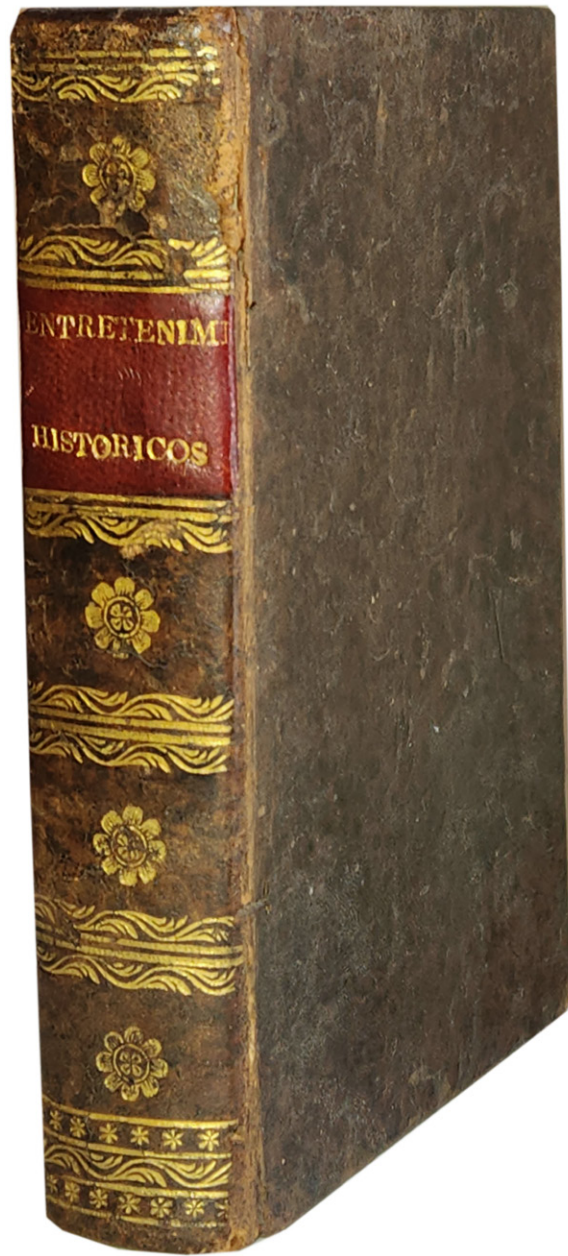
Em que se mostra a sua natureza , a duração
 do tempo da sua apparição , sua nenhuma
 influencia sobre o mundo , e nos diversos
 acontecimentos que no mesmo se observão.



LISBOA:

NA IMPRESSÃO REGIA. ANNO 1812

Sem licença.



