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Rediscovered manuscripts op the "Vite de' matematici" and mathematical works by Bernardino Baldi (1553-1617)

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Storia della Scienza. — *Rediscovered manuscripts of the "Vite de' matematici" and mathematical works by Bernardino Baldi (1553-1617).*
Nota di PAUL LAWRENCE ROSE, presentata (*) dal Socio B. SEGRE.

RIASSUNTO. — I manoscritti delle «Vite de' Matematici» di Bernardino Baldi, che si trovavano nella Biblioteca Albani e poi in quella Boncompagni, e che furono in seguito smarriti, sono stati recentemente rintracciati. Qui se ne fa la storia, e si trattano anche le altre opere matematiche del famoso Urbinate Bernardino Baldi.

Bernardino Baldi is generally admitted to be the greatest man of letters produced by the city of Urbino (1). Besides being an Italian poet and prose stylist of some note, he was court-historian of Urbino, an historian of architecture, a biblical scholar, an orientalist, and an expert in twelve languages, including Greek and Arabic. At the same time, Baldi was closely associated with Commandino's circle of mathematicians at Urbino and may be credited with a number of significant contributions to mathematics and mechanics. By combining immense humanistic erudition with mathematical learning Baldi accomplished one of the great monuments of the mathematical renaissance, his *Vite dei Matematici (Lives of the Mathematicians)*, which stands as the first large scale history of mathematics. Like many of Baldi's mathematical and literary works, this *magnum opus* remained unpublished in his lifetime. Among

(*) Nella seduta del 9 marzo 1974.

(1) Baldi gives some autobiographical details in his dialogues *Il Genio* (now Biblioteca Nazionale, Naples, MS XIII, F. 25) and *Della Corte*, both of which were drawn upon by IRENEO AFFÒ, *Vita di Monsignore Bernardino Baldi da Urbino, primo Abate di Guastalla*, Parma, 1783. There is a modern biography by GUIDO ZACCAGNINI, *Bernardino Baldi nella Vita e nelle Opere*, second edition, Pistoia, 1908. See also R. AMATURO, *Bernardino Baldi*, in «Dizionario Biografico degli Italiani», Rome, 1960, V, 461-64. GIOVANNI MARIA MAZZUCHELLI, *Gli Scrittori d'Italia*, Brescia, 1753-63, II, i, pp. 116-25.

Two biographies written by Baldi's contemporaries are MARCANTONIO VIRGILI BATTIFERRI, *Orazione Funebre... Bernardino Baldi*, Urbino, 1617; FABRICIUS SCHARLONCINUS, *De Vita et Scriptis Bernardini Baldi Urbinatis*, in BERNARDINO BALDI, *Exercitationes in Mechanica Aristotelis Problemata*, Mainz, 1621. Scharloncinus claims to have obtained much of his information directly from Baldi; nevertheless, some of the dates that are given appear dubious, e.g. the *Paradossi Matematici* are dated to the mid-1580's although written in 1580, and the *Gnomonica* is assigned to 1593 instead of the proper date 1592.

On Baldi's poetry see JAMES HUTTON, *The Greek Anthology in Italy to the Year 1800*, Ithaca, N.Y., 1935, pp. 339-41. For his mathematical work see P. DUHEM, *Études sur Léonard de Vinci*, Paris, 1906-13, I, 89-156. STILLMAN DRAKE, *Bernardino Baldi*, in «Dictionary of Scientific Biography», New York, 1970, I, 419-20. For further bibliography see M. E. COSENZA, *Biographical and Bibliographical Dictionary of the Italian Humanists and of the World of Classical Scholarship in Italy 1300-1800*, Boston, 1962, I, 374-76, V, 178-81. I deal in detail with Baldi in my forthcoming book *Humanists and Mathematicians in Renaissance Italy*.

the mathematical works that did achieve publication, however, were his translations and expositions of the *Automata* and *Belopoeeca* of Hero of Alexandria, the pseudo-Aristotelian *Mechanica* and Vitruvius. In this Note I shall list a number of manuscript versions of the *Vite de' Matematici* and mathematical works which I succeeded in locating between 1968-73. Most of them were formerly in the great Albani and Boncompagni collections, from which they were dispersed at various times in the last 200 years.

