CHICAGO LITERARY PAPYRI

BY

EDGAR J. GOODSPEED

ASSISTANT PROFESSOR OF BIBLICAL AND PATRISTIC GREEK
IN THE UNIVERSITY OF CHICAGO

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THE AYER PAPYRUS (III)

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TO

MRS. JOSEPH BOND

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INTRODUCTION

Among the Chicago papyri which have been published in the course of the past ten years are some literary pieces of value which seem to merit republication in collected form. This is especially desirable because they were first published scattered through journals, American and English, so that they are not now easily available for the textual and literary studies to which they are related. It seems advisable therefore to collect and revise these first publications of them, and present them as a group, unmixed with non-literary material. Nos. II, III, IV, VI, VII, of the present collection have already been published, with somewhat full discussions: No. II in the *Journal of Hellenic Studies*, XXIII (1903); Nos. III, IV, and VI in the *American Journal of Philology*, XIX (1898), XXIV (1903), and XXI (1900); and No. VII in the *American Journal of Archaeology*, Second Series, II (1898). No. V was described in *Classical Philology*, I (1906). To the editors of these journals the writer's thanks are due for their courteous permission to republish. To the scholars who have aided in the work upon these texts the writer's obligations are recognized in the several discussions, but his especial thanks here as often before are due Drs. Grenfell and Hunt.

Not all of the following texts, however, are republications. No. I, a fragment of the oration of Isocrates "To Nicocles," has not previously been published or described. With the exception of the third, the Ayer Papyrus, which belongs to the Field Museum, the papyri are in the collection of the editor. The Ayer Papyrus was purchased in Cairo by Mr. Ed. E. Ayer, of Chicago, about 1895. It afterward lay for a year in the Gizeh Museum, and was then brought by Mr. Ayer to Chicago and presented to the Field Museum, where it now lies. The papyri belonging to the writer fall in two groups. Nos. I, IV, V, and VII formed part of a considerable purchase of papyri made through friends in Egypt in 1897. There is good reason for believing that all these came from Kôm Ushîm, the ancient Karanis, in the Fayûm.

More than one hundred documentary pieces from this group have now been published, chiefly in the first instalment of papyri from Karanis, while less than half that number, for the most part very fragmentary, still await publication. The other group, said to have come from Ashmunên, was bought in Cairo in 1900. Of the thirteen pieces composing this group, eleven belong to the Alexandrian hexameter poem, No. II; one supplies the text of part of *Iliad* E, No. VI; and one preserves part of a private letter, which has been published elsewhere. The papyri of these groups thus far published are listed in the Appendix.

I. ISOCRATES, *TO NICOCLES*, 9–11

E. J. G. 103.   Third Century A. D.   16 × 4. 2 cm.   From Kôm Ushîm.

The papyrus is inscribed on the recto with parts of thirty lines
from Isocrates' oration *To Nicocles*, in a hand probably of the
third century.   The hand is bold and clear, the letters well formed
but not elegant, and somewhat sloping.   The *o* is small and round,
and stands high in the line.   The *a* is much like that of the Ayer
Papyrus (Plate I, frontispiece).   The verso is blank.   The papy-
rus shows some punctuation, the low point appearing in ll. 7 and
15, and the high point in l. 10.   Itacisms appeaf in ll. 12, φρονει
[μωτερον], and 13, δ]ειακει[σονται.   The text restored below is
from the edition of Drerup, but the lower part of the papyrus is
so broken that the identification of some lines, 20–22, 27–29, is in
doubt.   The earlier lines are quite clear, however, and conditions
of space in them show that the text of the papyrus differed
importantly from that of Drerup; thus in l. 11 there is not room
for the long reading μὴ ῥαθυμεῖν μηδ' ἀμελεῖ]ν.   In l. 9 Drerup has
περὶ τηλικούτων where the papyrus reads περὶ τού[των.   In the open-
ing lines, too, the papyrus manifestly agrees with the vulgate order,
τὰ καθ' ἑκάστην ἡμέραν συμπίπτοντα, against the reading of Blass
and Drerup, τὰ συμπίπτοντα κατὰ τὴν ἡμέραν ἑκάστην.   For
the identification of the fragment I am indebted to my friend
Martin Sprengling, Fellow in the University of Chicago, following
out a hint given us by Dr. Grenfell, who upon seeing the papyrus
at once referred us to Isocrates or Demosthenes.

Other papyri of Isocrates, to the number of ten, appear among
the London, Vienna, Berlin, Oxyrhynchus, Amherst, and other
papyri, and are discussed by Drerup in the introduction to his
text of Isocrates, pp. iv–viii.   Since that publication, however,
Drs. Grenfell and Hunt have published one of the longest of the
Isocrates papyri, Oxyrhynchus 844, a second-century roll pre-
serving a large part of the *Panegyricus*, chaps. 19–116, though
with considerable lacunae.

3

Of the oration *To Nicocles*, Papyrus Rainer 532, of the fourth century, preserves a small fragment, but the great papyrus witness to the text of that oration is the Marseilles papyrus assigned by Kenyon to the third or fourth century, and preserving the greater part of the oration, from the beginning to chap. 30. This includes the passage covered by the present fragment, and a comparison of the two papyrus texts is thus made possible.

Some lines are probably gone from the top of the column.

μεγαλην εκ] μ[ικρας
ποιησαι τα γα]ρ αλ[λα
τα καθ εκαστ]ην ημε
ραν συμ]πιπτοντα
5　　　τουτων εν]εκα πρακτεον
εστιν και μη]ν εκει
νο γε φανερ]ον· οτι
δει τους ταυτ]α δυνη
σομενους κα]ι περι του
10　　των βουλευ]ομενους.
μη ραθυμει]ν αλλα σ
κοπειν οπω]ς φρονει
μωτερον δ]ειακει
σονται των αλ]λων· δ[ε
15　　δεικται γαρ οτ]ι τοια[υ
τας τας βασιλει]ας εξο[υ
σιν οιας περ α]ν τας [εαυ
των γνωμας π]αρα[σκευα
σωσιν ωσ]τ ουδ[ενι των
20　　ασκητ]ων ο[υτω προσ
ηκει το] σω[μα γυμ
ναζειν ω]ς τ[οις βασ
ιλευσι τη]ν ψυχ[ην την
εαυτων α]πασαι γ[αρ αι
25　　πανηγυρει]ς ο[υδεν μερ
ος τιθεα]σι τ[ουτων
των αθλ]ων [περι ων υ
μεις καθ ε]κα[στην

αγωνιζεσ]θε [την ημ
30   εραν ων ενθ]υμ[ουμεν

. . . .

The papyrus breaks off at this point.

The witnesses of most interest for comparison are Papyrus Massiliensis (Pap. Mas.), saec. iii–iv (al. i–ii); Codex Urbinas 111 (Γ), saec. ix–x; Codex Vaticanus 65 (Λ), saec. xi; Codex Parisinus 2932 (Π), saec. xv. Of these Urbinas is rated best.

3, 4: τὰ συμπίπτοντα κατὰ τὴν ἡμέραν ἑκάστην, Drerup. ΛΠ read: καθ' ἡμέραν ἑκάστην συμπίπτοντα.

9: τούτων is read by Λ and the Marseilles papyrus; τηλικούτων, Drerup.

10: βουλευ]ομένους with Drerup. Perhaps βουλευσ]ομένους should be read, with ΛΠ.

11: μὴ ῥαθυμεῖν μηδ' ἀμελεῖν, Drerup. In omitting μηδ' ἀμελεῖν the papyrus has the support of ΛΠ and the Marseilles papyrus.

16: τὰς βασιλείας ἕξουσιν with Drerup, Γ Pap. Mas.; ἕξουσι τὰς βασιλείας, ΛΠ, the vulgate.

17: Drerup omits περ, but considerations of space indicate that it stood in the papyrus, as it does in ΛΠ Pap. Mas. and the vulgate. ἑαυτῶν, Drerup; ΛΠ, αὐτῶν.

20: Whether the papyrus had ἀσκητῶν, with Drerup, or ἀθλητῶν with ΛΠ Pap. Mas. and the vulgate cannot be determined.

22: βασιλεῦσι, with Γ (first hand), ΛΠ, the vulgate, and Drerup, seems to be required by conditions of space, against βασιλεύουσιν, Γ marg.

24: ἑαυτῶν δοκιμάζιν is read by Pap. Mas., but not by our text, which agrees with Drerup.

27: ἀθλητῶν, Pap. Mas., cannot have stood in the papyrus, as the conditions of space show. περὶ read by Drerup; Π and the vulgate have ὑπὲρ. Either may have stood in the papyrus.

28, 29, 30: Γ reads καθ' ἑκάστην τὴν ἡμέραν ἀγωνίζεσθε; Pap. Mas. reads ἀγωνίζεσθαι καθ' ἑκάστην ἡμέραν. The papyrus probably agrees with Drerup, but even the few letters preserved are here doubtful.

