

AUTOLYCUS

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I. DE ORTU ET OCCASU SIDERUM.

1. Franciscus Maurolycus.
2. Conradus Dasypodius.
3. Josephus Auria.

II. DE SPHAERA MOTA.

1. Gerardus Cremonensis.
2. Franciscus Maurolycus.
3. Conradus Dasypodius.
4. Josephus Auria.

Author active about B. C. 310. A general study by Joseph Mogenet, *Autolycus de Pitane*, Louvain 1950, with filiation of manuscripts and editions. See Pauly-Wissowa 2.2, 2602-2604; Susemihl I 701-703; Christ-Schmidt, part II 1, 273-274.

I. DE ORTU ET OCCASU SIDERUM, SIVE PHAENOMENA

Greek: text edited with the Latin of Dasypodius in 1572; by Fr. Hulsch, Leipzig 1885; by Mogenet, 1950 (*op. cit.*). An integral part of Theon's Alexandrine Corpus (see Theodosius, *De Sphaera*).

1. *Franciscus Maurolycus*

Text: complete, from the Greek, with emendations, dated in the manuscript at Messina 20 Oct., 1534.

Definitiones. 1. Stellarum non errantium ortus et occasus alii dicuntur veri, alii appa-

rentes. 2. Verorumquidem matutinus ortus...

[*Expl.*] (liber 2, prop. 13): In horizonte recto unaquaqueque stella eodem die facit ortum... eademque corollarias. Scholium. Sint ergo praedictae octo passiones... industria Francisci Maurolyci distinctis (sic) emendati... Messanae... 20 oct. 1534.

Manuscript:

Paris, B. N. lat. 7472, A.D. 1534, fols. 17-35 (plus diagrams on 35v-36 and Colophon on 36v).

Biogr. (I am indebted for many details and references to Professor Edward Rosen):

Franciscus Maurolycus Messanensis (Francesco Maurolico, Maruli) was born in Messina Sept. 16, 1494, and died in S. Alessio (near Messina) on July 21, 1575. He received instruction from his father, Antonio Maurolico, from Francesco Faraone, and from Jacopo da Noto. He spent many years in the service of Giovanni Ventimiglio, Marchese di Gerace, whom he accompanied to Palermo, Naples and Rome. He was tutor to Alexander, son of the Viceroy Juan de

Vega, in Palermo before 1550. Became Abbot of S. Maria del Parto, near Castelbuono in northcentral Sicily, in 1550. He taught mathematics for some years at the University of Messina. He was in correspondence with Bembo, Clavius and Commandinus, and was honored by Charles V and by Card. Alessandro Farnese.

His original writings cover many fields such as mathematics, physics, astronomy, optics, music, grammar, history, ichthyology, and hagiography; he also composed inscriptions, and verses in Latin and Italian. His chief works are *Cosmographia* (1543), *De Sphaera sermo*, *De lineis horariis* (on the gnomon), and especially the *Photismi de lumine et umbra*, a searching investigation of optics, in which he studied especially the phenomena of refraction and of concave mirrors. He translated and annotated Apollonius, Archimedes, Autolycus, Euclid, Menelaus and Theodosius.

Bibl.: Chauffepié, *Nouveau Dictionnaire* 3 (1753) 61-63; (Confederazione Fascista dei Professionisti e degli Artisti), *Dizionario dei Siciliani illustri* (Palermo 1939) 321-322; G. Corniani, *I secoli della letteratura italiana* 1 (1822) 422-424; J. C. Houzeau and A. Lancaster, *Bibliographie générale de l'astronomie*, vol. 1, pl. 1 (Brussels 1887) 569, n. 2411-2418; Jocher 3 (1751) 309; Michaud 27, 352-353; G. M. Mira, *Bibliografia Siciliana* II (Palermo 1881) 57-62; A. Mongitore, *Bibliotheca Sicula* I (Palermo 1707) 226-229; Moréri, *Le grand dictionnaire* 7 (1759) 365; Nicéron 37 (1737) 336-345; (*) G. E. Ortolani, *Biografia degli uomini illustri della Sicilia* (1817-21) II 121; P. Riccardi, *Biblioteca Matematica Italiana* (Modena 1893) 139-143; Tiraboschi VII (1823) 668-673.