Baldi died at Urbino on 10 October 1617, leaving his library and manuscript writings to his nephews⁽²⁾. His choice library, though not large, included a wide variety of Greek and Latin manuscripts on historical and literary topics as well as on mathematics and religion, and it clearly reflects Baldi's standing as both humanist and mathematician. Among the mathematical codices were Greek texts of Athenaeus Poliorceticus, Apollonius, Aristoxenus and Aristides on music, the *Pneumatica* and *Belopoeeca* of Hero, Euclid's optical works, the *Musica* of Ptolemy, and Serenus⁽³⁾.

Several lists of Baldi's own manuscript and printed writings have been compiled, notably those by Battiferri and Scharloncinus in the years immediately following the writer's death⁽⁴⁾. The most valuable inventory, however, was compiled in the eighteenth century by Affò who was able to examine for himself many of the manuscripts by then housed in the Biblioteca Albani in Rome⁽⁵⁾. After Baldi's death his relative Orazio Albani of Urbino had taken a personal interest in the preservation of the codices remaining with the Baldi family. In 1659 Orazio's son, Girolamo, finally persuaded the last of the Baldi family, Chiara Corona, to allow him to have custody of the manuscripts. A catalogue prepared at the time shows that some items had already been lost, but under the Albani pope Clement XI (1700-21) most of the collection was recovered⁽⁶⁾.

Clement XI and his heir, cardinal Alessandro Albani, were responsible for developing a new branch of the family library at Rome and it was this branch that secured the Baldi manuscripts⁽⁷⁾. During the French invasions of Italy in 1797-98, a quantity of books was taken from both the Urbino and Rome sections of the library and found their way to France and Naples. Reconstituted in 1815, the Roman collection remained largely intact, however,

(2) AFFÒ, *Baldi*, p. 138.

(3) The list of manuscripts from Baldi's own *Elenchus Librorum* was printed by AFFÒ, *Baldi*, pp. 219-21, from a manuscript that has since disappeared. It—or a copy thereof—was last owned by Boncompagni (Boncompagni MS 153).

(4) BATTIFERRI, *Orazione*. SCHARLONCINUS, *De Vita*, fols. (9-10). AFFÒ, *Baldi*, p. 133, cites Vaticana MS Vat. Lat. 6954, an anonymous list made up in the seventeenth century. Cf. MAZZUCHELLI, *Scrittori*, II, i, pp. 120-24. DUHEM, *Etudes*, I, 93-100.

(5) AFFÒ, *Baldi*, pp. 150, 167-228.

(6) *Ibidem*, pp. 165-67.

(7) CECIL H. CLOUGH, *The Albani Library and Pope Clement XI*, in «*Librarium*», 12, 1969, 13-21, at pp. 16-17. To judge from AFFÒ, *Baldi*, p. XI, however, some of Baldi's manuscripts did remain at Urbino.

until 1858. In that year, following the extinction of the direct Albani line, a large portion was sold to various buyers, including Boncompagni. Five years later the residue was lost at sea while en route to its new purchaser, the Prussian government. Meanwhile, the Urbino portion was acquired in 1858 by the Castelbarco family who seem to have kept most of it in their hands despite the sale of nearly 10,000 books in 1928 to the Catholic University of America, Washington ⁽⁸⁾.

As a result of these vicissitudes, Baldi's manuscript writings are now dispersed through several libraries. The Biblioteca Nazionale at Naples possesses six miscellaneous Baldi items among its holding of 238 Albani manuscripts ⁽⁹⁾. At Rome, the Biblioteca Angelica owns six manuscripts of works by Baldi and a codex formerly belonging to him ⁽¹⁰⁾. The Laurenziana of Florence now holds his autograph translation of Hero's *Automata*. In France, the École de Médecine de Montpellier owns 81 Albani codices, including Baldi's autograph translation of the *Hortus Delitiosus* of the Arabic geographer Aldrisi ⁽¹¹⁾. The present writer in 1970 identified MS Latin 10280 in the Bibliothèque Nationale at Paris as an autograph collection of mathematical and literary treatises by Baldi; and in 1972-73 was fortunate enough to locate the autograph manuscripts of the *Vite dei Matematici* in a Roman ecclesiastical library ⁽¹²⁾. Besides these, there is a possibility that a few more Baldi items, acquired from the Albani by Boncompagni and subsequently sold in the 1890's, will soon surface again ⁽¹³⁾. (The group of Baldi's historical writings in the *fondo Urbinato* of the Biblioteca Vaticana was never part of the Albani collection, nor were many of the individual Baldi items and letters to be found scattered through various Italian archives and libraries) ⁽¹⁴⁾.