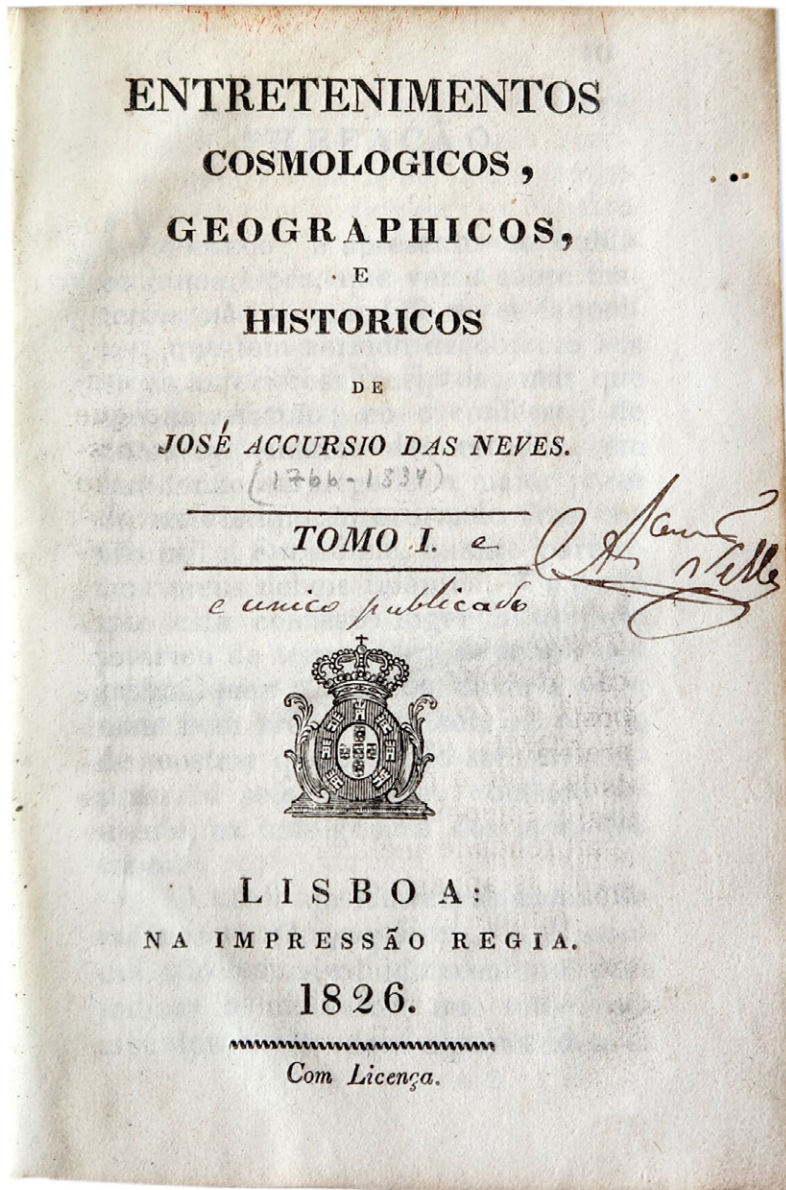
Item 12

12. NEVES, José Accursio das. *Entretenimentos cosmologicos, geographicos, e historicos. Tomo I [all published]*. Lisbon: Na Impressão Regia, 1826. 8°, contemporary mottled sheep (some wear; split of about 3.5 cm. to front outer joint near head of spine; five tiny round wormholes to outer joints), smooth spine gilt, crimson morocco lettering piece, gilt short title, marbled endleaves, text block edges sprinkled red. Woodcut Portuguese royal arms on title page. In very good condition overall. Later rectangular green stamp on front free endleaf recto giving shelf location and number "6227" in ink manuscript. Old (contemporary?) owner's signature on title page, with "e // o unico publicado" in ink manuscript to its left, following and below the printed "Tomo I". Manuscript notation, apparently in code, and apparently in the same hand as the title page signature, in ink manuscript on rear free endleaf verso. viii, 382 pp., (1 l.). \$400.00

FIRST EDITION. The text appeared again in the author's *Obras completas*, [1987?], where it was included in his "Escritos patrióticos". While there may be some subtle connection to patriotism or politics, the work appears to follow its title, dealing with an overview of cosmological and geographical knowledge from an historical point of view. There are chapters on the Earth, stars, planets, the solar system, celestial physics, movement of the Earth, comets, Buffon's theory of the formation of planets, other theories regarding the formation of planets, the shape and size of Earth, other geological considerations about the terrestrial globe, volcanic phenomena, on the origins and causes of subterranean fires and earthquakes, geography of volcanos, volcanos of the Açores (2 chapters), islands formed by volcanos and the so-call Altantis, some memorable earthquakes, meteorites, iron, and other substances which fall to Earth through the atmosphere, a catalogue of falling stones, iron, and other meteoric material, and finally general considerations about fluids which form part of the otherwise solid terrestrial globe.

José Accursio das Neves (1766-1834), a noted economist, held various government posts; his writing was primarily concerned with the political implications of commerce. Elected a member of the Real Academia das Sciencias de Lisboa in 1810, he was a defender of absolutism, being one of the principle supporters of D. Miguel in the Córtes of 1828. As an absolutist, he had been opposed to the liberal ideology behind the revolution of 1820, and the 1822 constitution. On May 14, 1821 he lost his government offices, only to be reinstated in June 1823. Nevertheless, Neves was elected deputy to the Córtes of 1822. The years 1821-1828 saw the maturing of his political-economic development. Despite the ultra conservative approach to politics, Neves favored industrialization and free trade (while defending a moderate protectionism). As a result of his support for Miguelismo, Neves became an obscure figure after the liberals triumphed toward the end of his life. Today he is regarded as one of the most brilliant Portuguese thinkers and most lucid prose writers of his age—a precursor of modern economic theory in Portugal.

* Innocência IV, 182 (without reference to the final unnumbered leaf); XVIII, 249; see pp. 181-3, 458-9; XII, 196-7; XVIII, 249 for biographical details and other works. On the author, see Laranjo, *Economistas portugueses* pp. 89-94. OCLC: 556617241 (British Library). Porbase locates six copies: four in the Biblioteca Nacional de Portugal, and one each in the Fundação Calouste Gulbenkian, and the Biblioteca João Paulo II-Universidade Católica Portuguesa. Jisc repeats British Library only.



Almanac with Rhymes on the Peninsular War

13. Novo repertorio para o anno de 1820, bissexto. *Em que se dá huma relação geral das heroicas acçoens, que os Portuguezes obrárão na feliz Restauration da sua Patria até a queda de Napoleão, designando os dias, em que ellas se obrárão, e os annos que tem decorrido té ao presente. Com o calculo das luas, e outras curiosidades uteis, e necessarias aos lavradores, jardineiros, caçadores, e pescadores. Composto por hum soldado portuguez.* Porto: Na Offic. de Viuva Alvarez Ribiero, e Filhos, (1819). 8°, stitched, with later paper reinforcement at spine. Small woodcut vignette of a half-moon on title page. Text includes small wood-engravings of the phases of the moon. Brown stain on second leaf, not affecting legibility. In good condition. Small old blue-bordered paper tag with manuscript "545" in blank portion of title page. (8 ll.). \$200.00

FIRST and ONLY EDITION. The author, who describes himself on the title page as "hum soldado portuguez," includes dates of notable Portuguese victories in the Peninsular War, and has a four-line poem on the war at the beginning of each month, e.g.:

Desarmar Junot tentou
 Todo o Povo Portuguez.
 Que lhe succedeo? Que fez?
 Sua ruina encontrou.

The preliminary pages include major feasts, eclipses, the dates for the beginning of the four seasons, and an overview of the year.