(*) *Tractatus per epistolam Francisci Maurolyci ad Petrum Gillium de piscibus Siculis*, ed. A. Faccioli (Palermo 1893); (*) V. Flauti, 'Sull' Archimede e l'Apollonio di Maurolico,' *Memorie della R. Accademia delle Scienze* (Naples) II (1857) LXXXIV-XCIV; (*) A. Giunta, *Questioni mauroliciane I: La compagine del Sicanicarum rerum compendium* (Licata 1906); F. Guardione, 'Francesco Maurolico nel secolo XVI,' *Archivio storico siciliano* 20 (1895) 3-57;

(*) V. Labate Caridi, *Le fonti del Sicanicarum rerum compendium di Fr. Maurolico* (Messina 1898); (*) G. Macrì, *Francesco Maurolico nella vita e negli scritti* (R. Accademia Peloritana, *Commemorazione del IV centenario di Francesco Maurolico MDCCCXCIV*, Messina 1896; 2nd ed., Messina 1901); (*) D. Martines, 'Cenno analitico intorno gli studii e le opere di Francesco Maurolico da Messina,' *Giornale di Scienze, Lettere e Belle Arti della Reale Accademia Peloritana* (1863) 79-109. (*) (F. Maurolyco) Barone della Foresta, *Vita dell' Abate del Parto D. Francesco Maurolyco* (Messina 1613); F. Napoli, 'Nota intorno ad alcuni manoscritti di Maurolico della Biblioteca Parigina,' *Rivista Sicula di Scienze, Letteratura ed Arti* 8 (1872) 185-192; Id., 'Intorno alla vita ed ai lavori di Francesco Maurolico,' *Bullettino di Bibliografia e di Storia delle scienze matematiche e fisiche* 9 (1876) 1-121; (*) L. Perroni-Grande, *F. Maurolico, professore dell' università messinese e dantista* in: R. Accademia Peloritana, *CCCL Anniversario della Università di Messina* (Messina 1900) 15-41; (*) D. Puzzolo-Sigillo, *Documenti inediti e novelle questioni su Franc. Maurolico ed uomini e cose messinesi del Cinquecento* (Messina 1863); E. Rosen, 'The Date of Maurolico's Death,' *Scripta mathematica* 22 (1956) 285-286; Id., 'Maurolico was an Abbot,' *Archives internationales d'histoire des Sciences* 9 (1956) 349-350; Id., 'The Title of Maurolico's *Photismi*,' *American Journal of Physics* 25 (1957) 226-228; Id., 'De Morgan's Incorrect Description of Maurolico's Books,' *Papers of the Bibliographical Society of America* 51 (1957) 111-118; Id., 'Maurolico's Attitude toward Copernicus,' *Proceedings of the American Philosophical Society* 101 (1957) 177-194; Id., 'Was Maurolico's Essay on the Nova of 1572 Printed?' *Isis* 48 (1957) 171-175; Id., 'The Editions of Maurolico's Mathematical Works,' *Scripta Mathematica* 24 (1957) 59-76; (*) Gius. Rossi, *Francesco Maurolico e il risorgimento filosofico e scientifico in Italia nel secolo XVI* (Messina 1888); M. Scaduto, 'Il matematico Francesco Maurolico e i Gesuiti,' *Archivum historicum Societatis Jesu* 18 (1949) 126-141; D. Scinà, *Elogio di Francesco Maurolico* (Palermo 1808).

2. *Conradus Dasypodius*

Text: from the Greek, without demonstrations etc.

Dedic. (of the edition, to his friend D. Petrus Ramus) [*Inc.*]: Quid sibi velit tuum λάθς βιώσας quo frueris nescio... decreto intellexere faciam te certiozem. 4 Decemb. 1571 Argentinae.

Definitiones. 1. Stellarum fixarum ortus et occasus alii dicuntur veri alii apparentes atque ex veris. 2. Ortus quidem matutinus est quando una cum sole exoriente (sic)...

Prop.: Theor. Uniuscuiusque stellae fixae ortus quidem et occasus matutini...

[*Expl.*]: (Liber 2 prop. 17): Quaecumque stellae zodiaco sunt interceptae...longiore tempore occultabuntur quam astra in zodiaco circulo posita.

Edition: 1572, Argentorati (G.-L., with Theodosius, *Opera*), pp. 42-52 BN.

Biogr.:

Conradus Dasypodius (Rauhfuß? Rauchfuß?) was born c. 1530, probably in Frauenfeld, Switzerland and died April 26, 1600 in Strasbourg. He was the son of the humanist Petrus Dasypodius. He studied mathematics at Strasbourg under Christian Herlin, and succeeded him as professor of mathematics in 1562. He became a Canon of St. Thomas in 1563. In 1574 he constructed the famous mechanical clock in Strasbourg. He was in correspondence with Kepler.