30: Pap. Mas. reads ἐνθυμουμένοις; Drerup, ἐνθυμούμενον. The papyrus breaks off before the decisive syllable.

II. ALEXANDRIAN HEXAMETERS

The recto of the papyrus is covered with a series of late second-century accounts in two, or possibly three, rapid cursive hands. The verso of this old account roll—which seems to consist of little more than lists of names followed by amounts in arourae and artabae, and was perhaps a register of land, with the amounts of produce chargeable upon it for rent or taxes—was afterward used for a hexameter poem. The question arises whether the papyrus of hexameters was not a copy made by someone for his own use, rather than a copy made for sale. Mr. Kenyon has been disposed to maintain that works written on the verso of old accounts were always personal copies, not copies for sale. But Drs. Grenfell and Hunt have pointed out that their fine copy of thirty columns of *Iliad* E, a manuscript very well written and apparently designed for sale, occupies the verso of the "Petition of Dionysia to the Praefect" (*Oxyrhynchus Papyri*, II, p. 96). Literary papyri more recently discovered supply additional evidence that such copies on the verso of older rolls were not unusual, and were intended for sale, doubtless at low prices.

Of the eleven fragments, the largest are *B* (45.5 × 16.2 cm.) containing columns ii–v; *C* (14.7 × 21.7 cm.) containing columns vi–vii; and *A* (10.3 × 21.5 cm.) containing column i. The order of cursive hands on the recto suggests this placing of column i, although other columns may have intervened between it and column ii and between columns ii–v and column vi. The fragments designated ix, x, xi seem certainly to belong after column viii, but in what order cannot be determined, and the little fragments xii and xiii, which I have been unable to fit in anywhere, are added by themselves, for the sake of completeness.

The hand is a peculiar one. It is uncial, careful and square,

but inelegant. *a* is in the late, almost cursive, form. χ is hardly
larger than other letters. ρ is short, not going below the line,
while φ has a long vertical. But ε is the distinctive letter of the
hand, having the form ℨ. The writing is in columns of twenty-
six or twenty-seven lines. There are no accents, unless a possible
acute on]ερωτατα, vi. 13, be admitted. Breathings, marks of
quantity, scholia, and critical marks are lacking. The dative ι
adscript is not written. There are a few instances of punctuation,
some lines being followed by a high, middle, or low point. Several
short lines are followed by a crooked dash, to fill up the space and
relieve the inequality at the right margin of the column.

The orthography of the fragments constitutes their most inter-
esting feature. ἄνγελον for ἄγγελον, ix. 8, χαρίζι for χαρίζει, iii. 13,
τουτον for τούτων, φοιλα for φῦλα, vi. 13, of course hardly require
mention. A more striking feature is the doubling of ι in such
words as παρήμιον, iii. 6, and ἱιερός, iv. 1; vi. 10. This doubling
occurs, Professor Blass kindly informed me, in Cyprian, Attic
(THIIOI), and Pamphylian (ΑΔΡΙΙΩΝΑ) inscriptions, but I am
not aware of any other instances of such spellings in papyri.
. ιλοκξε, iv. 4, is paralleled in ἐκξουσίαν, *Oxyrhynchus Papyri*, ii.
p. 228, l. 18, in a papyrus dated A. D. 23, and is, moreover, corrected
from κξ to κσ. The alternative semi-resolution of ξ to ξσ appears
in ὑπερεξσοχ[i. 25.

In orthography the papyrus presents a further point of resem-
blance to the inscriptions. Before σθ, σμ, σπ, στ, an additional
σ is inserted. Meisterhans in his *Grammatik der attischen In-
schriften* has collected instances of σ doubled before κ from Attic
inscriptions of the classical and Macedonian periods, of the second
century B.C., and of imperial times: Ἀσσκληπιός, Διοσσκουρίδης,
Φρυνίσσκος. Again, σ is doubled before χ in an inscription of the
fifth century B.C.: Αἰσσχύλος; and very often before τ in inscrip-
tions of the old Attic time, of the fifth, fourth, and third centuries,
and of imperial times: ἐσστίν, χρησστή, Ἀρίσστων, Κάσστωρ, Νέσ-
στωρ, εἰσς Τένεδον, εἰσς τήν, εἰσς τό (Meisterhans, *op. cit.*, p. 69).
Similar instances occur in inscriptions from Ozolian Locris of the
fifth century B.C. (Roberts, *Introduction to Greek Epigraphy*,
Nos. 231, 232), and in Macedonian inscriptions from Pella, dated

A.D. 46, cf. Burton, "The Politarchs" (*Am. Jour. Theology*, II, p. 611). Of instances of σστ, the papyrus gives the following: περισστη[i. 21, ασστ[εροεντι] i. 23,]ισστοις ii. 4, ασστραπττουσα iii. 1, γαμοσστολε iii. 5, μυροβοσστρυοεντος iii. 9, αρισστεας vi. 12, πολυσσταφυλ[vi. 25, αγνωσστο[vi. 26. Of instances of σσθ, we find πολυσσθενε ii. 11; of σσπ, συσσπορα vi. 2; of σσμ, κοσσμον iv. 9; of κκτ, νυκκτ[vii. 4; of πττ, ιπττπαται iii. 10. Μοκχθοις iv. 11, επι κχθονι vi. 16, μοκχθουσα xi. 7, and οπφθαλμοισ[ι ix. 3, and οπφθαλμοισιν x. 5, are analogous spellings. Midway between this insertion of the smooth mute before the smooth, and the smooth mute before the rough, falls τετακγμένοι x. 6, in which the smooth is inserted before the middle palatal. Some similar instances, as of κχ for χ, and of doubled σ, are noted in Crönert, *Memoria Gr. Herculanensis*, pp. 89, 93, and in Mayser, *Grammatik der griechischen Papyri in Ptolem. Zeit*, pp. 210–20, but as a whole, this series of spellings seems to have no parallel among papyri, or other Greek manuscripts, and constitutes the distinctive feature of these fragments. Professor Blass suggested that this system of spelling may have been the work of a grammarian of the Alexandrian period or later.

Of the poem to which these hexameters belong, the fragments unfortunately preserve few complete lines and no complete sentence. The halting meter of some verses suggests a late date for the work, and the vocabulary occasionally recalls expressions in Theocritus and the anthologies. The poem was doubtless a work of the Alexandrian school, perhaps of the third century B.C., the reference to the Ptolemaean Arsinoe, i. 5, suggesting the *terminus a quo*. Dr. Schubart, who has cleared up several points in the text, suggests that the poem relates to the marriage of Arsinoe and Philadelphus, since the gods are introduced in pairs, brother and sister together,—Helios and Selene, Apollo and Artemis; while the Battle of Giants is reflected in col. vi, and col. i seems to deal with the naval power of the empire.

Court poetry had no little vogue at Alexandria, if we may judge by Callimachus and his "Berenice's Tress," but our poem is hardly good enough in meter to have come from one of the well-known Alexandrians. Professor Blass, who kindly looked over a copy of

the fragments, pointed out to me that the laws of versification introduced by Nonnus are not reflected in it, and it is thus earlier than that poet, at any rate. Nonnus did not permit a hexameter to end in a proparoxytone, while our poet does not scruple to end his verses with ὄλυμπον and ἄνακτος. But the paleography of the fragments will of itself carry the work back to a time some two centuries before Nonnus. Of the nature of the poem it is more difficult to judge. Several expressions, e. g., the "winged loves" and the address to Aphrodite as γαμοστόλος, suggest an epithalamium. Professor G. J. Laing has proposed the view that it is a little epic, or development of a single heroic episode, without action—a favorite form of composition among the Alexandrians. Such compositions probably rarely reached a length of 500 lines, and as these fragments represent half that number, the complete poem must have been at least of little epic length. Again, the fragments may belong to a proper epic poem of the Alexandrian time; but until some further fragments are recovered, it seems impossible to decide between these views. The metrical blunders of the composition incline Professor Arthur Ludwich to the view that the piece is no more than an "occasional" poem from some dilettante. The same accomplished scholar has kindly communicated to me a number of helpful suggestions upon the text.