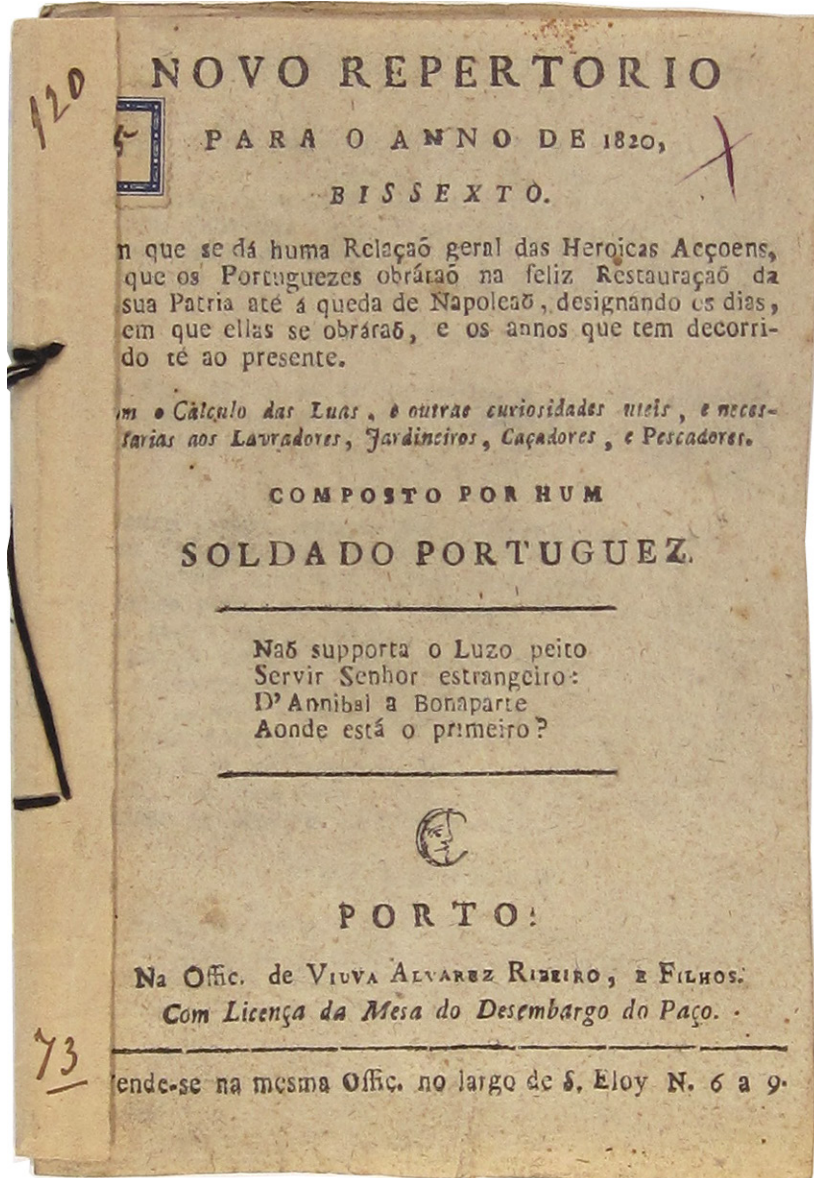
* Not in *Os sucessores de Zacuto: o almanque na Biblioteca Nacional*. Not located in Innocêncio or Fonseca, *Pseudónimos*, Albino Lapa, or Guerra Andrade. Not located in NUC. Not located in OCLC. Not located in Porbase. Not located in Jisc. Not located in KVK (51 databases searched).

Critiques of 1813-1814 Papers on Vaccination, Elephantiasis, Fevers

14. SILVA, José Bonifacio de Andrada e. *Discurso, contendo a historia da Academia Real das Sciencias, desde 25 de junho de 1814 até 24 de Junho de 1815.* [Lisbon?: Academia Real das Sciencias?, 1815?]. 4°, disbound. Caption title. Single small round wormhole throughout, touching a few letters of text. Second small hole in final two leaves, not affecting any text. Slight soiling on first leaf, otherwise crisp and clean. In good condition. Contemporary manuscript notes on recto of final blank leaf. xxix pp., (1 blank l.). \$1,200.00

First separate edition. Andrada e Silva had published a few earlier works in the *Memorias* of the Academy and in journals beginning in 1813. Here, as Secretary of the Academy, he lists and critiques the papers submitted to the Academy in the previous year, which included works on medicine (vaccine, elephantiasis, fevers), mineralogy (with one on the mines of Brazil), astronomy, grammar and literature, and political history.

José Bonifacio de Andrada e Silva (1763-1838), often referred to as the "Patriarch of Brazilian Independence," is described by Martin as the "tireless promoter of Brazil's



Item 13

(*) DISCURSO,
 CONTENDO A HISTORIA
 DA
 ACADEMIA REAL DAS SCIENCIAS,
 DESDE 24 DE JUNHO DE 1814 ATÉ 24 DE JUNHO DE 1815:
 POR
 JOSÉ BONIFACIO DE ANDRADA E SILVA,
 SECRETARIO DA MESMA ACADEMIA.

AINDA esta vez, Senhores, deverei ser o órgão da Academia, pondo ante vossos olhos sua carreira litteraria e patriótica no Estadio escabroso, mas nobre e grande, das Sciencias e das Artes, onde continúa a merecer loiros desde 24 do passado Junho até hoje. Confesso que este órgão he bem fraco, e pouco digno dos homens illustres que a compoem: se a minha voz porém sahir rouca e grosseira, como he, forcejarei ao menos, quanto em mim for, que seja singela e imparcial. Mas quem não temerá, despedido de forças e talentos como eu, comparecer perante o Tribunal implacavel, bem que justo, do Publico que me ouve, e da Posteridade que me ha de julgar a final? He certo, Senhores; e sei que se não grangea perdão, diz o nosso Sousa, se ha de que o pedir, como sempre ha. Anima-me com tudo e consola-me a só idéa, que vou ser o Annalista fiel dos esforços e tarefas de huma Corporação de Sabios, que luta denodada ha largos annos, em pró das Sciencias e honra da Nação, contra a ignorancia tímida, ou desleixada, e ousarei dizer, contra o obscurantismo de algumas toupeiras, que temem, ou não podem supportar a luz; (a) de huma Corporação, que ha sido e será, graças

(*) Lido na Assembléa Pública de 24 de Junho de 1815.