He composed a number of works on mathematics, astronomy, mechanics and astrology, annotated Ptolemy's *Libri apotelesmatici*, and translated works of Autolycus, Euclid, Hero and Theodosius.

Bibl.: *Allgemeine Deutsche Biographie* 4 (1876) 764; Jöcher 2 (1750) 37; Michaud 10, 155; Moréri, *Le grand dictionnaire historique et critique* 8 (1759) 44; Rudolf Wolf, *Biographien zur Kulturgeschichte der Schweiz* III (Zürich 1860) 51-62.

Johann G. L. Blumhof, *Vom alten Mathematiker Conrad Dasypodius* (Göttingen 1796); W. Schmidt, 'Heron von Alexandria, Konrad Dasypodius und die Strassburger astronomische Münsteruhr', *Abhandlungen zur Geschichte der Mathematik* 8 (1898) 175-194.

3. JOSEPHUS AURIA

Dedic. (to Alexander Glorierius camerae apostolicae clericus): Ecce tandem Alexander veniunt aliquando at te iam diu illi quidem...multo reddas in dies chariorem. Vale: Romae Kal. Augusti 1588.

Interpres lectori. Quanta ardeam cupiditate... (on methods of editing, and quoting the text of Maurolycus)...cantus nomen sortiuntur.

Definitiones. Astrorum inerrantium ortus et occasus quidem dicuntur veri...Matutinus quidem ortus est quando...

Prop. 1: Uniuscuiusque ex inerrantibus astris ortus et occasus matutini... (Demonstr.): Sit in mundo horizon circulus ABCD...

[*Expl.*]: (Liber 2 prop. 18): Ex astris quaecumque sub zodiaco... sunt posita astra. (Demonstr.): Sit circulus horizon AB... NCM est maior quam duo zodiaci signa.

Manuscript:

(*) Milan, Ambr. A 149 inf., s. XVI, fols. 48-100. Inerrantium astrorum ortus. Uniuscuiusque ex inerrantibus astris ortus. (Reported by P. O. Kristeller).

Editions:

1588, Romae: ex typographia Vicentii Accolti. BN.

(*) 1591, Romae. Houzeau-Lancaster, *Bibliographie générale de l'astronomie* 1.1 (1887) p. 397, n. 781, and p. 407, n. 814.

Biogr.:

Josephus Auria (Giuseppe D'Auria) was probably born in Naples and was active towards the end of the sixteenth century. The years of his birth and death, and other details of his life, are unknown. He lived for a number of years in Rome where he published several works between 1587 and 1602, dedicating one of them to Cardinal Sirleto. He composed an oration *De vitae humanae fragilitate*, and a treatise *De imitatione sive de optima studiorum ratione*; and translated in to Latin Flaminio Nobili's *Brevis institutio Cardinalis*. He translated works of Autolycus, Euclid and Theodosius, and perhaps Diophantus and Hero.

Bibl.: (*) E. D'Afflitto, *Memorie degli scrittori del Regno di Napoli* I (1782) 479; G. Cinelli, *Biblioteca Volante* I (Venice 1734) 69; L. Ferrari, *Onomasticon* (Milan 1947)

55; Jöcher I (1750) 662; *Fortsetzung* I (1784) 1274-75; (*) C. Minieri Riccio, *Memorie storiche degli scrittori nati nel Regno di Napoli* (1844) 47, 385; (*) Id., *Notizie biografiche e bibliografiche degli scrittori Napoletani fioriti nel sec. XVII*, fasc. 1 (1875) 67; Moréri, *Le grand dictionnaire* I (1759) 547; L. Nicodemo, *Addizioni copiose... alla Biblioteca Napoletana del Dottor Niccolo Toppi* (Naples 1683) 145; G. B. Tafuri, *Istoria degli scrittori nati nel Regno di Napoli*, vol. 3, pt. 3 (1754) 313-316; Tiraboschi VII (Venice 1823) 313-316.

II. DE SPHAERA MOTA

Greek: text edited by F. Hulsch, Leipzig 1885, and by Mogenet (*op. cit.*) 1950. An integral part of Theon's Alexandrine Corpus (see Theodosius, *De Sphaera*).

Arabic: translated by Thābit b. Qurra, an integral part of the Arabic Corpus (see Theodosius, *De Sphaera*).

1. Gerardus Cremonensis

Text: based on the Arabic of Thābit b. Qurra.