COLUMN I (*Fragment A*)

συν δ αλ[ο]χοις σεμναις καλαις και πα[ρακοιτισι
σεμνοις . . . . μεγαλο[.] . . ρχησομαι[
χαιρετ α . . . . τιωτ . . ταμακ[
συν χθονι κα[ι] μεροπεσσι και αθα[νατοισι θεοισι
5 αρσινοα πτολεμα παλαιγενες[
ην μαν αρεσπ . οβ . . . [.] . ν πανδ[
σο . φ . οπ . ν . . . γει . η καλως τε . [
ζηνι συν αθανατοις μαλα δα . [
το . . α . . αν . . . . οδα πασι βροτ[οισι?
10 πρωτον μεν παρεχον προς σε[
. . . . μ . υομενας νηων τοτ[
μητρι . . . [.] . ανα . . . αλαικκ[
ου . . . . . . [.]υ προ . ο . χ . ο . σ . [

φοιν . . [. . .] . προπασα κρατουσασ[

15 . [.] . . . [. .] περι νωτα καλοις τε[

. .] . . . .[. α]μφιπολων συν κλε[

. .]δε . . αθανατων προκαθηγ[ετις

α]μ[[α]]φιπο[λο]ις σκοπελοισιν ομου τ[

οι]αναφ[ρ]ασσουσιν πτολιν ημετε[ρην

20 .]ρμαχ[. .]εν πρωτα πατηρ ανδ[ρων τε θεων τε

.]περχ[. .] . φαεινα περισστη . [.] . [.]θ[

ε]κειθ[. .] . ιο . [.]γ . . ς [.]υν καλλ[ο]πυρο[

. . . .] . . ουρανω αsστε[ροεντι

. . . .] κρονειονος πε[

25 . . . .]ν υπερεξσοχ[

. . . .]ν κολπω αλα[

(End of column)

5: Ἀρσινόα; cf. Theoc. 15. 111. The daughter of Ptolemy I
and sister and wife of Philadelphus is probably meant. Read
Πτολεμα⟨ία⟩.   6: Or αρεστ.   7: Perhaps σομφός.

21: φαεσνα or φαεενα may be read; the fourth letter is doubtful.

(Fragment J)

The following fragment shows the same hand on the recto as
that of the recto of column i, and may possibly belong to it; but
I have been unable to fit them together. It perhaps belongs to
an adjacent column. It shows no margin at top or bottom.

κα]λων υμεναιων

]βιασειαις

α]νδρασι τερπνοις

] αοιδη

5   ] αρισστοις

] . και καλα . . η

]ν βασιληα[

] . πελοιο μεγ[

]σι πλευροι[ς

10   ]ος ημετερη[

]μηλοισ[

]μοιο —

μ]εγισστο[

] . [

COLUMN II (*Fragment B*)

$\cdot\,$]βους

$\cdot\,$]νη

$\cdot\,$] . ννη

$\cdot\,$]ισστοις

5 $\cdot\,$]ον

$\cdot\,$]ον[ ]

$\cdot\,$]ς

$\cdot\,$]ς[

$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$] . φ[$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$] .

10 $\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$]ηποντ[$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$]στου

$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$ π]ολυσσθενε ωπα .

$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$]ς τυπον η γεγαωσα

$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$]υς χθονος ηδε πολεων

$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$]ς ποντον οπαζεις

15 $\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$] . [$\cdot\,\cdot\,\cdot\,\cdot\,$ ο]πλιζη

$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$] . εσω[

$\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,\cdot\,$]σ[

(Probably nine lines wanting.)

COLUMN III

λ[. . . . .] ασστ[ρ]απτουσα γελα τ[ε]ρπνοισι προσωποις

κ[. . . . .]θαλασσοπορον χαροπου δ απ[ο] ποντου

ε[. . . . .]α . απο . [. . . .] . [. .] . [.] . αθανατων τε

α[. . . . .] . ει . μ . [. . . . . .] . αγαν αφρον.——

5 ω [καλη αφρ]ογενεια γαμο[σ]στολε και χαρι τερπνη

χ[. . . . .]α τυπον γλυκεραις παρηια δ εστιν

τω[. . . . .] . . . . . εφαρ . ν θαλεροι πηδωσι ερωτες

εκγδ[ο . . . .]νεων μαζων δροσεραι θ αμα δυαι

και εκ[. . . . . . .]ων ξανθοιο κομη[ν] μυροβοσστρυοεντος

10 ηδυτατ . [. . .] . . ωρ . ιδανοχροα ιππταται ανθη——

η [κ]αι προς θαλα[μ]οις μειξασα καλων υμεναιων——

. .] . νως μεν νυνφην παπαπασσασιν ανδρι ποθητην

ενθ]αδε τη νυμφη προς λε . . . . . . λον συ χαριζι

ω[ς] μεν χαρειτων τειμαν σε φυσις νενομισται

15 σεμνοτ[ατη . . .] . ει τον σον συνομευνον ανασσα

. [.] . . [. . . . . . .] . τοισι φιλον και συμμαχον οντα

. . . .] . τονταμ . [. . . . .]τοσαιθ[.] . [

<div align="center">Traces of four lines.

(Probably five others wanting.)</div>

5: For the completion of this line I am indebted to Professor Blass. On γαμοστόλος, an epithet of Hera and Aphrodite, cf. *Anthol. Pal.* 6. 207.

9: μυροβοστρύχου ἐντός cannot be read (μυροβοστρύχου, cf. *Anthol. Pal.* 5. 147, 5), nor do the traces fit μυροβοσστρυχοέντος.

15: On συνόμευνος, cf. *CIG*. III, p. 265, No. 4622, l. 4, a line in which σεμνότατος also occurs: σεμνοτάτη συνόμευνε, καλῶν ὑπόδειγμα φιλάνδρων. The inscription is a Palestinian epitaph.

<div align="center">COLUMN IV</div>

τους ιιερους τη[

αρμα αναγων δ . . [

ηελιος φαεθων [. . .] . . [

   σ (corr.)

ω . ιλοκξε το με . [. .]ον[

5 αι . [.] γαρ μυθοισι πα . ν[. . .] . . [

πτηνους ες παντας ερωτας μη φαινομενους . [. .] .

τους μεροπων μεταλλωντας [. .]γοις φρενα καρτερο|εσσιν

μυθον μεν τουτον παρελωμεθα εισι δ ερωτες

σεμνως οι κατα κοσσμον επ ανδρασι δωρα φεροντες

10 πρωτα μεν ηελιος μετεπειτα τε [δ]ια σεληνη—

μοκχθοις ρα[. . . . . .]ολλ[. .] . . . . ανα[φ]εροντες

ο [. .] . . . ε[. . . .] . κωντ[. . . . .]ολειψαι

τρ[. . . . .]ησοντ[. . . . .]α δικαιως

ο[. . . . .] . . [. . . . .] . ες ημειν

15 αμ[. . . . .]α θνητοις

. . . .] . εργων—

. . . .]οιο—

<div align="center">Traces of two lines.

(Probably seven lines wanting.)</div>

1: Apparent traces of χλε are discernible just to the left of the line.

4: The second letter is perhaps δ, possibly φ. The fourth is possibly *a*. A corrector has written σ above ξ.

6: ἔρωτες πτηνοί, "winged loves," recalls the language of Theocritus (7. 117) and Catullus, as well as Apollonius Rhodius, and Simonides, in all of whom the plural of ἔρως (Cupido) occurs —a usage unknown to Homer.

Column V

Initial letters of seven lines: α[τ[ο[ω[α[δ[α . [
Lines 8–12 σεμ[νως? π[τ . [καρμη . [τον τρισ . . [
κα[. . . . .]ω . [
τοις νε[
15 ων κα[
σου γαρ ε[
πρωτα[
ζευ [
κ[

(Probably seven lines wanting.)

16: Or perhaps σου σαρε[

Column VI (*Fragment C.* Facsimile in *J. H. S.*, XXIII)

. . . .] πολυν ηερα και χθονα δειαν—
. . . .] και συσσπορα τερπνα τα γαιης
. . . .]αρ ομου χλοεροις σπορι . σσιν
. . . .] δροσερων ανεμοιο λαβοντα
5 . . . .]ι καιροις ιδιοισι δοθεντων
. . . .] μεγαν ουρανον ολβιοτα ζευ
. . . .]ο κρονειονος ανκυλομητου
. . . .] . . εοι δε τ εχοι προς ολυμπον
. . . .] . αν ερανοβιην γονον ωκυν
10 . . . .]ραν ιερας χθονος ημετερησιν
. . . .] . . . . . δ ετερον ηγεμονηα
. . . .] και αρισστεας ης παλαμησιν
. . . .| . . ερωτατα φοιλα γιγαντ[ω]ν
. . . .] . ν γενος αγριον ανδρων—
15 . . . .] . . [. .] και αλων κατα κυμα θαλαττης
. . . .] . . . . [. . . .]τον επι κχθονι ⟨και⟩ κατα ποντον

. . . .]ασει[.] . . . [. . . .] τον εκγαιων βρια[ρ]εφοντης

. . . .]υσ[. . ε]κατηβελεταο ανακτος

. . . .] . ηυκομος τεκε λητω —

20 . . . .] κορυφαις λασιωτιδος υλης

. . . .] αμβροτοις και σε . . . . νωγοι

. . . .] . [.] . ν[.]μοι . προ . . . . . πων

. . . .]ν[.]ρκον[.]δε[.] . [.] . μων

. . . .]το ακμαθ . α . αν

25 . . . .]ωντο πολυσσταφυλ[.] . ων . .