(a) O entendimento, que he nosso,
 Nam no lo querem deixar.

Sá e Miranda Egl. 8.

literary independence and patriarch of its relatively peaceful political independence in 1822. He was an Enlightenment figure who distinguished himself in scholarship and scientific research, whilst occupying a number of important administrative posts in Portugal and Brazil ... He was perhaps the most widely read and productive man of letters of the era in Latin America." A native of São Paulo, Andrada e Silva studied law at Coimbra; soon thereafter his aptitude for the natural sciences was noticed by the Duke of Lafões, who arranged his membership in the Academia Real das Sciencias. From 1790 to 1800 he travelled through Europe at government expense to learn methods currently in use in natural history and metallurgy, and on his return served as Intendente Geral das Minas. During the Peninsular War he rose quickly to the rank of lieutenant-colonel and superintendent of police in Porto. When he returned to Brazil, in 1819, he began working for Brazilian independence and was soon named royal minister and deputy to the Assembleia. Soon after, however, he was sent into European exile for seven years. When D. Pedro abdicated as emperor of Brazil, he entrusted the tutelage of his children to José Bonifácio. Andrada published a plethora of works in the early 1820s, including a few that were published under D. Pedro's name. He was a member of numerous learned societies in Europe and the Americas (see Innocência for a list), including the American Philosophical Society.

* Innocência IV, 277. Not in Sacramento Blake, who lists similar works from other years; see also IV, 344-50. Not in Lisbon, Faculdade de Medicina, *Catálogo da Coleção Portuguesa*. Not in Pires de Lima, *Catálogo da Bibliotheca da Escola Medico-Cirurgica do Porto*. Not in Borba de Moraes. Not in JCB *Portuguese and Brazilian Books*. On the author see Martin, "Literature, Music and Art of Latin America from Independence to c. 1870," *Cambridge History of Latin America* III, 804. Not located in NUC. OCLC: 696394047 (University of Iowa); 812619122 (John Carter Brown Library). Porbase locates a copy at the Biblioteca Municipal de Elvas. Not located in Jisc.

15. *Taboas auxiliares nos usos das ephemerides nauticas e astronomicas*

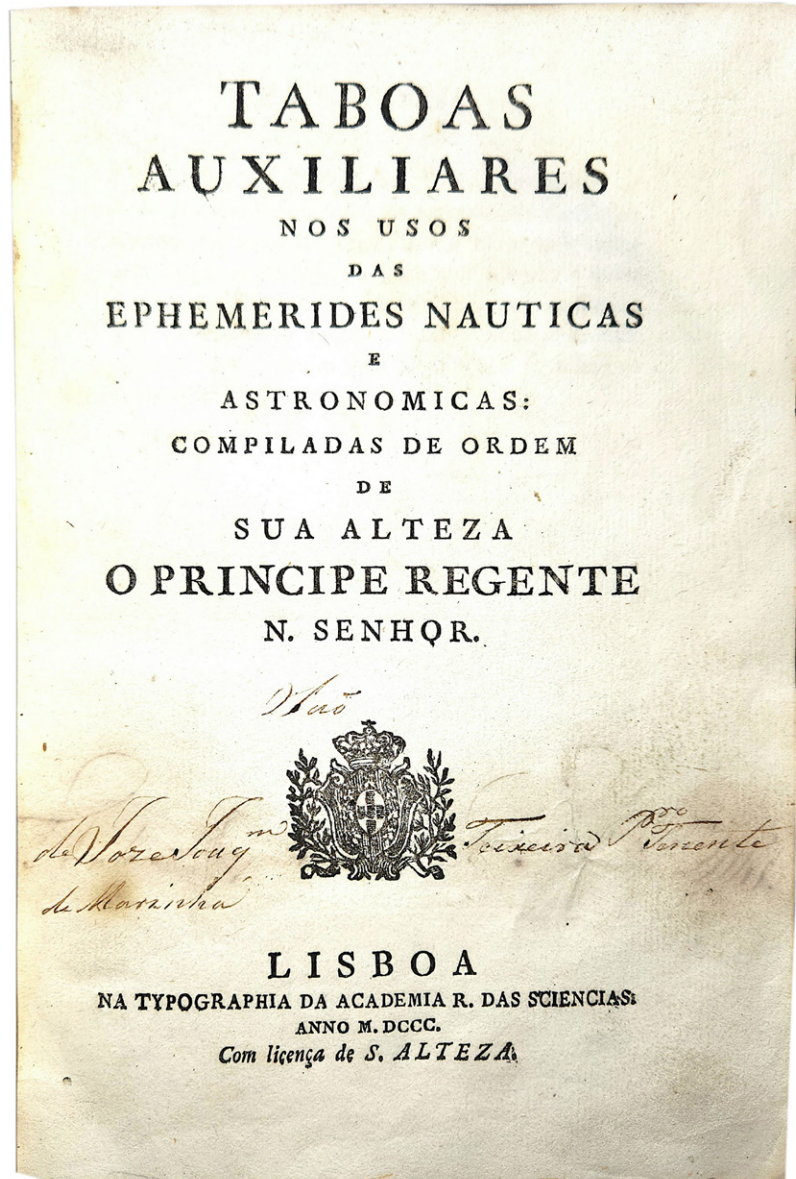
Lisbon: Na Typographia da Academia R. das Sciencias, 1800. 4^o, contemporary tree sheep (worming on front cover, some wear to corners and other extremities, head of spine defective) smooth spine gilt with bands and ornaments, crimson morocco lettering piece, gilt letter. Small woodcut arms of Portugal on title-page. Text mostly tables. Some soiling on title-page; pinpoint wormhole, without loss of text. Internally very good, overall in good condition. Early ownership inscription on title-page of Joze Joaquim Teixeira, Pro Tenente de Marinha; attempts to erase have caused light soiling and stains. (4 ll.), 190 pp., (1 l.).