[*Inc.*]: Punctum equali motu dicitur moveri cum quantitates equales et similes in equalibus pertransit temporibus. Cum aliquod punctum super arcum circuli...

Prop. 1: Cum spera super suum menguar revolutione revolvitur equali, puncta que sunt supra ipsius superficiem preter ea que sunt super menguar [mihwar] circulos designant equidistantes... Cuius exemplum est ut... linea AB et poli...

[*Expl.*]: ...ABGD BED est maior, quoniam centrum eorum est centrum spere. Et illud est quod demonstrare volumus.

Manuscripts:

(*) Milan, Ambr. A 101 sup., s. XIV-XV, fols. 138-142 ('cum scholiis').

(*) Oxford, Bodl. Dibgy 168, s. XIII-XIV, fol. 125^v (fragment). Oxford, Quarto Catalogue 9, 175.

For 4 other mss. (2, s. XIV, and 2, s. XV) see Edition.

Edition:

1948, Louvain, by J. Mogenet, in *Archives internationales d'histoire des sciences* [II]

(1948-49), no. 5 (1948) 139-164. Based on four mss.

Biogr.:

Gerardus Cremonensis. See also under Alexander II 1. Gerard's translations from the Arabic were made almost word for word, with the help of a Mozarab named Galippus. They have a uniform vocabulary and style, and show competence and special care in the choice of his Arabic texts. Aside from a number of Arabic authors, he translated works of Alexander, Apollonius, Archimedes, Aristotle, Autolycus, Diocles, Euclid, Galen, Geminus, Hippocrates, Hypsicles, Menelaus, Ptolemy, Themistius, and Theodosius. His translations of Autolycus and Hypsicles belong to a group of his versions that is well represented in Paris, Bibliothèque Nationale, ms. Latin 9335, and derive from the Corpus of minor Greek mathematicians and astronomers edited by Theon of Alexandria and extant in such mss. as Vaticanus graecus 191, 202, 204, and Ambrosianus A 101 sup. A similar text served around 860 A.D. for an Arabic translation undertaken at Baghdad by Thābit b. Qurra, Qusṭa b. Lūquā and Ishāq b. Hunayn. In its original form (best represented by mss. Istanbul Serail 3464 and Leiden Warn. 1031 and 1040-1043), it contained, probably in this sequence, Theodosius *De Sphaera*, Autolycus *De Sphaera mota*, Euclid *Optica*, Theodosius *De Habitationibus*, Autolycus *De Ortu*, Euclid *Phaenomena*, Theodosius *De Diebus*, Aristarchus *De Magnitudinibus*, Hypsicles *De Ascensionibus* and Euclid *Data*. It was expanded by the same Arabic translators by the addition of three works of Archimedes (*De Sphaera et cylindro* and *De Mensura circuli*, both translated into Latin by Gerard, and the *Assumpta*) and several Arabic tracts; with further additions, including Menelaus (set into Arabic shortly afterward), it was thoroughly revised about 1250 by aṭ-Ṭūṣī, and is known in this late form in the majority of the extant copies (Laur. or. 164, Bodl. ar. 985, and edition, unsigned and uncritical, published at Osmania University in 1940). Thābit's reputed translations of Apollonius, Euclid and Nicomachus remained apart from this corpus. Gerard used a copy, probably imper-

fect, of the original Arabic corpus of 860 (without Archimedes and Menelaus). Of the ten tracts of this corpus, four appear in Paris, Bibliothèque Nationale, ms. latin 9335 (Autolycus *De Sphaera mota*, Hypsicles *De Ascensionibus*, Theodosius *De Habitationibus* and *De Sphaera*, plus Menelaus and Archimedes' *De Mensura circuli*). There is no trace in the medieval Latin tradition of several of the tracts, including works of Marinus and Serenus, that are present in the Greek manuscripts cited above.

Bibl.: Haskins 141-5, 104-108, and *passim*; Thorndike II (1923) 87-90.

Francis J. Carmody, *The Astronomical Works of Thābit b. Qurra* (in the press); M. Clagett, 'A Medieval Fragment of the *De Sphaera et Cylindro* of Archimedes,' *Isis* 43 (1952) 36-38; Id., 'The Medieval Latin Translations from the Arabic of the Elements of Euclid...', *ibid.* 44 (1953) 16-41; Id., 'Archimedes in the Middle Ages: The *De mensura circuli*,' *Osiris* 10 (1952) 587-618.

2. Franciscus Maurolycus

Text: completed by 3 Oct., 1534; said to be based on the Arabic of Zin ad-Din Abhari. The edition of 1558 has reduced the demonstrations to short notes.