(8) SEE CLOUGH, *Albani Library*. B.M. PEEBLES, *The Biblioteca Albana Urbinatis as represented in the Library of the Catholic University of America*, in Sesto Prete, ed., «Didascaliae: Studies in Honor of Anselm M. Albareda», New York, 1961, pp. 327-52. Professor Howard Rienstra of Calvin College, Michigan, is preparing a history of the Albani library.

(9) As Professor Rienstra kindly informs me, none of the Baldi items at Naples is of mathematical interest. For some of the codices mentioned in this paragraph, see below.

(10) Angelica MSS 147^b, 233, 430^a, 431, 1399^a, 1690, 2266; confirmed by the director, dott. Anna Maria Giorgetti Vichi.

(11) For the Montpellier collection see *Catalogue Général des Manuscrits des Bibliothèques Publiques des Départements*, Quarto Series, Paris, 1849, I, 279-477. Cf. ZACCAGNINI, *Baldi*, p. 237.

(12) Details of the mathematical manuscripts are given below.

(13) Boncompagni MSS 153, 275, 339, 370, described in the Narducci catalogue cited below.

(14) See P.O. KRISTELLER, *Iter Italicum*, London-Leiden, 1964, indices, s.v. «Baldi». ZACCAGNINI, *Baldi*, *passim*.

There is very little Baldi material in the Biblioteca Maldottiana at Guastalla, but see G. Mazzatinti and A. Sorbelli, eds., *Inventari dei Manoscritti delle Biblioteche d'Italia*, Forlì-Florence, 1890, vols. 63-64.

The Archivio Linceo, now in the Biblioteca Corsiniana, Rome, contains material formerly in the Albani, but there is nothing by Baldi. See C. GABRIELI, *Bibliografia Lincea*, I, in «Accademia Nazionale dei Lincei, Scienze Morali, Rendiconti, ser. VI», 8, 206-77 (1932). Prof. Alessandrini is now preparing a catalogue of the Archivio Linceo.

Little is known of the contents of two of Baldi's mathematical works whose manuscripts are now apparently lost: these are the *Paradossi Matematici* of 1580 and the *Novae Gnomonices Libri Quinque* of 1592⁽¹⁵⁾.

I. VITE DE' MATEMATICI

Baldi wrote his 200 or so *Vite de' Matematici* mostly in the years 1587-95. They represent the first great history of mathematics to be compiled in modern times. In the nineteenth century, following the dispersal of the Albani collection, prince Baldassarre Boncompagni acquired the two volumes of the autograph manuscript, as well as several volumes consisting of copies⁽¹⁶⁾. While in his possession, roughly a quarter of the *Vite* were published in Boncompagni's *Bullettino di Bibliografia e di Storia delle Scienze Matematiche e Fisiche*⁽¹⁷⁾. After Boncompagni's death in 1894, the codices were auctioned with the rest of his splendid library at Rome in 1898 and after⁽¹⁸⁾.

At the sale the autograph codices of the *Vite* were bought by the Roman lawyer, the avvocato Luigi Celli (died 1939), who was also an erudite historian of Urbino, Baldi's native town⁽¹⁹⁾. A decade later the avvocato Celli allowed Guido Zaccagnini to print five of the previously unpublished *Vite* as an appendix to the latter's *Bernardino Baldi nella Vita e nelle Opere*, second edition, Pistoia, 1908, pp. 329-349. Subsequently, the *Vite* disappeared from the sight of scholars.

It was only in 1972-73 that professor B. Bilinski and the present author, working independently, learned that the manuscripts had been donated by the family of the avvocato Celli to the library of the Padri Rosminiani (Istituto della Carità) at Rome⁽²⁰⁾.

(15) AFFÒ, *Baldi*, pp. 196, 203, saw the *Gnomonica* and also believed the *Paradossi* to be in the Albani collection. It is not certain whether the *Paradossi* was written in Latin or Italian; the Latin title is given as *Paradoxa Centum Mathematica*.

(16) AFFÒ, *Baldi*, pp. 200-201. Full descriptions of the autograph and copied *Vite* are given in ENRICO NARDUCCI, *Catalogo di Manoscritti ora posseduti da D. Baldassarre Boncompagni*, Second edition, Rome, 1892, pp. 31-38.