. . . .] . επ αγνωσστο[ν] επιλοιβαι·

. . . .] μαντικον οι δ εκαλουν τε·

(End of column)

2: Or τέρπνατα (for τέρματα?)

6: ὄλβιστε has been suggested, but the papyrus seems to read ολβιοτα, apparently a vocative like μητίετα.

9: Or perhaps α κερα(ν)νοβιην.

10: Or perhaps ἡμιπερησιν.

13: The traces of letters will not justify φ]οβερώτατα. The phrase recalls the ἄγρια φῦλα Γιγάντων of Odyssey η 206.

16: καὶ must be supplied before κατα.

18: The phrase is familiar from *Iliad* A 75. It occurs also in the Shield of Heracles, 100. The epithet occurs in the Hymn to Apollo, 157.

20: λασιωτίς, though quite intelligible, seems to be a new word.

26: ἐπιλοίβη, cf. Orph. Arg. 603.

COLUMN VII

τον κα[

ο δε κα[

προς μ[

νυκκτ[

5 ανδρα[

αλλ . [

πρωτ[

σεμν[

ενθα κ[

10 θ . μο . [
    υρ . η[
    τοις κ[
    ω πασ[
    χρυσ[
15 βαχχ[
    και π[
    παντ[
    κυμα[
    σεμν[
20 πληκ[
    κολπ[
    ξανθ[
    ευρο[
    ηδυν[
25 ειν δω[
    και εκ[

(End of column)

COLUMN VIII (*Fragment D*)

    κηθα συν[
    ποντον [
    ουχι ελ[
    γαιην δ[
5 μη πον[
    τας πε[
    ηστο μ[
    ναμα[
    κλειθ[
10 αλλας [
    τον στ[
    αμ . . . [

Traces of five lines.
(Probably nine lines wanting.)

1: Perhaps κειθα συν[

Column IX (*Fragment E*)

(Probably two lines wanting.)
Traces of two lines,]καθ[,]σιφ].

$$\ldots\ldots\nu\ \delta\ \epsilon\nu\ o\pi\phi[\theta]a[\lambda]\mu o\iota\sigma[\iota$$

$$o\chi\lambda o\nu\ \epsilon\pi\epsilon\rho\chi o\mu\epsilon\nu\omega\nu\ a\ .\ [$$

5 $\theta\eta\pi\tau o\ \mu a\nu\ \epsilon\varsigma\ \mu\epsilon\gamma a\ \kappa\upsilon\mu a\ .\ [$

 $\kappa a\lambda\eta\nu\ \tau\epsilon\ a\nu\delta\rho o\mu\epsilon\delta a\nu\ \epsilon\nu[$

 $\theta\eta\rho a\ \delta\epsilon\ \kappa a\iota\ \beta\upsilon\theta\iota o\nu\ \sigma\tau\upsilon\gamma\epsilon\rho o\upsilon[$

 $a\nu\gamma\epsilon\lambda o\nu\ o\upsilon\chi\iota\ \kappa a\lambda\eta\varsigma\ \beta o\upsilon\lambda[\eta\varsigma$

 $a\nu]\delta\rho\epsilon\sigma\sigma\iota\nu\ o\ \delta\eta\ \kappa a\tau\ \epsilon\pi\eta\ \epsilon\eta\ .\ [$

10 $\tau o\upsilon]\varsigma\ \mu\epsilon\nu\ \gamma a\rho\ \phi\epsilon\upsilon\gamma o\nu\tau a\varsigma\ [$

 $\epsilon]\nu\tau o\varsigma\ \delta\epsilon\ \kappa a\mu a\tau o\iota o\ \sigma\upsilon[$

 $\tau]\eta\nu\ \delta\epsilon\ \sigma\iota\delta\eta\rho\epsilon o\epsilon\sigma\sigma\iota\ \beta\rho o\chi[o\iota\sigma\iota$

 $a]\lambda\kappa\upsilon o\nu\iota\varsigma\ \chi\eta\rho a\ \pi a\rho a\ \kappa\upsilon\mu[a$

 $\tau]\omega\nu\ \kappa a[\iota]\nu\omega\nu\ \mu\upsilon\theta\omega\nu\ \epsilon\ .\ [$

15 $a\nu]\tau\iota\lambda a\lambda\omega\nu\ \gamma\epsilon\nu\epsilon\tau\omega\nu\ \lambda[$

 $\epsilon\kappa]\gamma\delta o\tau o\nu\ a\nu[\delta]\rho o\mu\epsilon\delta a\nu\ [$

 $\ldots\ldots]\eta\ \ldots\ldots\ .\ [.]\tau a\chi\epsilon\iota\nu\ .\ [$

 $\ldots\ldots\ldots]\nu o\sigma[.\ .]o\upsilon\tau a\varsigma\ \tau o\nu[$

 $\ldots\ldots\ldots]\nu\nu\epsilon[.\ .]\nu\epsilon\tau[.\ .]o\mu[$

20 $\ldots\ldots\ldots\ldots]\ .\ a\iota\sigma\eta\ .\ [.\ .]\kappa\chi[$

 $\ldots\ldots\ldots\ldots]\omega\mu\omega[$

 $\ldots\ldots\ldots\ldots]\tau o\sigma\pi o[$

 $\ldots\ldots\ldots\ldots]\eta\sigma a\nu[$

 $\ldots\ldots\ldots\ldots]a\rho a\pi\tau[$

(End of column)

4: Possibly $o\lambda\omega\nu$.

5: Possibly $o\pi\pi\tau o$?

Column X (*Fragment F*)

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots]\nu\eta\chi o\upsilon\varsigma$$

$$\ldots\ldots\ldots\ldots\ldots\ldots]\ \ldots\ a\rho\tau o\nu[.]\nu a\gamma\nu\eta\nu$$

$$\ldots\ldots\ldots\ldots\ldots]\ .\ a\rho a\tau\eta\nu\ \tau\rho\iota\sigma\iota\ \mu o\rho|\phi a\iota\varsigma$$

$$\ldots\ldots\ldots\ldots\ldots]o\nu\ a\gamma\lambda a a\nu\ \kappa o\upsilon\rho a\nu$$

5 $\ldots\ldots\ldots\ldots\ \lambda\iota\pi a\upsilon\gamma]\epsilon\sigma\iota\nu\ o\pi\phi\theta a\lambda\mu o\iota\sigma\iota\nu$

 $\ldots\ldots\ldots\ldots\ \tau]\epsilon\tau a\kappa\gamma\mu\epsilon\nu o\iota\ \mu\upsilon\sigma\sigma\tau a\iota$

 $\ldots\ldots\ldots\ldots]\sigma o\phi o\nu\ \kappa\iota\kappa\lambda\eta\sigma\kappa o\upsilon\sigma\iota\nu.$

. . . .]σικον οντα προφητη[ν

. . . . αθα]νατοισιν ενιθλοι .

10 . . . .]ριησιν—

. . . . σ]ελασσφορον αρμα

. . . .]παρεχεις φαος ιδυν

. . . .]αντικεπαιαν—

. . . .]ακλονω[.]αιον . ε

Traces of one line.

(Probably eleven lines wanting.)

3: Or μορ|εαις.

13: The first ν was first omitted, then supplied by the first hand.

COLUMN XI (*Fragment G*)

(Probably three lines wanting.)

]ησκε . [

] . σεφυσ . [

]αδεκα . [

] . εοιο βυ[. .] . [.] . δ . . . [.] . [

5]κληρο . [.] . δ . . . ω . κτ[

]υρεου γελα δ . . . . ανδρα[

]μοκχθουσα τε μη . θητ . [

] . θαλασσοπ . . . . ο . . . . [

] . αλην . . . . τ . . ν . [

10]ντ . . . . αλ . [

] . . . . [. .] ποσειδ[αων?

] . αφθ . . ν . . . στον δαν[

]σανθ . . . . [

]αδουμ . . . . . οι θαλαττη[

15]θρονο[. . .] . . οιοσ . . . . [

]πεστο[. . .]δεον μ . . μ[

]μαλα[. . .] . νηκε βροτο[

] . φυδ[.] . . . ο . ς δαλησε . [

]μν . . . . ερδαιν[

20] . ογα . . . . ερισας λα[

] . . κο . . . . συνηφ[

$]ουρ$ . . . . . $ν$ $απομυ[$

$]$ . . . . . $[$ . . . $]οιο$ $φιλο$. $[$

(End of column.)

8: Perhaps $θαλασσοποροιο$.

10: $καλη$?