\$300.00

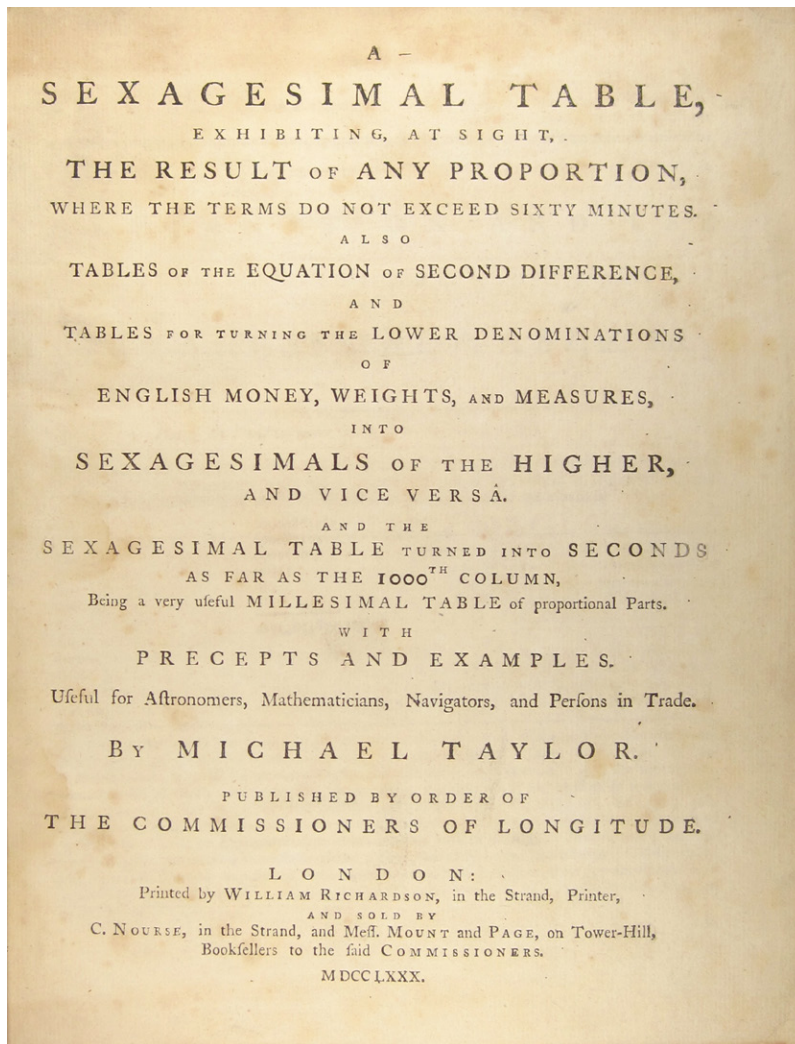
FIRST and ONLY EDITION. The text is mostly tables, with explanations of their use on pp. 171-190.

Provenance: Innocência IV, 415 lists José Joaquim Teixeira, a physician who studied at Rio de Janeiro and wrote *Considerações geraes sobre as aphtas dos meninos*, Rio de Janeiro, 1841.

* Innocência XIX, 245. Biblioteca Central da Marinha, *Catálogo das obras impressas no séc. XVIII*, 2572 (2 copies, both apparently having belonged to Caetano Rafael Pinheiro). Not located in NUC. OCLC: 3333370 (Georgetown University, Cambridge University). Porbase cites Biblioteca Central da Marinha only. Not located in Jisc.



Item 15



Item 16

16. TAYLOR, Michael. *A Sexagesimal Table, Exhibiting, at Sight, the Result of any Proportion, where the Terms do not Exceed Sixty Minutes. Also Tables of the Equation of Second Difference, and Tables for Turning the Lower Denominations of English Money, Weights, and Measures, into Sexagesimals of the Higher, and vice versa. And the Sexagesimal Table Turned into Seconds as Far as the 1000th Column, Being a very useful Millesimal Table of Proportional Parts. With precepts and Examples. Useful for Astronomers, Mathematicians, Navigators, and Persons in Trade.... Published by Order of the Commissioners of Longitude.* London: Printed by William Richardson ... and sold by C. Nourse, in the Strand, and Mess. Mount and Page, on Tower-Hill, Booksellers to the said Commissioners, 1780. Large 4° (29.9 x 24.2 cm.), mid-twentieth-century half calf over marbled boards (some wear at corners, outer joints), spine with raised bands in six compartments, gilt bands, crimson morocco lettering piece in second compartment from head (slightly chipped), short author-title in gilt. Tables and mathematical formulas in text. Some light browning. Overall in good condition. xlv, (1) pp., (1 l. divisional title), 316 pp., 1 large folding table. \$300.00