(17) See the bibliographical list in ENRICO NARDUCCI, *Vite inedite di Matematici Italiani scritte da Bernardino Baldi*, in « *Bullettino di Bibliografia e di Storia delle Scienze Matematiche e Fisiche* », 19, 1886, 335-406; 437-89; 521-640, at pp. 347-351.

(18) The sale list is *Catalogo della Biblioteca Boncompagni, parte prima*, Rome, 1890, nos. 45-49. Cf. ETTORE CARRUCCIO, *Baldassarre Boncompagni*, in « *Dictionary of Scientific Biography* », II, 283-84.

I am trying to locate manuscripts from Boncompagni's collection and would appreciate any information on them. Much of the reconstituted Archivio Linceo in the Biblioteca Corsiniana at Rome has come from the Albani and Boncompagni collections. Cf. M. HOWARD RIENSTRA, *Gaetano Marini and the Historiography of the Accademia dei Lincei*, in « *Archivio della Società Romana di Storia Patria* », ser. III, 25, 209-33 (1973).

(19) See LUIGI CELLI, *Storia della Sollevazione di Urbino contro il duca Guidobaldo II Feltrio della Rovere dal 1572 al 1574*, Torino-Roma, 1892.

(20) I should like to take this opportunity of thanking both Signora Artom-Celli and Don Giuseppe Gaddo for their great kindness in answering my numerous enquiries.

The autograph version of the *Vite de' Matematici* is shelfmarked MS Celli 48 (ex-Boncompagni 62-63, ex-Albani 618), the apograph MS Celli 50 (ex-Boncompagni 64-65, ex-Albani 610). The autograph of Baldi's *Cronica de' Matematici*, an epitome published at Urbino in 1707, is also deposited at the Istituto della Carità⁽²¹⁾.

Besides the main text of the *Vite de' Matematici* I have been able to trace manuscript versions of four of the individual lives. One of these is an autograph apparently sent by Baldi to Pinelli in thanks for the use of his library at Padua. This is *Vita di Erone Alessandrino*, now Biblioteca Ambrosiana, Milan, MS D. 332, inf., fols. 103-108 v⁽²²⁾. The lives of *Pitagora*, *Bione Abderita* and *Democrito* contained in Biblioteca Apostolica, Vaticana, MS. Vat. Lat 6909, fols. 1-50 v, 52 and 53-82 v respectively are early copies⁽²³⁾.

2. TRANSLATION OF HERO'S AUTOMATA

Between 1570-75 Baldi was a student of the famous Urbinate mathematician Federico Commandino, who was then editing the *Pneumatica* of Hero and other Greek mathematical texts. It was to complement his master's programme that Baldi began his own translation of the *Automata* of Hero in 1575. Despite the interruption caused by Commandino's death (September 1575), Baldi had finished his version by 1576⁽²⁴⁾. It then lay forgotten for a decade or so, until count Giulio Thiene encouraged Baldi to revise and publish it. Thiene died in October 1588 before the work was published, and so Baldi's *Di Herone Alessandrino degli Automati, ovvero machine se moventi libri due*

(21) Before seeing the manuscripts Bilinski redited the *Vita di Copernico* from the previously printed text of Zaccagnini, as *Najstarszy Zyciorys Mikolaja Kopernika z Roku 1588 Piora Bernardina Baldiego* («Studia Copernicana», IX), Wrocław, 1973, pp. 18-21. In a revised Italian version of this edition Bilinski avails himself of the autograph manuscript text to correct two important mis-readings by Zaccagnini. See B. BILINSKI, *La Vita di Copernico di Bernardino Baldi dell'Anno 1588 alla luce dei ritrovati manoscritti delle Vite dei Matematici* («Accademia Polacca delle Scienze. Biblioteca e Centro di Studi a Roma, Conferenze», 61), Wrocław (1973-74), pp. 20-24.

For criticisms of Bilinski's understanding and use of the evidence in the *Vita di Copernico* see my «Copernicus and Urbino»: Remarks on BERNARDINO BALDI'S, *Vita di Niccolò Copernico (1588)*, in *Isis*, 1974 (in press).

My paper on the rediscovery of the manuscripts and their historiographical significance (*Historians of the Renaissance of Mathematics from Regiomontanus to Baldi*) was read to the Columbia University Seminar on the Renaissance on 20 February 1973.

