THE FIRST TRANSLATION OF EUCLID'S ELEMENTS INTO ENGLISH AND ITS SOURCE

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1. Introductory. Note 74 of my recently published *Outline of the History of Mathematics*, sixth edition, January, 1949, was as follows: "The first English edition of EUCLID'S *Elements* was brought out at London in 1570, under the name of Sir HENRY BILLINGSLEY, later sheriff and Lord Mayor of London. (For the small part which BILLINGSLEY may have had to do with the translation see A. DEMORGAN, *British Almanac and Companion for 1837*, pp. 38–39 of *Companion*.) It contained 'a very fruitfull Praeface' by JOHN DEE, a man of great erudition; see W. F. SHENTON, 'The first English Euclid,' AM. MATH. MONTHLY, v. 35, 1928, pp. 505–512."

Not long after my *Outline* was published I discovered that this Note was mortifyingly inadequate in a work professing to present an up-to-date scholarly presentation of known facts in the field treated.

Happening to handle the *Mathematical Gazette*, v. 31, I found in the first number, Feb., 1947, that the frontispiece was a reproduction of the title-page of Billingsley's translation and in the note, "The first English Euclid," on the opposite page, the following sentences occur: "Perhaps because of Dee's notoriety, a good deal of credit for this translation has often been given to him, as for instance by DeMorgan, and also to an Augustinian friar, Whytehead, who appears to have been resident with Billingsley for a time. But, according to Rouse Ball, the copy of the Greek text of Theon's Euclid which Billingsley used, contains notes, comments and emendations in his own hand which make it clear that whatever may have been contributed by Dee and Whytehead the main work was done by Billingsley himself."

I then turned to W. W. R. BALL, *A History of the Study of Mathematics at Cambridge*, Cambridge, 1889, pp. 22–23, where I found the following: "In preparing this [English translation] he had the assistance both of Whytehead and of John Dee. In spite of their somewhat qualified disclaimers, it was formerly supposed that the credit of it was due to them rather than to him, especially as Whytehead, who had fallen into want, seems at the time when it was published to have been living in Billingsley's house. The copy of the Greek text of Theon's Euclid used by Billingsley has however been recently discovered, and is now in Princetown College, America;[1] and it would appear from this that the credit of the work is wholly due to Billingsley himself. The marginal notes are all in his writing, and contain comments on the edition of Adelhard and Campanus from the Arabic and conjectural emendations which shew that his classical scholarship was of a high order."

2. DeMorgan statements. Before indicating what are some of the principal statements of the Halsted Note let us quote portions of DeMorgan statements

[1] In the footnote there is a reference to G. B. HALSTED, "Note on the first English Euclid," *Amer. Jn. Math.*, v. 2, 1878, pp. 46–48.

in the *Companion*. "The principal work of Dee is the translation of Euclid, which appeared with his preface in 1573 [*sic*]. We call it his, though it is universally stated (and by himself* among others) to have been made by Sir Henry Billingsley. Considering that he wrote the preface, the notes, and the translation of the book of Mohammed of Badgad [*sic*] on the division of surfaces, which was published with the second edition; that he had lectured on Euclid in various places, and left behind him MSS. on the subject, and in particular 'Instructions and Annotations upon Euclid's Elements'; considering, also, that the name of Sir H. Billingsley is not mentioned in the preface to his own Euclid; we imagine that the translator was a pupil of Dee, who worked under general, if not special, instructions, and executed the more mechanical part of the undertaking. . . . This translation of Euclid was either made from the Greek, or corrected by the Greek, as is evident from comparing the early Latin versions and the Greek text with it. As there may be some dispute about the degree in which Greek was studied in England at the period of which we write, we shall annex one sentence of comparison, namely, the Greek text of the enunciation of the fourth proposition of the first book, the Latin of Campanus, and the English of Billingsley . . . Latin of Campanus (Editions of 1482, 1491, and 1516)."