Dedic. (of the edition of 1558, to Charles V): Cum diu multumque dubitasset, serenissime Caesar...tibi supplicatum venit Messanae Iulio mense MDLVI.

Rededic. (of the edition of 1558, to Iohannes Cerda Methymnensium dux ac Siciliae prorex): Tertio ab hinc anno...D. Carlo V. imp. max. destinarem...nunc demum perficerem...exire non erubescant. Vale. Messanae Aug. mense MDLVIII.

Dedic. (of the present work, to Octavius Spinula quaestor aerarius Siciliae): Ex quo sphaericorum nostrorum volumen...opera nostra utaris. Vale. Messanae Kal. Iun. MDLVIII.

[*Inc.*]: Sphaerae puncta equaliter ferri dicuntur quaecumque equali tempore equales ac imiles pretereunt periferias. At si linea...

Prop. 1: Si equaliter sphaera volvatur circa suum axem cuncta que in superficie sunt sphere puncta preter polos circulos descri-

bent parallelos... (Demonstr. ms. B. N. 7472): Sit sphaera cuius axis AB polique AB que super axem...

Notes of the translation (ed. 1558): Nam tales circuli describuntur per rectas.

[*Expl.*]: (prop. 12): Si in sphaera manens circulus delatus... ipsorum erit maior. (Demonstr.): Esto in sphaera manens... alterum esse maiorem et alterum minorem. Igitur omnino erunt ambo maiores quod est propositum. Messane 3 Oct. 1534.

Manuscripts:

Paris, B. N. lat. 7472, A. D. 1534, 1-7^v (probably written by the translator's secretary).

Paris, B. N. lat. 17859, s. xvii, 46^v seq. (copied from the edition).

(*) Erlangen, 832 (formerly 909), s. XVI, 349^v-354. Copied from the ed. of 1558. Ficher II 483-484.

Editions: 1558, Messanae, Petrus Spira (with Theodosius, *Opera*), 61-62 (BM, BN). 1587, Rome. Annotations only (with the translation of J. Auria).

(*) 1626, Paris (with Theodosius). Houzeau-Lancaster I.I (1887), p. 406-407, n. 813. Propositions only.

(*) 1644, Paris (with Mersenne). Houzeau-Lancaster, *ibid.* Propositions only.

Biogr.: See Autolycus I 1.

3. Conradus Dasypodius

Text: translated from the Greek, a short version without demonstrations.

Dedic.: (of the edition of 1572) see Autolycus, *De Ortu*, translated by Dasypodius.

Definitiones 1. Puncta aequabiliter dicuntur ferri et moveri quaecumque aequale temporis spatium... Prop. 1. Theor. Si sphaera aequabiliter circa suum vertitur axem, omnia quaecumque sunt in superficie...

[*Expl.*] (prop. 12): Si in sphaera circulus fixus... tum uterque eorum est maximus sphaerae circulus.

Edition:

1572, Argentorati (G.-L., with Theodosius, *Opera*), 38-42. BN.

Biogr.: See Autolycus I 2.

4. Iosephus Auria

Text: based on the Greek, with 'Scholia

ex Maurolyco' and 'scholia antiqua,' using lemmata.

Dedic. (to Alexander Centurionus camerae apostolicae clericus): Adeo me devinxit tibi humanitas tua, Alexander...(remarks on his critical method and on the translation by Maurolycus)...ipsum etiam complecti perge. Romae Idibus Maii 1587.

Interpres lectori. In Autolyco et Theodosio id a nobis...(on use of Greek manuscripts for the present translation)...adhortatione omnino impulsum.

Hypotheses: I. Aequabiliter puncta ferri dicuntur quaecumque tempore aequali... Prop. 1. Si sphaera circa suum proprium axem volvatur aequabiliter, omnia puncta

quae sunt in sphaerae superficie... Sit sphaerae culus axis esto AB...

[*Expl.*] (prop. 12): Si in sphaera manens...ABCD et EBFD maximis circulus est (followed by scholia).

Manuscript:

(*) Milan, Ambr. A 194 inf., s. XVI, misc.

Editions:

1587, Romae: apud haeredes Antonii Bladii (alone, or bound with Theodosius, *De Diebus*), pp. 3-26. BM; BN. According to Houzeau (p. 397, n. 780, and p. 406-407, n. 813), many copies are dated 1588. With the notes of Maurolycus.

Biogr.: See Autolycus I 3.