(22) See KRISTELLER, *Iter*, I, 286. A. RIVOLTA, *Catalogo dei Codici Pinelliani dell'Ambrosiana*, Milan, 1933, pp. 251-53. At fol. 103 the manuscript is inscribed: «Al Sr. G. Vincenzo Pinelli». A seventeenth century *Nota delli Matematici delli quali s'ha proposto a scrivere le vite il Baldi* (Ambrosiana, MS A. 71 inf, fols. 108-109v) lists 93 mathematicians. Among them is an important figure who does not appear in the *Vite* - Francesco Maurolico.

(23) See KRISTELLER, *Iter*, II, 341.

(24) BALDI, *Automati*, 1589, sig. A2, and fol. 41v. Cf. BALDI, *Heronis Ctesibii Belopoeica*, Augsburg, 1616, p. 73. AFFO, *Baldi*, pp. 19-20.

tradotti dal greco, Venice, 1589, now bears a dedication to the Venetian senator Jacomo Contarini instead ⁽²⁵⁾.

MS Ashburnham 1525, in the Biblioteca Mediceo-Laurenziana at Florence, formerly belonged to Libri ⁽²⁶⁾. In the eighteenth century it had been seen in the Biblioteca Albani at Rome by Affò ⁽²⁷⁾. The codex contains Baldi's autograph translation of the *Automata* with diagrams. At fol. 2 there is the autograph note: « È stato ritradotto e mandato fuori da me e donato al Sr. Giacomo Contarino in Venetia ».

I examined this manuscript in 1968.

3. TRANSLATIONS OF HERO'S BELOPOEECA AND PAPPUS, COLLECTIONS, BOOK VIII

MS Latin 10280 in the Bibliothèque Nationale, Paris, bears the stemma of the Albani library (a star and trimount) ⁽²⁸⁾. This codex evidently entered the Bibliothèque Nationale in the nineteenth century, and, although its contents had been seen by Affò at Rome in the previous century, it has since remained unknown to writers on Baldi. Apart from a few title pages in a later hand (fols. 1, 32, 62, 72, 104, 129), MS Latin 10280 is a Baldi holograph ⁽²⁹⁾. I give below a description of the contents (blanks at fols. 1v, 31rv, 32v, 44-56v, 58rv, 61rv, 62v, 69-61v, 72v-73v, 103rv, 104v, 124-128v, 129v, 147v-157v, 166v-175v, 182v, 199-201v, 231v-232v).

(1) Fols. 2-30v. *Heronis Ctesibii Belopoeeca id est Telifactiva Bernardino Baldo G(uastallae) Abbate illustratore et interprete. MDCXII Urbini*. Bald's Latin translation is at fols. 2-17v. At fol. 17v: « Manum versioni admovimus 23 Feb. Confecimus 11 Martii 1612. Bern. Bald. A.D.O.M. laus honor et gloria ». Fols. 18-30v contain Baldi's notes and commentary, completed (fol. 30v) « die 23 Martii 1612 ».

Baldi's translation of the *Belopoeeca*, despite an apparent effort to have it printed at Rome in 1612, was published at Augsburg in 1616 under the aegis of Mark Welser ⁽³⁰⁾. Although the manuscript includes Baldi's Latin version and commentary, it lacks a number of items which appear in the 1616 edition, notably the Greek text, dedication, and *Vita Heronis*.

(25) Facsimile edition with introduction by Renato Teani published at Milan in 1962. See the review by CARLO MACCAGNI, in « *Physis* », 6, 88-91 (1964).

(26) Listed by KRISTELLER, *Iter*, I, 86.

(27) AFFÒ, *Baldi*, pp. 168-69.

(28) For the stemma and other information see PEEBLES, « *Bibliotheca Albana Urbani* », *loc. cit.*. CLOUGH, « *Albani Library* », *loc. cit.*

(29) Cf. AFFÒ, *Baldi*, pp. 187-88, 221-22. Baldi is listed as the author of the codex in the printed inventory.

Other Italian mathematical manuscripts of interest in the Bibliothèque Nationale include an autograph letter of Luca Pacioli; Guidobaldo dal Monte's *Meditatiunculae*; and Commandino's translation of Pappus, book III. See PAUL LAWRENCE ROSE, *Plusieurs Manuscrits autographes de Federico Commandino à la Bibliothèque Nationale de Paris*, in « *Revue d'Histoire des Sciences* », 24, 299-307 (1971).