Apart from the incorrect date given as the year of publication of Billingsley's Euclid, other inaccuracies may be pointed out.

DeMorgan states that Dee wrote "the Notes" for Billingsley's translation, whereas Dee's only notes are a few in connection with Books X–XIII of the *Elements*. Indeed, Dee in his autobiographical tracts distinctly states that, besides the introduction, he only contributed 'divers and many Annotations and Inventions mathematicall added in sundry places of the aforesaid English Euclide after the tenth booke of the same' (*Miscellanies of Chetham Soc.*, v. 1, no. 5, 1851, p. 73; also *Remains*, v. 24). The complete list of references for Dee's notes is folios 255 *verso*, 306, 311 *recto*, book X; 325 *verso*–326, 329 *verso*, 337 *recto*, 346–347, 348 *verso*, 349, 352, book XI; 356 *verso*–357, 359–362, 371, 376, 380, 381 *verso*, book XII; 391–394 *recto*, 395, 397 *verso*, book XIII.

DeMorgan states that Dee wrote "the translation of the book of Mohammed of Bagdad," whereas he merely published a Latin manuscript which he had in his library; see R. C. ARCHIBALD, *Euclid's Book on Division of Figures*, Cambridge, 1915.

DeMorgan writes "considering . . . that the name of Sir H. Billingsley is not mentioned in the preface to his own Euclid." Why should it be when his name as translator is on the title page and each of the immediately following pages of the preface is headed: "The Translator to the Reader"?

DeMorgan wrote: "As there may be some dispute about the degree in which Greek was studied in England at the period of which we write . . . , " and he then quotes from a Greek edition of Euclid of 1703, 133 years later!

DeMorgan refers to a second edition of Billingsley's work; it will presently appear that there was no such edition.

* In the list of his works, in his apologetical letter to the Archbishop of Canterbury.

DeMorgan states: "This translation [Billingsley's] was made from the Greek, or corrected by the Greek." It will presently appear that the translation was made from the Latin.

DeMorgan cites Campanus Latin editions of Euclid to fortify his argument. Since Billingsley used an entirely different Latin edition, based on translations from both the Greek and Arabic, the whole argument of DeMorgan falls to pieces.

3. Halsted. It was ~~Professor~~ Doctor Halsted who, 71 years ago, apparently first made known in print (at the reference given above) that the volume or volumes of which Billingsley made use, in preparing his English Euclid, were located in the library of Princeton University. Halsted concludes his article as follows: "By reading what he has done, it immediately appears that . . . the corrections he has actually made sufficiently prove his scholarship and render entirely unnecessary DeMorgan's suppositious aid from Dr. Dee, while, on the other hand, they establish the conclusion about the translation to which DeMorgan's sagacity had led him, that 'It was certainly made from the Greek, and not from any of the Arabico-Latin versions'."

"To the one sentence of comparison in proof of this published by DeMorgan, Billingsley's autograph indications would enable me to add as many as any one desired, but suffice it to say, that the definitions of the Eleventh Book are alone entirely decisive."

That these statements are wholly unreliable shall presently appear.

4. Sidney Lee. In Lee's biography of Billingsley in the *Dictionary of National Biography* (*DNB*) the following erroneous statement occurs: "His original was the Latin version attributed to Campanus, which had been first printed in 1482, and again in 1509."

5. John Aubrey. In Aubrey's famous *Brief Lives, edited from the Original Manuscripts and with an Introduction* by O. L. DICK, London, 1949, p. 89, we find in the biographical notes on John Dee, "His Picture in a wooden cutt is at the end of Billingsley's *Euclid.*" This erroneous statement is also made in the *DNB* biography of Dee, 1888. Professor Shenton has well pointed out that this portrait is of John Day, the printer of Billingsley's volume. See J. JOHNSON, *Typographia*, v. 1, London, 1824, p. 540, where it is stated that, this woodcut bearing the date 1562, is a portrait of Day and "perhaps the earliest of an ancient printer, which can be depended upon as genuine." See also J. AMES, *Typographical Antiquities*, v. 1, London, 1785, p. 647.