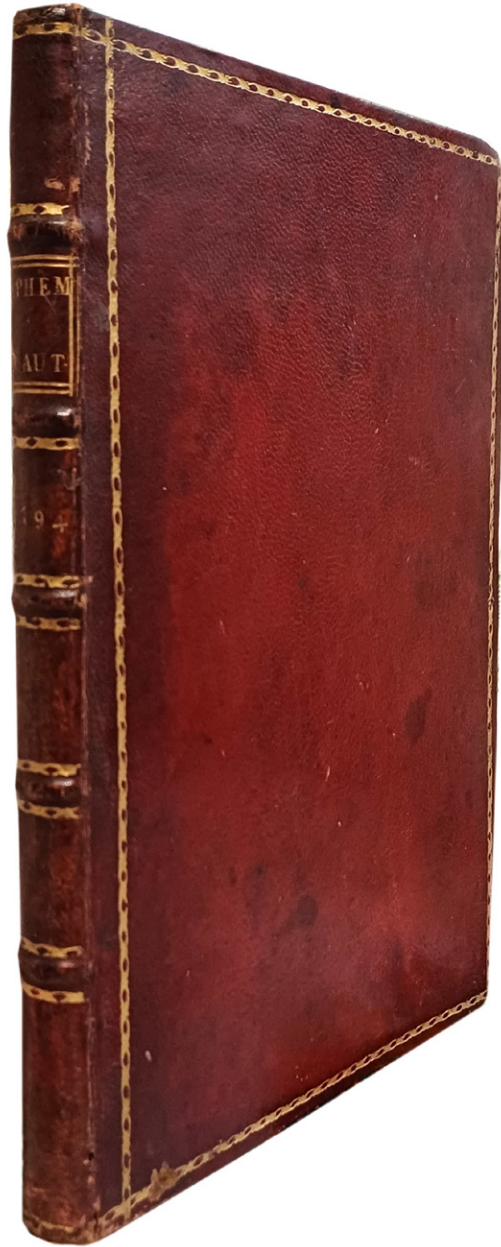
FIRST and ONLY EDITION.

* ESTC T146651.

Rare Nautical and Astronomical Almanac

***17. VILLAS-BOAS, Custodio Gomes de.** *Ephemerides nauticas, ou diario astronomico para o anno de 1794. Calculado para o meridiano de Lisboa, e publicado por ordem da Academia Real das Sciencias* Lisbon: Na Officina da Academia Real das Sciencias, 1793. 4°, contemporary crimson morocco (slight wear at extremities; leather darkened in a few spots), spine with raised bands in six compartments, gilt fillets and letter, covers with gilt borders containing gilt fillets, edges of covers milled, marbled endleaves, all text-block edges gilt. Woodcut arms of Academia Real das Sciencias on title page. Numerous woodcut tables in text. Light dampstain in upper outer corner of last few leaves. In fine condition. Eighteenth-century stamp of second Duke of Lafões, founder of the Academia Real das Sciencias, on title page. viii, 148 pp., (including last 3 pp. with "Catalogo das obras já impressas, e mandadas compôr pela Academia Real das Sciencias de Lisboa ..."). \$1,600.00

FIRST and ONLY EDITION of this nautical and astronomical almanac for the year 1794. A number of similar volumes were published by the Academia Real das Sciencias annually from 1788 through 1805, as well as some for later years; all are rare. Some were published anonymously, others by Custodio Gomes de Villas-Boas, while at least one was written by him in collaboration with Francisco Antonio Ciera and Francisco de Borja



Item 17

EPHEMERIDES
NAUTICAS,
OU
DIARIO ASTRONOMICO
PARA O ANNO DE 1794.
CALCULADO
PARA O MERIDIANO DE LISBOA,
E
PUBLICADO POR ORDEM
DA
ACADEMIA REAL DAS SCIENCIAS,
POR
CUSTODIO GOMES DE VILLAS-BOAS,
SOCIO DA MESMA ACADEMIA.



L I S B O A

NA OFFICINA DA MESMA ACADEMIA REAL.
ANNO M. DCCXCIII.
*Com licença da Real Mesa da Commisãõ Geral sobre o
Exame, e Censura dos Livros.*