(30) AFFÒ, *Baldi*, pp. 117, 187. ZACCAGNINI, *Baldi*, p. 325.

According to Baldi, he worked from a Greek manuscript which had been given to him many years before at Padua (1573-75) by the Cretan humanist Manuel Maximos Margunios⁽³¹⁾. (See Affò, *Baldi*, pp. 187-188).

(2) Fols. 33-60v. *Mezo Cilindro Cavo. Instrumento gnomonico il quale serve non solo a conoscer l'hore, ma anco a disegnar gli horologi su la superficie di qual si voglia dato muro. Trovato da Bernardino Baldi da Urbino, Abbate di Guastalla, per fuggir la fatica, e la difficoltà di la fabrica degl'instrumenti che fin qui sono stati trovati et si adoprano.* The text breaks off at fol. 60v. (See Affò, *Baldi*, p. 221).

(3) Fols. 63-66v. *Pratica del fare i corpi regolari chiusi dentro una data sfera di Bernardino Baldi.* Incomplete. (See Affò, *Baldi*, p. 221).

(4) Fols. 67-68v. *De gravium ad centrum latione.* (Theorems on centres of gravity and statics).

(5) Fols. 74-102v. *Epitome deli tre libri de moti oscuri del animo di Antonio Posi da Montalino Minorita conventuale, cavata da Bernardino Baldi Abb. di Guastalla per suo uso.* Incomplete. (See Affò, *Baldi*, pp. 221-222).

(6) Fols. 105-123v. *Moralium Nicomachiorum substantia capitulatim excerpta.* (Affò, *Baldi*, p. 222).

(7) Fols. 130-147v. Miscellaneous geometrical notes, e.g. on finding two mean proportionals. etc.

(8) Fols. 158-166. Treatise on canon law. Incomplete. « Differentia inter canonem, decretum... ».

(9) Fols. 176rv. Rough notes and diagrams on geometry.

(10) Fols. 177-182. Fragments of unidentified treatise on perspective, with a *scholium* at fol. 181. Commandino is mentioned at fol. 182.

(11) Fols. 183-207v. Translation, notes and diagrams of Pappus, book VIII. Fols. 183-202v: *Pappi Alexandrini Collectionum Octavus continet autem mechanica problemata, immixta florida.* Inc. « Cum ad multos et maximos vita usus, Hermodore fili... » (fol. 183). Expl. « Finis translatum (sic) est spatio decem dierum a Bernardino Baldo Urbinati 1578, mense Aprile die 7 » (fol. 202v). Diagrams at fols. 203-204v. Miscellaneous notes on Pappus at fols. 205-207v. (See Affò, *Baldi*, p. 222).

Commandino had virtually finished his translation of Pappus by the time of his death in 1575. However, the last book (VIII) was left in a very rough and un-revised state. This fact, as well as perhaps access to a superior Greek codex unavailable to Commandino, may have encouraged Baldi to undertake his own translation of book VIII in 1578. In any case, it should be remembered that Commandino's translation remained in manuscript, closely guarded by his heirs, for at least a decade after his death. This would have been an additional reason for Baldi's decision to re-translate book VIII on his own account⁽³²⁾.

(12) Fol. 208. *Theorema Guidi Ubaldi e Marchionibus Montis de Speculo.*

(13) Fols. 208v-210v. Excerpts, notes and comments on mechanics.

(14) Fols. 211-227v. Incomplete treatise on conic sections and the analemma.

(31) BALDI, *Belopoeeca* (1616), p. 73. For recent literature on Margunios (1549-1602), who was at Padua circa 1569-77, see DENO J. GEANAKOPOLOS, *Byzantine East and Latin West*, Oxford, 1966, pp. 165-93. G. SCHIRÒ, *Missione Umanistica di Massimo Margunio a Venezia*, in « Venezia e l'Oriente fra Tardo Medioevo e Rinascimento », ed. A. Pertusi, Venice-Florence, 1966, pp. 241-65. P. Enepekides is editing the correspondence of Margunios with a number of European humanists including Frederick Sylburg, Alvise Lollino and Gian Vincenzo Pinelli. For Welser's interest in the library of Margunios see Geanakoplos, « Byzantine East », pp. 180-81.