6. The Billingsley volumes. The Librarian of Princeton University most graciously allowed these precious volumes to be sent to Brown University for my use.

Before describing one of these volumes it seems desirable to correct many prominent writers concerning the first Latin translation of Euclid's Elements, which was made from the Arabic, about 1120, by an Englishman, ADELHARD (or

Athelhard or Aethelhard) of Bath.† Many historians state that CAMPANO (usually called CAMPANUS) of Novarra, a mathematician, astronomer and medical man, made the first translation of Euclid's Elements from the Arabic and that his manuscript was published at Venice in 1482. This translation, made 150 years after that of Adelhard, was not independent of the first translation. The definitions, postulates and axioms, and the 364 enunciations are word for word identical in Adelhard and Campanus. . . . Campanus may have used Adelhard's translation and only developed the proofs by means of another redaction of the Arabian Euclid. . . . It seems most probable that Campanus stood to Adelhard somewhat in the relation of a commentator, altering and improving his translation by means of other Arabic originals. (Quoted from T. L. Heath, *A History of Greek Mathematics*, v. 1, Oxford, 1921, p. 362–364.) It is interesting that this same point of view is expressed in *Enciclopedia Italiana*, v. 1, 1929, article "Adelardo."

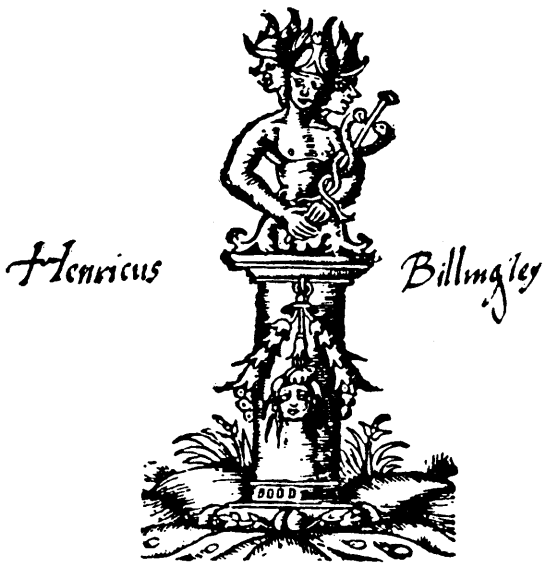
The first translation of Euclid's Elements from the Greek (a Theonine ms.) into Latin was made (after 7 years of labor) by BARTOLOMEO ZAMBERTI (b. 1473), and published at Venice in 1505. His animus against Adelhard-Campanus appears in a number of notes. The first printed edition of the Greek text was brought out at Basle (I. Hervagius, printer) by SIMON GRYNAEUS (d. 1541) in 1533. Combined with this 268-page work is a separately paged (115 pp.) PROCLUS commentary, in Greek, on the first book of Euclid's *Elements*.

The first of the editions giving Adelhard-Campanus's and Zamberti's translations in conjunction was brought out at Paris in 1516. (I now quote from Heath's edition of Euclid.) "The idea that only the enunciations were Euclid's, and that Campanus was the author of the proofs in his edition, while Theon was the author of the proofs in the Greek text, reappears in the title of this edition; and the enunciations of the added Books XIV, XV, are also attributed to Euclid, HYPSICLES being credited with the proofs. . . . The arrangement of the propositions is as follows: first the enunciation with the heading *Euclides ex Campano*, then the proof with the note *Campanus*, and after that *Campani additio*, any passage found in the edition of Athelhard-Campanus's translation but not in the Greek text; then follows the text of the enunciations translated from the Greek with the heading *Euclides ex Zamberto*, and lastly the proof headed *Theo ex Zamberto*. There are separate figures for the two proofs. This edition was reissued with few changes in 1537 and 1546 at Basel (*apud Iohannem Hervagium*), but with the addition of the *Phaenomena*, *Optica*, *Catoptrica*, *etc.*"

Of this 1546 edition there was (according to RICCARDI) an "unauthorized" edition of 1558. It is a copy of this volume, owned by Billingsley and filled with manuscript notes, which was basic in preparing the manuscript for his English Euclid.