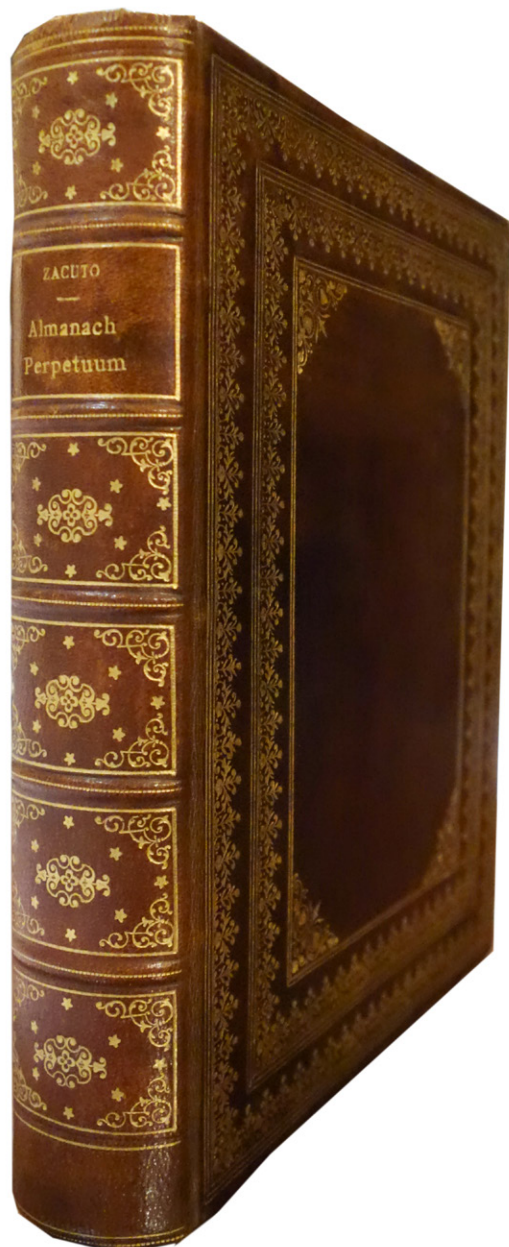
Garção Stockler, and others were published by José Maria Dantas Pereira de Andrade. Villas-Boas (1741-1808), a member of the Academia Real das Sciencias, was an artillery officer, student of mathematics with a degree in that subject from Coimbra University, and was "jubilado" in the Academia Real de Marinha. His final post was as Governor of the praça de Valença. According to some he was a native of Guimarães; others claim he was born in Barcellos. He made a number of contributions to the *Memorias* of the Academia Real das Sciencias on navigation and astronomy, and, jointly with Francisco Antonio Ciera translated Flamsteed's *Atlas celeste* into Portuguese, with revisions and corrections.

Provenance: The second Duke of Lafões, D. João Carlos de Bragança Sousa Ligne Tavares Mascarenhas da Silva (1719-1806), was of the closest possible affinity to the royal house: his father was the legitimized son of D. Pedro II. A nobleman of great talent and public spirit, he led the aristocratic opposition to Pombal, living outside Portugal during most of Pombal's reign. In the quarter-century after Pombal's fall he became one of the dominant public figures. He was appointed Councilor of War in 1780, of State in 1796, and marshal-general of the Portuguese armies. A man of great culture and scientific appreciation and a witty and generous patron, the Duke assisted both Gluck and Mozart during his absence from Portugal. Immediately upon his return he founded the Academy of Sciences in order to assure Portugal the benefits of the philosophic enlightenment. See Nuno Gonçalo Monteiro and Fernando Dores Costa, *D. João Carlos de Bragança, 2.º Duque de Lafões: Uma vida singular no século das luzes*, Lisbon: Edições Inapa, n.d. (2006?).

* Not in *Os sucessores de Zacuto: o almanque na Biblioteca Nacional*. Not in Innocência; see II, 112-3 and IX, 97. OCLC: 174000790 (a run from 1788 to 1796, wanting the volume for 1793, published in 1793: location not given); 560218955 (10 volumes, 1788-1796 with the present volume in a second edition: British Library); 649343616 (1788-1796: Niedersächsische Staats- und Universitätsbibliothek Göttingen); 516745990 (10 volumes, 1788-1796: University of Oklahoma); 457373216 (9 volumes, 1796-1802: Bibliothèque nationale de France); 457358615 (8 volumes, 1798-1802: Bibliothèque nationale de France); 81757692 (volume for 1800, published 1799: John Carter Brown Library); 743004410 (volume for 1805: no location given); 488655639 (volume for 1806, published 1804: Det Kongelige Bibliotek: Nationalbibliotek og Københavns Universitetsbibliotek). Porbase cites a single copy of the present volume, in the Biblioteca Nacional de Portugal, as well as other volumes for other years. Jisc repeats the run of ten volumes from 1788 to 1796 at British Library, and a run of four volumes from 1790-1794 for the years 1791-1793, and 1795, at Oxford University. Josiah cites a copy of the volume published in 1799 for the year 1800 ONLY at the John Carter Brown Library. No eighteenth-century volumes located in Hollis (cites only three volumes, for 1823-1825, published 1822-1824). No volumes located in Orbis.

*Tables Used by Vasco da Gama and Christopher Columbus
In an Impressive Contemporary Binding
By a Castilian Jewish Author*

*18. ZACUTI, Abraham [i.e., Abraham ben Samuel Zacuto]. *Almanach perpetuum celestium motuum (Radix 1473). Tabulae astronomicae raby Abraham Zacuti ... in latinum.æ per magistrum Joseph Vizinum ... Reproduktion fac-similé de l'exemplaire appartenant à la Bibliothèque d'Augsbourg*. Munich: L.B. Obernetter, 1915. Very large 4° (26.7 x 21 cm.), contemporary morocco, spine richly gilt with raised bands in six compartments, short author-title lettered gilt in second compartment



Item 18

from head, covers also richly gilt, inner dentelles gilt, edges of boards gilt, decorated endleaves, signed in gilt "Livreria Morais" in lower inner corner of rear cover, upper edges rouged, other edges uncut, original printed wrappers bound in. Printed on thick paper of high quality. In fine condition. (1 l.), 335 pp. \$900.00