COLUMN XII (*Fragment H*)

(Some lines probably wanting.)

$]χον$. $[.]ας$

$]πε$ $βελεμνα$

$]ε$ $φαρετρας$

$]ας$ $οισστους$

5      $]ρ$ $επ$ $αυτω$—

Traces of three lines.

(Others probably wanting.)

COLUMN XIII (*Fragment I*)

(Some lines probably wanting.)

$]γον$ $δ[$

$]νεαπο[$

$]$. $ρμα$ $κυμ[$

$]τ$ $αιγιδας[$

5      $]λεποι$. $[$

(Some lines probably wanting.)

III. THE AYER PAPYRUS: GEOMETRICAL PROCESSES

(Plate I)

This fragment contains about thirty-five complete lines, with parts of perhaps half as many more. Originally it formed part of a papyrus roll, inscribed in clear uncials on one side only, the writing being in columns slightly longer than broad. Portions of three columns remain. In shape the fragment is irregular, the first column being almost entirely gone, while the second lacks its closing lines, and the third is practically complete. The third column, the only complete one, measures 17.5 cm. in height, including the figure of a rhomb at its foot, and 14.5 cm. in breadth. Of column i there remain parts of the closing words of eleven lines. Column ii preserves twenty-four lines, some of them much mutilated, with one figure, a trapezoid. Column iii consists of twenty-one lines and two figures, a parallelogram and a rhomb. From what remains it can readily be seen that the three columns contained seven processes, of which the papyrus gives us inconsiderable fragments of the first, second, and fifth, the two concluding lines and the figure of the third, the text but not the figure of the fourth, and both text and figures of the sixth and seventh. The geometrical figures illustrating the processes described are appended to the processes, and are covered with numerals indicative of the length of each side, part of a side, and perpendicular, and the area of each section. They are accompanied also by short sentences giving the final result of the calculation; as, e. g., ($\gamma\iota\nu\epsilon\tau\alpha\iota$) $\alpha\rho o\upsilon(\rho\omega\nu)$ $\xi\delta$, after Fig. 1. Occasional lacunae in the text of 4, 6, and 7 are readily filled from the context, or the parallels afforded by other portions, such restoration being facilitated by the uniformity of the language used. The letters are 2 to 2.5 mm. high and run 35 to 39 to the line. Iota

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does not appear as subscript; it is adscript in αὐτῷ, but is not written in the subjunctive δοθῇ. Breathings, accents, and punctuation are wanting.

Dr. Grenfell informs me that in the Oxyrhynchus collection there are several similar papyri dated in the reigns of Vespasian and Trajan, and the clear, free, and unexaggerated uncials, especially the almost capital *a*, make a date late in the first or early in second century probable.

One or two things confirm the natural presumption that the fragment was a copy, and suggest that it was a somewhat careless one. Such peculiarities as the writing of τραπέζηον for τραπέζειον or τραπέζιον, and of ἀμλυγώνιον for ἀμβλυγώνιον, may be otherwise explained. But the writing of ὀρογώνιον for ὀρθογώνιον, col. iii. 12, and the unmistakable displacement of ἥμισυ, col. ii. 7—where we must read λοιπὰ ι ὧν τὸ ἥμισυ γίνεται ε κτέ.—are clearly scribal errors; and in examining the so-called parallelogram of col. iii, one is struck with the fact that while the sides of the figure are 6, 13, 10, 15, the scribe has drawn a Euclidean parallelogram with opposite sides equal, and then, apparently oblivious of the incongruity, has given to its sides the values prescribed in his exemplar. Clearly the scribe did not belong to that geometrical school which required of a parellelogram only that two sides of it be parallel. In the other figures the scribe has been equally careless. No effort seems to have been made to draw them in true proportion. In the first one, the evident intention of the perpendicular is to cut the figure into two triangles and a rectangle; but without the numbers that rescue it, the figure would suggest anything but this. The scribe was perhaps absent-minded, and unconsciously exaggerated the inaccuracies of his copy in the figures, while writing in the correct numbers. In the papyrus the trapezoid measures 1.1 by 2 cm.; the parallelogram, 1 by 3.8 cm.; the rhomb, 2.8 by 1.6 cm.

The work of which this papyrus is a fragment, was probably a practical treatise on mensuration, designed for use in resurveying farm-lands of irregular shape, which was especially necessary after inundations. The word ἄρουρα, however, does not seem to have quite the meaning it ordinarily had in Egypt, but is employed

here simply as a unit of square measure. The apparently archaic use of παραλληλόγραμμον may yet carry the date of the origin of the work into pre-Christian times.

For a valuable suggestion as to the symbol ϛ I am indebted to M. Heiberg, who suggests τούτων. This fits well with the context, except in the third line of the last process, and comports well with the general usage of the processes. Even in the last process, however, ἀπὸ τούτων may stand; but only as a set phrase, used regardless of preceding context, to introduce a subtrahend. The symbol ⌒ as a remainder sign occurs in the same form in the Tebtunis Papyri.[1] It doubtless represents the ΛΟ of λοιπά or λοιπόν.

Professor Beman has suggested the possible connection of the fragment with the school of Heron Alexandrinus. There can be no doubt that in many of its forms of expression the fragment presents a striking similarity to the Geometry of Heron. Expressions like ὧν τὸ ἥμισυ γίνεται μη΄, p. 88, l. 20;[2] τὰ ιε΄ ἐφ᾽ ἑαυτὰ γίνονται σκε΄, p. 86, l. 16; τοσούτων σχοινίων ἔσται ἑκάστη πλευρὰ τοῦ τετραγώνου, p. 74, l. 25; λαβὲ τὸ ἥμισυ τῆς βάσεως, p. 62, l. 10; or the following: τὰ ι΄ τῆς βάσεως ἐπὶ τὰ ιβ΄ τῆς πρὸς ὀρθὰς γίνονται ρκ΄· ὧν τὸ ἥμισυ γίνεται ἐξήκοντα· τοσούτων σχοινίων ἔσται τὸ ἐμβαδόν, p. 58, ll. 4–6, find rather close parallels in the fragment. A more striking matter is the resemblance in the use of certain mathematical terms. Κορυφή has in Heron the characteristically Egyptian meaning "upper side" of a four-sided figure. Heron's definition of it reads: κορυφὴ δέ ἐστιν ἡ ἐπὶ τῇ βάσει ἐπιτιθεμένη εὐθεῖα, p. 44, l. 17, and in going on to define σκέλη he says: σκέλη δὲ αἱ ἀπὸ τῶν ἄκρων τῆς κορυφῆς ἐπὶ τὰ ἄκρα τῆς βάσεως τεταμέναι εὐθεῖαι, p. 44, ll. 18, 19. The expression τραπέζιον σκαληνόν, found in Heron, p. 21, l. 17, and in our fragment, is not a common one. The character of the processes, however, supplies the closest link between them. Heron concerns himself with specific problems, not with general derivations of formulas or theorems, although constantly assuming as familiar and fixed

[1] Cf. Tebtunis Papyri, Part I, Nos. 91, 93.

[2] The references are to Heron's Geometry, ed. Hultsch, *Heronis Alexandrini Geometricorum et Stereometricorum Reliquiae*, Berlin, 1864.

the results of such derivations. This will be seen to correspond exactly to the material of the fragment. Another more striking similarity in method is in connection with finding the areas of irregular rectilinear figures. Heron's way is to cut a complicated figure into triangles and rectangles, and then compute the areas of these. The first figure in this papyrus, too, it will be observed, is an isosceles trapezoid, a figure for which Heron has been said to have a special fondness. In our second process, also, the writer's first auxiliary line seems to have reduced his figure to an obtuse-angled triangle and an isosceles trapezoid.

To this view, however, there are one or two serious objections. Perhaps no great importance attaches to the fact that we cannot in Heron find such phrases as ὡς δεῖ, εἰς τὸ αὐτό, for which latter Heron's equivalent is uniformly ὁμοῦ; or to the entire absence from Heron's measures of ἄρουρα. More significant must be considered the inconsistency between Heron's παραλληλόγραμμον and that of the fragment. Heron's parallelogram does not differ from Euclid's: ἐπὶ δὲ τῶν τετραπλεύρων ἃ μὲν καλεῖται παραλληλόγραμμα, ... παραλληλόγραμμα μὲν οὖν τὰ τὰς ἀπεναντίον πλευρὰς παραλλήλους ἔχοντα, etc., p. 20, ll. 11–13. There appears to be no way of bringing the "parallelogram" of column iii of our fragment within the scope of this definition; and we are confronted with an inconsistency as remarkable as was the agreement in the case of κορυφή. Of Heron's method of calculating the area of a triangle in terms of its sides, our processes show hardly a trace. It has been suggested that our fragment reflects the methods of the second book of Euclid rather than the formula of Heron; but the difficulty of relating our surveyor with Euclidean terminology and method in general, has already been shown to be considerable. The Heronian formula, on the other hand, he clearly had not. Perhaps it is not much to say that he had the materials out of which that formula was derived; but it seems not impossible that we have in this fragment one of those early mathematical works of whose materials Heron later became the organizer and compiler; in other words, the work of which this papyrus was a copy, if not itself one of Heron's sources, may fairly represent the character of the sources he had and used.