† There is a brief sketch of Adelhard by R. ADAMSON in *Dict. Nat. Biog.*, v. 1, 1885. There is also the comparatively recent full-length biography: F. BLIEMETZRIEDER, *Adelhard von Bath. Blätter aus dem Leben eines englischen Naturphilosophen des 12. Jahrhunderts und Bahnbrechers einer Wiedereweckung* der griechischen Antike. *Eine kulturgeschichtliche Studie*. Munich, 1935, viii, 395 p.

The title of this volume is as follows: *Evclidis Mega- | rensis mathematici clarissimi | Elementorum geometrico- | rum libri XV. | Cum expositione Theonis in priores XIII à Bartholomaeo | Zamberto Veneto latinitate donata, Campani in | omnes, & Hypsiclis Alexandrini in du- | os postremos. | His adiecta sunt Phaenomena, Catoptrica & Optica, | deinde Protheoria Marini, & Data. | Postremùm uerò, Opusculum de Leui & Ponderoso, | hactenus non uisum, eiusdem autoris.* | [design reproduced in this article, in the illustration with the autograph, "Henricus Billingsley."] Cum priuilegio Caesareo. | Basileae, Per Ioannem Her- | uagium, & Bernhardum Brand, Anno | M.D. LVIII. It contains 537 folio pages. The six-page preface by Philip Melanchthon is dated Wittenberg, August, 1537.



Cum priuilegio Cæſareo.

BASILEAE, PER IOANNEM HER-
uagium, & Bernhardum Brand, Anno
M. D. LVIII.

There are many notes in margins evidently written by the person whose autograph is on the title page. At some time since the volume was originally used by Billingsley it has been rudely trimmed, probably when bound with another volume; in this way many of the manuscript notes are badly mutilated.

The other volume bound with the 1558 work is the 1533 Greek *editio princeps* to which we referred above. That this volume was also briefly used by Billingsley at some time is shown by slight manuscript notes in his handwriting, on pages 5–9, in connection with propositions 6–8, 13, 17, of the first book of the Elements. All the other 374 pages of the volume seem to be as clean as when they first came from the printer. The manuscript notes are of no importance. Hence further consideration of Billingsley's Greek edition of Euclid's *Elements* may be omitted. We shall presently report in some detail on his Latin edition.

7. Princeton and the 1558 volume. When or whence this most interesting volume became the property of Princeton University or Princeton College or the New Jersey College is unknown, but it would seem as if the Greek volume at least might have been in the College library for 135 years or more; for, on the fly leaf is: "Editio Princeps. Rare & Dear. P.L.," written doubtless by Dr. Philip Lindsley, Librarian in the College from 1812 to 1824. Hence since this Librarian knew the cost of the volume it may well have been acquired during his period of office. Lindsley's ms. Catalogue of books in the College Library (made in 1821) includes this volume. Assuming that the two Billingsley volumes were bound together at this time, and assuming further that the volume had been acquired even in 1812, Halsted's statement in 1879 that Princeton had the volume "for nearly a century, perhaps longer" is not by any means checked. The librarian of today has no such information. The Lindsley Catalogue makes no reference to the 1558 volume.

The present binding of the volume was put on in 1923. There is reason to surmise first, that the binding (of the two volumes in one, bound together previous to this date), had become so unsatisfactory, it was then replaced; secondly, that no trimming of the edges then occurred. The present accession number in the volume was given in 1892.