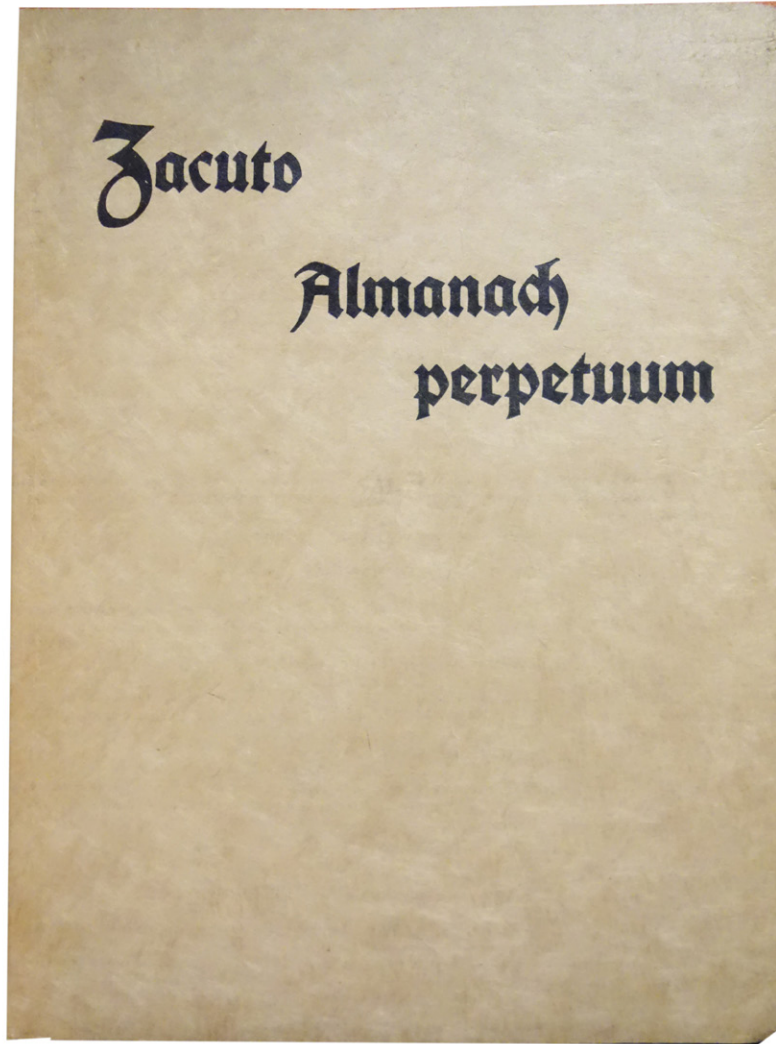
Facsimile of the Laria, 1496 edition.

Abraham ben Samuel Zacuto (1452-c.1515) was a Castilian Jewish astronomer, astrologer, mathematician, rabbi and historian who served as Royal Astronomer to King D. João II of Portugal. His astrolabe of copper, his astronomical tables and maritime charts played an important role in early Spanish and Portuguese navigation. They were used by Vasco Da Gama and Christopher Columbus, among others.

Zacuto was born in Salamanca. He may have studied and taught astronomy at the University of Salamanca; later he taught astronomy at the universities of Zaragoza and then Carthage. He was well versed in Jewish Law, and was the rabbi of his community. With the 1492 expulsion of the Jews, Zacuto took refuge in Lisbon, Portugal. Already famous in academic circles, he was invited to court and nominated Royal Astronomer and Historian, a position which he held until the early reign of D. Manuel I. He was consulted by the king on the possibility of a sea route to India, a project which he supported and encouraged. Zacuto probably died in 1515 in Jerusalem; however, other reports indicate his final home was the Jewish community in Damascus and his death occurred in 1520; while the Biblioteca Nacional de Portugal gives the date of his death as 1532..

Zacuto's principal claim to fame is the great astronomical treatise, written in Hebrew while he was in Salamanca, with the title *Ha-ḥibbur ha-gadol* ("The Great Book"). It was begun around 1470 and completed in 1478, composed of 65 detailed astronomical tables (ephemerides), with radix set for the year 1473 and with the meridian at Salamanca, charting the positions of the Sun, Moon and five planets. The calculations were based on the Alfonsine Tables and the works of earlier astronomers (notably of the fourteenth-century Majorcan school). Zacuto set out the data in a simple "almanac" format, with the positions of a planet easily interpolated between entries, making it quite easy to use. The first Castilian translation was undertaken in 1481 by Juan de Salaya. Zacuto's Portuguese disciple Joseph Vizinus (Mestre José Vizinho, the much-valued physician and advisor of D. João II of Portugal) translated it into Latin, under the title *Tabulae tabularum Celestium motuum sive Almanach perpetuum* ("Book of Tables on the celestial motions or the Perpetual Almanac"), along with a new Castilian translation, and arranged for its publication in 1496 by Samuel d'Ortas in Leiria, Portugal. Zacuto's *Almanach perpetuum* (or *Biur luḥot*) revolutionised ocean navigation. Prior to the *Almanach*, navigators seeking to determine their position on the high seas had to correct for "compass error" (the deviation of the magnetic north from the true north) by recourse to the quadrant and the Pole Star. But this proved less useful as they approached the equator and the Pole Star began to disappear under the horizon. Zacuto's *Almanach* supplied the first accurate table of solar declination, allowing navigators to use the sun instead. As the quadrant could not be used to look directly at the sun, Portuguese navigators began using the astrolabe on board (an old land-based instrument to measure the height of the sun indirectly). Zacuto's tables in conjunction with the new metal nautical astrolabe allowed navigators to take accurate readings anywhere. Already in 1497, Vasco da Gama and his crew underwent a thorough briefing and preparation by Zacuto, and took Zacuto's tables along with the astrolabe on his maiden trip to India. Zacuto's tables continued to be used by Portuguese ships thereafter to reach far-off destinations such as Brazil and India.

* For the original 1496 edition, see Goff Z14; BMC, X, 83; Biblioteca Nacional de Portugal, *Os sucessores de Zacuto* 861.



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