Slight resemblances to other mathematicians may be noted. The fragment's use of ὑπογεγραμμένον is somewhat closely paralleled in Apollodorus, ἔστι δὲ τὰ ὑπογεγραμμένα σχήματα,[1] and in Bito, τὸ δὲ σχῆμα οἷόν ἐστιν ὑπογέγραπται;[2] also in a passage ascribed to Heron Byzantinus,[3] καὶ τὸ σχῆμα ὑπογέγραπται. As to ὡς δεῖ, M. Tannery has suggested that it may be a scribal error for ὡς ἀεί, in uncials δ and a being easily confused. Ὡς δεῖ, however, does not seem difficult when compared with Euclid's ὡς ἔτυχεν, ὃ ἔτυχεν, ἃ ἔτυχεν, with which expressions it would stand in almost direct contrast, meaning "by construction," or perhaps better, "by the conditions of the problem."

In the following transcription, all abbreviations have been expanded ( ). The figure following process 2 is a restoration suggested in substantially the same form, by Professor E. H. Moore, Dr. Hultsch, and M. Heiberg. The first lines of the third process of col. i may be supplied about as follows, on the basis of the figure near the top of col. ii:

[εαν δοθη τραπεζηον ισοσκελες οιον το υπογεγραμμενον ως δει τα ι εφ αυτα γινεται ρ αφελε τα β της κορυφης απο των ιδ της βασεως λοιπα ιβ ων το ημισυ γινεται ς εφ αυτα γινεται λς αφελε τα λς λοιπα ξδ ων πλευρα η τηλικαυτη η καθετος ων το ημισυ γινεται δ ταυτα επι τα ς της βασεως γινεται κδ τοσουτων αρουρων εκατερα των ορθογωνιων και τα η της καθετου επι τα β της βασεως γινεται ις τοσου-]

COLUMN II:

των αρου(ρων) το εν αυτωι ετερομηκες εις το αυτο
αρου(ραι) ξδ το δε σχημα εσται τοιουτο

(γινεται) αρου(ρων) ξδ
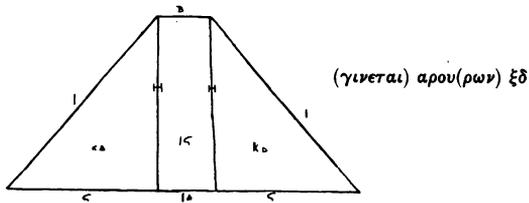
[1] Before Fig. 47, Wescher, *Poliorcetique des Grecs.*
[2] Before Figs. 17, 19, 20, *ibid.*
[3] Before Fig. 103.

εαν δοθη τραπεζηον σκαληνον οιον το υπογε-

γραμ]μενον ως δει τα ιγ εφ αυ(τα) [(γινεται) ρ]ξθ και τα ιε εφ

αυ(τα)

5 (γινεται) σκ]ε απο (τουτων) τα ρξθ (λοιπα) νς αφελε τα β

     της κορυφης

απο των ις της βασεως (λοιπα) ιδ λαβε το ι´δ´ των νς

γινεται δ απο των ιδ της βασεως (λοιπα) ι ων το (ημισυ)

     (γινεται) ε εφ αυ(τα) (γινεται) κε

απο των ρξθ (λοιπα) ρμδ ων πλευ(ρα) ιβ τηλικαυτη η καθετος

ταυτα επι τα ε της βα[σεως (γινεται) ξ] ων το (ημισυ) (γινεται)

     λ τοσουτων

10 αρου(ρων) εκατερα τ[ων] ορθογωνιων και τα ιβ επι τα

     β της κο[ρυ]φης (γινεται) κδ τοσ[ο]υτων αρου(ρων) το εν

     αυτωι

ετερομηκες και τα ιβ επι τα δ της βασ[εω]ς (γινεται) μη

     ων το (ημισυ) (γινεται) κδ τοσουτων αρουρων το εν [αυ]τωι

αμβλυγωνιον [εις το α]υτο (γινονται) αρου(ραι) ρη το [δε σχημ]α

     εσται

15 τοιουτ]ο

                                             [Restored]
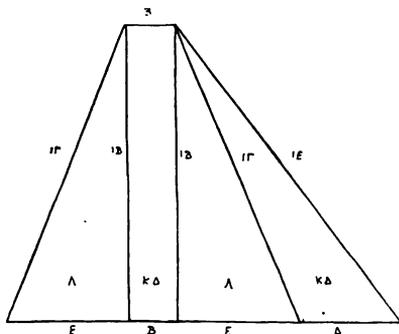
7: Pap. reads (λοιπα) (ημισυ) ι ων το (γινεται) κτέ.

COLUMN III:

εαν δοθη παραλληλογραμμον οιον το υπογεγραμμενον

ως δει τα ιγ της πλευρας εφ αυ(τα) (γινεται) ρξθ και τα ιε της

     πλευ-

ρας εφ αυ(τα) (γινεται) σκε απο (τουτων) τα ρξθ (λοιπα)
ν[ς] αφελε τα ς της βασεως

απο των ι της κορυφης (λοιπα) δ λαβε το (τεταρτον) των νς
(γινεται) ιδ

5 απο (τουτων) τα δ (λοιπα) ι ων το (ημισυ) (γινεται) ε τηλι-
καυτη η βασις του ορθο-

γωνιου εφ αυτα (γινεται) κε και τα ιγ εφ αυτα (γινεται) ρξθ
αφελε τα

κε (λοιπα) ρμδ ων πλευρα ιβ τηλικαυτη η καθετος και

αφελε τα ε απο των ς της βασεως (λοιπον) α το εν απο των

ι της κορυφης (λοιπα) θ τηλικαυτη η λοιπη της ανω βασεως

10 του ορθογωνιου και τα ιβ της καθετου επι τα ε της

βασεως (γινεται) ξ ων το (ημισυ) (γινεται) λ τοσουτων αρου-
(ρων) το εν αυτ[ω]ι

ορογωνιον και τα ιβ επι το α (γινεται) ιβ τοσουτων αρου(ρων) το

εν αυτωι ετερομηκες και τα ιβ επι τα θ της βασεως

(γινεται) ρη ων το (ημισυ) (γινεται) νδ το[σουτ]ων αρουρων το

αλλο ορθογω-

15 νιον εις το αυτο αρου(ραι) (γινονται) ςς το δε σχημα εσται

τοιου[το

(γινεται) αρου(ρων) ςς
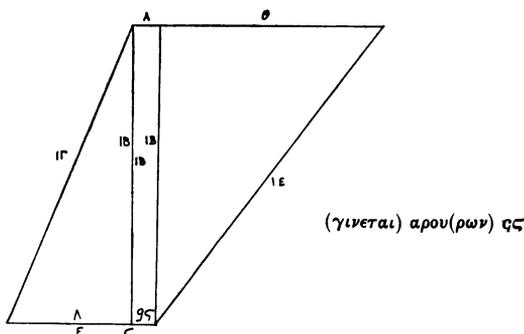
εαν δοθη ρομβος οιον το υπογεγραμμενον ως δει τα ι

ε]φ αυτα (γινεται) ρ και το (ημισυ) των ιβ της βασεως (γινεται)

ς εφ αυτα (γινεται) λς

απο (τουτων) τα λς (λοιπα) ξδ ων πλευρα η τηλικαυτη η καθετος

ταυτα επι τα της βασεως μ[η] ων το (ημισυ) (γινεται) κ[δ]

τοσουτων

20 αρ]ουρων εκατερα των ορθογωνιων εις το αυ[το αρου(ραι) ςς
το δε σ]χ[ημα ε]σται τοιουτο
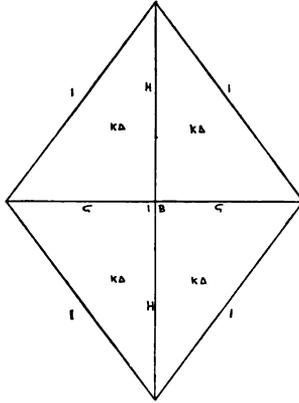
12: Read ὀρθογώνιον-　　　　　19: Sc. ς after ἐπὶ τὰ.

In the appended translation, superior numerals refer to lines of
the columns in the papyrus.