Whether or not Halsted was the first to discover (in print) the special interest of the volume because of Billingsley's signature is uncertain. On the inside cover of the new binding is pasted an anonymous undated, and unidentified periodical clipping, entitled "An archaeological treasure," which reveals the facts. The initials "J.T.D." are added in ink at the end of the clipping. It has been surmised that these initials probably refer to JOHN T. DUFFIELD (d. 1901) who was at Princeton a tutor in Greek (1845–47), and a member of the mathematics department (1847–98). One sentence of the article is: "It has been in the Library for at least half a century, but the fact that it at one time belonged to the first translator of Euclid into English does not seem to have been known until a few years ago."

8. The manuscript notes in the 1558 volume. The notes commence with the correction of a single Greek letter in Zamberti's discussion of book I, proposition 9 of the *Elements*, on page 14, and end with more than a dozen corrections of the text in proposition 9 of the *Phaenomena* on page 491. In the *Elements*, books

I–XV, there are notes on 256 pages, 21 of these being on the Adelhard-Campanus text, and 235 on material in Zamberti's Latin translation from the Greek. Hence there was a slight show of reason for scholars surmising that Billingsley's translation was from a Greek original, although in reality it was from a Latin translation of a Greek source.

The notes consist, practically wholly, of corrected misprints in letters, words, phrases, of deletions, phrase and word substitutions, additions of letter to figures,—such as every careful student would ordinarily make. All of these notes occur in connection with propositions. The only commentary on a definition is where, in book XI, the omission of a definition of a tetrahedron is noted; this makes the last sentence quoted above from Halsted appear as a decided mental lapse. Not a single note is concerned with setting forth original supplementary ideas. All of these were reserved for record in the so-called "translation," consideration of which, with reference to the Latin original, we shall now take up.

9. The 1558 and 1570 volumes. The title-page of Billingsley's work is reproduced in facsimile in Professor Shenton's interesting article referred to above [as well as in the *Mathematical Gazette*], and the Billingsley preface is quoted in full. The plan "to translate, and set abroad some other good authors, both pertaining to religion (as partly I have already done) and also pertaining to the Mathematicall Artes," referred to in the concluding lines of the preface, was never carried out, according to Lee, in *DNB*.

The preface is immediately followed by a large John Dee folding plate, of size 34.7×41.6 cm. in the Brown Univ. copy, "the Groundplat of my Mathematicall Preface"; this Preface occupies the next 46 pages. Then follow 464 folios 928 pages of a finely printed English edition of the *Elements* with beautifully designed initial letters throughout. The large D, at the beginning of Dee's "fruitfull Praeface" seems to contain his coat of arms.

The Billingsley volume is by no means merely a translation of parts of the 1558, but as the title page states: "Whereunto are annexed certaine Scholies, Annotations, and Inuentions, of the best Mathematiciens, both of time past, and in this our age." For example, the writings of the following authors are quoted: Apollonius, Archimedes, Barlaam, Boetius, Campanus, Dee, Eudoxus, Flussates, Hypsicles, Jordanus Nemorarius, Montaureus, Oenopides, Orontius, Pappus, Pelitarius, Plato, Proclus, Pythagoras, Regiomontanus, Sceubelius, Thales, Theodosius, Timeus. Thus in this single volume was brought together all the earlier and current commentary of importance. The print and appearance of the work was also worthy of its contents, and no pains were spared to represent everything in the clearest and most perfect form—a truly monumental work.

It is noticeable that the names of Theon and Zamberti are not included in the list of authors given above. But the explanation of this is that the Theon-Zamberti text was the one translated as fundamental—the one to which other

discussions were added. Thus the true Greek phrases, which DeMorgan noted, were preserved. Just this procedure would also be expected from the mass of manuscript corrections of the Theon-Zamberti text in the 1558 volume.