(32) Baldi's translation is not noted in Marjorie Boyer's bibliography, « Pappus », in *Catalogus Translationum et Commentariorum*, ed. Paul Oskar Kristeller and F. Edward Cranz, Washington, D.C., 1960-71, II, 205-13. Mrs. Boyer will, however, be including the translation in a supplementary note in volume III of the *Catalogus*.

I do not know which Greek text Baldi was working from. A clue, however, is to be found in the variant of the name Εὐρυκίων which appears in Pappus, *Collections*, VIII, proposition 18, in a manuscript seen by Baldi. See NARDUCCI, *Vite Italiane*, « *Bullettino* », 19, 374.

(15) Fols. 228–231. On the nature and philosophy of mathematics. Excerpts from Greek writers.

(16) Fols. 233–251v. *Historica*. Notes on Greek views of mathematics, classical problems of mathematics, etc.

MS Latin 1082 was first examined by me at Paris in June and July 1970.

4. EXPOSITION OF THE ARISTOTELIAN MECHANICA

Baldi's most important scientific work is his *In Mechanica Aristotelis Problemata Exercitationes*, printed posthumously et Mainz in 1621 (with a reported second edition at Venice, 1623)⁽³³⁾. No manuscript of the work is extant, although a seventeenth century exemplar—perhaps the autograph—was in the library of the Accademia la Colombaria at Florence before the Second World War. This codex (MS II, II, I, 14), which was apparently destroyed by bombing⁽³⁴⁾, might have cast some light on the date of composition. Scharlencinus states that Baldi wrote his two (!) *Commentarii* on the *Mechanica* in 1582⁽³⁵⁾. This date, while accepted by some later writers, has been doubted by others on the ground that Baldi's preface mentions researches on statics by Simon Stevin that were not published until 1586⁽³⁶⁾. On the whole it seems likely that Scharlencinus was referring not so much to the finished *Exercitationes* as to two earlier manuscript versions which have since disappeared. Affò describes these as: 1. *Discorsi sopra le Mechaniche d'Aristotele* (in Italian) and 2. *Dissertationes in Mechanica Aristotelis*⁽³⁷⁾. It should in any event be remembered that Baldi was capable of letting a translation lie for several years and then publishing it with a fresh preface, as in the case of his versions of Hero's *Automata*. It is quite possible, therefore, that he did compose his *Exercitationes* in 1582, and added after 1586 his preface with its mention of Stevin.

(33) See PAUL LAWRENCE ROSE and STILLMAN DRAKE, *The Pseudo-Aristotelian « Questions of Mechanics » in Renaissance Culture*, in « Studies in the Renaissance », 18, (1971), 65–104, at pp. 90–92. FR. WILHELM MURHARD, *Bibliotheca Mathematica. Litteratur der mathematischen Wissenschaften*, Leipzig, 1797–1805, III, 6, reports: « 1623. *Sylloge Commentariorum et Exercitationum Bernardini Baldi Urbinatis, quondam Abbatis meritissimi Guastallae, In Questiones Mechanicas Aristotelis, cum proemio Jo. Bertholomaei Lensani, Venetiae, sumptibus Josephi Fernandini, 12°, 38 seiten* ». Murhard marked the item with an asterisk denoting that he had actually seen the book. (He was unsure of a further edition of 1633). The 1623 edition does not appear in Rose and Drake, *loc. cit.*

(34) U. DORINI, *Inventario dell'Archivio e degli altri Manoscritti della Società Colombaria*, in « Atti della Società Colombaria di Firenze », 1910–20, Florence, 1921, offprint, p. 44. KRISTELLER, *Iter*, I, 227. AFFÒ, *Baldi*, p. 189, discussing the *Exercitationes*, does not list the manuscript among the Albani papers.

(35) SCHARLONCINUS, *De Vita*, fol. (7v): « quantum profecisset, ostendunt ij (*sic*) commentarij quos anno 1582 in Aristotelis Mechanica scripsit ».

(36) *Ibidem*, fol (6). DUHEM., *Etudes*, I, 100, accepts 1582, as does ZACCAGNINI, *Baldi*, p. 246. DRAKE, « Baldi », *Dictionary of Scientific Biography*, I, 419; and STILLMAN DRAKE and I. E. DRABKIN, *Mechanics in Sixteenth Century Italy*, Madison, Wisconsin, 1969, p. 50, believe the *Exercitationes* to have been written towards 1590.

(37) AFFÒ, *Baldi*, p. 198.