Column I, closing lines (*restored*)

(*Process* 1)

[If there be given an isosceles trapezoid such as the one drawn below,
according to the conditions of the problem, the 10 squared is 100, and
the 2 of the upper side from the 14 of the base leaves 12, ½ of which is
6. This squared is 36. Subtract this from 100; the remainder is 64, of
which the square root is 8. So great is the perpendicular. ½ of this is
4. This by the 6 of the base is 24; of so many arourae is each of the
right-angled triangles. And the 8 of the perpendicular by the 2 of the
base is 16; of so]

Column II

[1]many arourae is the rectangle in it. Altogether [2]64 arourae. And
the figure will be as follows.

(*Process* 2)

[3]If there be given a scalene trapezoid such as the one drawn below
[4]according to the conditions of the problem the 13 squared is 169 and
the 15 squared [5]is 225. Subtract 169. 56 remains. Subtract the 2 of
the upper side [6]from the 16 of the base. 14 remains. Take $\frac{1}{14}$ of the 56.
[7]It is 4. From the 14 of the base; there remains 10, of which ½ is 5.
(This) squared is 25. [8](Take this) from the 169; 144 remains, of which
the square root (is) 12. So great is the perpendicular. [9]This (multiplied)

by the 5 of the base is 60, of which $\frac{1}{2}$ is 30. Of so many [10]arourae is each of the right-angled triangles. And the 12 by the [11]2 of the upper side is 24. Of so many arourae is the [12]parallelogram in it. And the 12 by the 4 of the base is 48, [13]$\frac{1}{2}$ of which is 24. Of so many arourae is the [14]obtuse-angled triangle in it. Altogether it is 108 arourae. And the figure will be [15]as follows.

<center>(Process 3 is broken away.)</center>

<center>COLUMN III</center>

(Process 4)

[1]If there be given a parallelogram such as the one drawn below [2]according to the conditions of the problem the 13 of the side squared is 169 and the 15 of the side [3]squared is 225. Subtract the 169. 56 remains. Subtract the 6 of the base [4]from the 10 of the upper side. 4 remains. Take $\frac{1}{4}$ of the 56. It is 14. [5]Subtract the 4. 10 remains, $\frac{1}{2}$ of which is 5. So great is the base of the right-[6]angled triangle. (This) squared is 25. And the 13 squared is 169. Subtract the [7]25. 144 remains, the square root of which is 12. So great is the perpendicular. And [8]subtract the 5 from the 6 of the base. 1 remains. (Take) the 1 from the [9]10 of the upper side. 9 remains. So great is the remainder of the upper base [10]of the right-angled triangle. And the 12 of the perpendicular by the 5 of the [11]base is 60, $\frac{1}{2}$ of which is 30. Of so many arourae is the [12]right-angled triangle in it. And the 12 by the 1 is 12. Of so many arourae is the [13]rectangle in it. And the 12 by the 9 of the base [14]is 108, $\frac{1}{2}$ of which is 54. Of so many arourae is the other right-angled triangle. [15]Altogether it is 96 arourae. And the figure will be as follows.

(Process 5)

[16]If there be given a rhomb such as the one drawn below according to the conditions of the problem the 10 [17]squared is 100 and $\frac{1}{2}$ of the 12 of the base is 6. (This) squared is 36. [18]Subtract the 36. 64 remains, the square root of which is 8. So great is the perpendicular. [19]This by the (6) of the base is 48, $\frac{1}{2}$ of which is 24. Of so many [20]arourae is each of the right-angled triangles. Altogether 96 arourae. [21]And the figure will be as follows.

IV. MEDICAL PRESCRIPTIONS

Like the Oxyrhynchus papyrus CCXXXIV, this papyrus con-
tains a series of medical prescriptions. Where alternative reme-
dies for the same ailment are given, they are introduced by ἄλλη,
much as in the Oxyrhynchus papyrus, which employs ἄλλο.
Parts of three remedies are preserved in the fragment. It is not
clear for what the first was designed, but alum (στυπτηρία) and a
sort of wax ointment scented with rose (κηρωτὴ ῥοδίνη) were
among the drugs recommended. The previous wiping (προαπο-
σμήχειν) of the part affected or of some instrument or utensil
used, is also enjoined. The second disorder prescribed for seems
to have been leprosy; no other way of completing λεπρ[seems
more probable. It is doubly annoying here that the lines should
be fragmentary, in view of the interest attaching to this disease
and to ancient methods of dealing with it. Two treatments are
prescribed. Of the second of these practically nothing remains.
The first seems to have consisted in part at least of external appli-
cations, perhaps of some ointment in which dry pitch and possi-
bly the blossom of some plant were ingredients. It is possible,
however, that the word partly lost before τοῦ ἄνθους was χ]αλκοῦ
and that the reference is to the ἄνθος χαλκοῦ, as the ancients
called the scaly efflorescence formed on the cooling surface of
the heated metal; cf. the scholium on Nicander, *Th.* 257. As in
the first prescription, the instructions include a wiping (περιμάσ-
σειν), here probably of the part affected, perhaps to remove any
excess of the substance applied that might remain. Or as the
noun lost before ψυχρῷ seems to have modified περίμασσε, the
wiping may have been intended to cool and soothe the diseased
parts. Galen's expression, περίματτε σπόγγῳ θερμῷ (14, 424, 3)
suggests σπόγγ]ῳ ψυχρῷ περίμασσε here; but the last trace
before ψυχρῷ cannot belong to ω. It might be ι of σπογγωι, but
adscript ι does not appear elsewhere in the papyrus.

As in the case of the Oxyrhynchus prescriptions, these are written on the verso of a papyrus the recto of which had previously been used for some document, probably an account, as several amounts in artabae of grain are clearly legible on the recto. While the recto preserves no date, the hand is of a sort common in the second century A. D., and the later use of the papyrus for the medical prescriptions probably fell in the second or third. It thus belongs in time as well as in subject-matter, with the Oxyrhynchus medical papyrus already mentioned. The hand is a well-formed and fairly regular semi-uncial, not of the best literary type, but very far removed from the ordinary cursive hand of Roman documents. The spaces, such as are sometimes called "half-paragraphs," in ll. 6 and 13, seem further to favor the view that the manuscript was not a mere private copy, made for the writer's own use, as many literary works written on the verso of old documents doubtless were, but a more careful and formal writing, perhaps designed for sale. The only punctuation is a high point in l. 6, at the end of the first prescription. A blank space of 2 cm. is left after it before the beginning of the second prescription, and a similar space seems to have been left (l. 13) before the third. The lines are from the upper part of the column, and 1. 7 cm. of the upper margin are preserved. Little if anything is lost from the right-hand margin of the column; at the left something is lost, but how much cannot be certainly determined; hardly less than four or five letters, however, for the lost beginning of l. 8 pretty certainly contained the concluding letters of ξη[ρᾶς and the opening letter, or letters, of ?χ]αλκοῦ, and probably some intervening word or words besides.

$$]\ \delta\iota\varsigma\ \mu\iota\sigma\upsilon o\varsigma\ \sigma\tau\upsilon\pi\tau\eta\rho$$

$$\iota\alpha\varsigma?\quad]\varsigma\ \kappa\epsilon\kappa\alpha\upsilon\mu\epsilon\nu\eta\varsigma\ \delta\iota$$

$$]\eta\ \kappa\eta\rho\omega\tau\eta\ \rho o\delta\iota\nu\eta[$$

$$]\mu\alpha\ \pi\rho o\alpha\pi o\sigma\mu\eta\xi[$$

$$5\quad \alpha\varsigma\quad]\theta\epsilon\iota\ \tau\eta\nu\ \epsilon\pi\epsilon\iota\phi\alpha\nu\epsilon\iota\alpha[\nu?$$

$$]\ \epsilon\pi\epsilon\iota\ \delta\epsilon\iota\cdot\ \lambda\epsilon\pi\rho[$$

$$]\ .\ .\ \upsilon\rho o\upsilon\ \lambda\ \llcorner\ \pi\iota\sigma\eta\varsigma\ \xi\eta[$$

ρας   ?χ]αλκου του ανθους

             ]κοψας εμβαλε εις κ[

10   ]λκου πυρος χρωτι[

            ]ξη ενχριε εις δερ

μα?   ]ι ψυχρω περιμασσε[

       ]   αλλη πυ[.]ιτυ . ιν

            ]αιου παλαι

15   ].(   ) . . . . ομιθιν(   ) π[

              ]ν λι

              ]υρι

                ]αν

Here the papyrus breaks off.

5: Read ἐπιφάνειαν.   7: Or a ʟ.—Read πίσσης.