10. Authenticity of the Billingsley volumes. In order to check that the autograph and notes were actually in the handwriting of the former Lord Mayor of London, I procured from the British Museum photostat copies of two letters written by the Lord Mayor in 1587 and 1591 [Landsdowne Mss. 62, f. 41 and 67, f. 213]. The comparison of the notes with the writing of these letters was conclusive in showing that they were written by the same person.

11. Euclid Editions by Billingsley 1570, and Leeke & Serle 1661. In the passage by DeMorgan which we quoted above from the *Companion* he refers by indirection to the following work as a "second edition" of that by Billingsley: Euclid's | Elements | of | Geometry. | In XV. Books: | With a supplement of divers *Propositions* | and Corollaries. | To which is added, a *Treatise* of Regular Solids, | By *Campane* and *Flussas*. | Likewise | Euclid's Data: | And Marinus his Preface | thereto annexed. | *Also a* Treatise *of the* Divisions *of* Superficies *ascribed to* | Machomet Bagdedine, *but published* by Commandine, *at the* | *request of* John Dee *of* London; whose Preface *to the said* Treatise | *declares it to be the* Worke of Euclide, | *the* Author *of these* Elements. | Published by the Care and Industry of | John Leeke and George Serle, students | in the *Mathematicks*. | *London:* | Printed by R. & W. Leybourn, for George | Sawbridge at the *Bible* upon *Ludgate-hill*, *MDCLXI*. [44 p.+folding plate+6 p.]+650 p.+1 p., Errata.

Although this title-page refers to "XV Books" of the *Elements* the authors give "The sixteenth Element of Euclide," pages 490–522. This last page concludes with "*The End of the Sixteenth Element of* Euclide, *added by* Flussas." These books are practically identical in the two volumes. In each case this sixteenth book is followed by "A brief treatise added by Flussas" (folio verso 458–folio recto 463 in Billingsley, with which the volume concludes except for errata and colophon), (pp. 523–532 in Leeke & Serle).

The brief treatise of Flussas here quoted was from the edition of the *Elements* published at Paris in 1566, by Franciscus Flussates Candalla (François de Foix, Comte de Candale, 1502–1594). Two of the figures given here, showing how two Archimedean semiregular solids $P_2 \equiv (8_3, 6_4)$, $P_7 \equiv (20_3, 12_5)$, may be obtained by folding two pieces of appropriately cut paper are of special interest. On folios 320 *verso*–322 *verso* of Billingsley, similar figures are indicated for the five regular solids, but these do not appear in Leeke & Serle. Are these the earliest presentations of such figures? The answer to this question is in the negative. All of these figures and more of the Archimedean semi-regular solids were pictured by ALBRECHT DÜRER in his *Anderweysung der Messung mit dem Zirckel und richtscheyt in Linien, ebenen und gantzen Corporen*, Nürnberg, 1525, in the fourth book on regular bodies. See MAX STECK, *Dürers Gestaltlehre der Mathematik und der bildenden Künste*. Halle, 1948, pp. 64–74.

The first part of the Leeke & Serle volume (L. & S.) contains a dedication (2 p.); Dee's preface as in Billingsley (42 p.+folding plate); "To the Reader" (3 p.); "An account of the author according to ancient philosophers" (3 p.). Then begins the presentation of the Elements.

In the Billingsley volume (B.) each of the 16 books was preceded by an introduction and statement and discussion of definitions. In Books 2, 8, 9, L. & S. has no introductions or definitions and in the case of most of the other books these parts were appreciably shorter; in every case but for Book 12 the forms of statements were quite different. In exceptional manner L. & S. discussion of definitions in Book 1 extends to 17 p. as against 12 in B.

In Book 2, B. gave in connection with each proposition the numerical commentary of Barlaam the 14th century monk (later an abbot and a bishop) edited with Latin translation by Dasypodius in 1564. L. & S. put all of this Barlaam exemplification at the end of their Book 2.

The three kinds of lines in figures throughout L. & S. are explained as follows: "the greater black lines stand for, and denote the Data, or things given, the lesser black lines the things required, and the pricked lines serve for the Constructions and Demonstration; the like method is also observed in the Circular lines given and required." It is further stated in "To the Reader": "that the explications of the things given and required, are comprehended in the words of the Proposition, by means of the correspondent letters relating to the several parts of the Schemes, in such sort, as the Propositions may be read with them, or without them, and so by this means the Demonstrations are much abbreviated." Such editing is of course wholly foreign to Greek form.

The wording of proofs in L. & S. and B. are usually entirely different. L. & S. practically never give any secondary discussions of proofs.

Summing up, we may say that it is wholly improper to state, as DeMorgan does, that the L. & S. volume is a second edition of B. It is simply an independent, and inferior, edition of the *Elements* in the preparation of which L. &. S.—the obscure "students in Mathematicks"—perhaps consulted B. constantly.

The remaining two works of L. & S., not in B. are the first English editions of: (a) Euclid's *Data* (pages 533–600, pages 533–539 being "A commentary or Preface written by the Philosopher Marinus); and (b) *A Book of Divisions of Superficies*, ascribed to Machomet Bagdedine. This book, pp. 601–650, has a special title-page dated 1660. This work was translated from the Latin edition of 1570 published by Dee & Commandinus.

Two other English editions of the *Data* were in editions of Euclid's Elements published by ROBERT SIMSON (1687–1768), Glasgow, 1756, and by THOMAS HASELDEN, in an edition of ISAAC BARROW (1630–1677), London, 1732. Of each of these works there were many other editions.

To the list of Corrigenda for my *Outline of the History of Mathematics*, sixth edition, noted in this MONTHLY, v. 56, Aug.–Sept. 1949, the following may now be added:

P. 13, line 22, *for* 2β as, *read* an

P. 13, line 23, *for* Diophantine equation, *read* Diophantine quadratic equation

P. 33, line 7, for CAMPANUS, read ADELHARD-CAMPANUS

P. 38, line 28, *add:* And in his *Traité du Triangle Arithmetique*, 1665, is a good statement of the method of mathematical induction

P. 59, line 28, *for* 303, *read* 302

P. 61, note 46b, line 3, *for* 1932, *read* 1944, and *for* TAER, *read* THAER

P. 64, note 75, line 2, *for* earliest mathematical, *read* earliest Greek mathematical

P. 71, note 123, line 4, *interchange the values of x and y*

P. 82, note 201, line 9, *for* Levi S. Smith, *read* Levi B. Smith

P. 88, line 4, for MALMKE, *read* MAHNKE

P. 90, note 238, line 3, *delete* Z.d.

P. 94, note 259, *for* 1948, *read* 1918

P. 98, line 1, *for Suppl. Revue, read Suppl. Elemente d. Mathematik*, or *Revue*

P. 104, *after* Adelard of Bath (12th cent.), *add* 33,

P. 107, *for* Erastosthenes, *read* Eratosthenes

P. 110, *for* Malmke, *read* Mahnke, *and put after* Magowan

P. 113, *for* Smith, L. S., *read* Smith, L. B., and *for* TAER [46b], *read* THAER [46, b] *and put after* Terquem.

In the Index the following dates of death may be added: Engebach, 1946; Nunn, 1944; Ruska, 1949; Simons, 1949; J. W. A. Young, 1948.

To note 208 the following paragraph may be added:

In June 1915 Dr. GEORGE A. PLIMPTON presented to, and installed in, the Delta Kappa Epsilon House at Amherst College a portrait of Sir Isaac Newton, and a fireplace made of wood and bricks taken from the Newton residence referred to above as supplying the Babson Institute "foreparlor." The Amherst Newtoniana are now in the library of the Fraternity House, and a view of them is given on the last page of *Memorial Rooms at Amherst College*, 1937.

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Reprinted from the AMERICAN MATHEMATICAL MONTHLY
Vol. LVII, No. 7, August-September, 1950