Μίσυ (copperas) is not uncommon with the medical writers. Many forms and sorts of στυπτηρία (alum) were known to Greek writers on medicine; σχιστή, στρογγύλη, ἀστραγαλωτή, χαλκῖτις, τριχῖτις, πλινθῖτις, πλακῖτις, ὑγρά, Αἰγυπτίη, Μηλίη, are some of the names applied to them. The first letter of l. 2 might belong to στυπτηρ[ία]ς, were it not that ll. 7 and 8 lead us to expect a greater lacuna at the beginning of lines. Even as it is, κεκαυμένης probably limits στυπτηρ[ίας. Κηρωτὴ ῥοδίνη (l. 3), the ceratum rosaceum of Appuleius, seems to have been a recognized preparation of the ancient pharmacopoeia. Προαποσμήχειν too (l. 4) is met with in Dioscorides (1, 144), Oribasius (2, 417, 9), and Galen (13, 374 C). Ἐπιφάνεια (l. 5), while not primarily a medical term, is used by medical writers in describing symptoms. Paul of Aegina, for example, says that leprosy manifests itself in τραχυσμὸς ἐπιφανείας. The restoration πίσσα ὑγρά is suggested by Dioscorides (1, 95), who speaks of πίσσα ὑγρά and πίσσα ξηρά: ἡ δὲ ξηρὰ πίσσα ἐψομένης τῆς ὑγρᾶς γίνεται· καλεῖται δὲ αὐτὴ ὑπ' ἐνίων παλίμπισσα. That Theophrastus too recognized the same distinction, though under a different terminology, is implied in his πίττα ὠμή; and the corresponding πίσσα ἐφθή occurs in Hippocrates. The imperatives ἔμβαλε and ἔνχριε, ll. 9 and 11, recall some of the directions of Galen and of the Oxyrhynchus prescriptions, where imperatives singular and aorist participles largely constitute the verbal mechanisms.

V. HOMER, *ILIAD* B, 1-20

The papyrus preserves the beginnings of the first twenty lines of the second book of the *Iliad*, and doubtless formed the beginning of a roll containing that book. The very neat uncial hand suggests a date in the second century, as do the dates on the bulk of the documentary papyri found with this fragment. The text is the vulgate. The paragraphus stands after l. 7, marking the pause in the sense. This and the reading πασσυ[διη in l. 12, (with H^{b}PQ^{b}C^{b}E^{b}E^{c}O^{b}XZ, b^2; πανσυδίῃ, Ludwich) are the fragment's chief points of interest. No trace of l. 2 is preserved, but the space shows that a verse stood here in the papyrus. The restorations are in accordance with the text of Ludwich.

On the verso are parts of fourteen lines of a document, in a large and rather rude uncial hand of the same century. Between ll. 1 and 2 there is space for perhaps seven lines uninscribed.

```
              ]του
                 ]λ ρ̄ ωσ[
                 ]
                 ]- απου ο[
    5            ]  . τ̄ων . . [
                 ] οινου κ[
              ο ]βολους [
                 ] . υς οβολ[
                 ] Ϟ̄ . (αρουρας) ριβ ⌊
   10               ] . . ρες ν̄[
                    ]  . οσου[
                 ]νο[ ν ]τας [
                    ] . σ̄ . [
                       ] ε [
              . . . . .
```

In the following transcription the parts missing in the papyrus have been restored from the text of Ludwich.

αλ[λοι μεν ρα θεοι τε και ανερες ιπποκορυσται
[ευδον παννυχιοι δια δ ουκ εχε νηδυμος υπνος]
αλλ [ο γε μερμηριζε κατα φρενα ως αχιληα
τιμ[ηση ολεση δε πολεας επι νηυσιν αχαιων
5 ηδε δ[ε·οι κατα θυμον αριστη φαινετο βουλη
πεμ[ψαι επ ατρειδη αγαμεμνονι ουλον ονειρον
και μ[ιν φωνησας επεα πτεροεντα προσηυδα
β̄ασ[κ ιθι ουλε ονειρε θοας επι νηας αχαιων
ελθω[ν ες κλισιην αγαμεμνονος ατρειδαο
10 παν[τα μαλ ατρεκεως αγορευεμεν ως επιτελλω
θωρη[ξαι ε κελευε καρηκομοωντας αχαιους
πασσυ[διη νυν γαρ κεν ελοι πολιν ευρυαγυιαν
τρωω[ν ου γαρ ετ αμφις ολυμπια δωματ εχοντες
αθα[νατοι φραζονται επεγναμψεν γαρ απαντας
15 ηρη λ[ισσομενη τρωεσσι δε κηδε εφηπται
ως φα[το βη δ αρ ονειρος επει τον μυθον ακουσε
καρ[παλιμως δ ικανε θοας επι νηας αχαιων
βη δ [αρ επ ατρειδην αγαμεμνονα τον δε κιχανεν
ευ[δοντ εν κλισιη περι δ αμβροσιος κεχυθ υπνος
20 σ[τη δ αρ υπερ κεφαλης νηληιω υιι εοικως

VI. HOMER, *Iliad* E, 824–41

(*Plate II*)

The middle parts of eighteen lines of *Iliad* E in a fine uncial hand appear on the recto of this little fragment.   On the verso are parts of two columns, written in a bold, rude cursive.   The ends of thirteen lines of the first column and the initial letters of five of the second are preserved.   The name 'Oρ]σενοῦφιν, column i, l. 11, betrays the non-literary character of the columns, of which these are the remains:

Verso, Column i		Column ii
] .		ρε[
]θησεται		π[
]οιποις		φ[
]σαν		ε[
5]νθα	5	τ[
]ν τοπον		
]επικει		
] . πας		
]ωνη		
10]ταστη		
Oρ]σενουφιν		
]τω		
]ειπεν		

The writing of the *Iliad* verses on the recto is a very fine and neat back hand of the semi-uncial type.   This hand has led Drs. Grenfell and Hunt, to whom the papyrus has been sub-mitted, to assign it to the middle or latter part of the second century, when in the time of the Antonines such hands came into vogue.   The upper stroke of *a* is much prolonged, and the loop is rather reduced in size.   The letter thus somewhat resembles

the alphas of the first hand in the British Museum manuscript of Isocrates *On the Peace*, assigned by Mr. Kenyon to the first century;[1] and still more the alphas of the British Museum *Odyssey*, which Mr. Kenyon refers to the early first century.[2] The loops of β are distinct from each other. In ε the upper curve often meets the cross-stroke, giving the letter much the appearance of a modern English e; sometimes the lower curve also meets the cross-stroke, when the letter is indistinguishable from θ. In η the cross-stroke passes well to the left of the left vertical, while the right vertical has become a short but decided curve hanging from the right end of the cross-stroke. In ο and the letters of a similar outline—ε σ θ—the form is rather oval, the axis pointing not straight up, but decidedly to the left, until it sometimes becomes almost horizontal. This is indeed the prime characteristic of the hand, and in it ι and all the vertical strokes of the angular letters share. χ is small, ρ and φ being the only letters which go below the line. ψ and ξ do not occur. The letters are all completely formed, but they are often joined together. Whether the dative ι was written in the papyrus is not quite clear. Only in βριθοσύνη 839 should we expect it, and here it was not originally written; but it seems to have been supplied, together with a point—perhaps by another hand—just above η. The stroke above ω of πρώην 832 is probably similarly intended, and is doubtless due to the same corrector, who thought of πρωί and wished πρώην spelled etymologically. Yet it is just possible that in 832 an acute accent is meant, in which case it must come from another hand than the rest of the accents in the fragment; and that in 839 some scholiast wrote ˙ | ˙ above η, with reference to a scholium in the margin. Didymus has a comment on this line, but it does not concern βριθοσύνη; it reads: διὰ τοῦ δὲ αἱ ’Αριστάρχου ἄνδρα δ’ ἄριστον.[3]

The papyrus has a fair array of points and accents, generally from the first hand. The rough breathing occurs twice—836 and 840. The acute appears frequently, in the case of diphthongs standing over both vowels. It stands usually on antepenults, but

[1] Kenyon, *Classical Texts from Papyri in the British Museum*, Plate IV.

[2] Kenyon, *Palaeography of Greek Papyri*, Plate XV, p. 84.

[3] La Roche, *Ilias*, p. 159.

PLATE II

ILIAD E 824–841 (VI)

[From the *American Journal of Philology*, Vol. XXI]

σύ 827 and τοίη 828 also have it. A feature somewhat less common is the marking of a-long: ἄρηα 827, ἄρηϊ 829, 841, ερύσᾶσ (ἐρύσασα) 836. In 824, on the other hand, the initial a of Ἄρηα is short and is, of course, unmarked. ερύσᾶσ was probably marked to prevent confusion with ἔρυσας, although the apostrophe would have done as well. The diaeresis is used with its modern force, and elision is sometimes indicated by the apostrophe. The high point is the only punctuation-mark—828, 830, 838, and possibly 839. In 830, modern editions have a comma; in the other lines they have a colon.

The fragment furnishes few interesting readings. Naturally, it is the vulgate text that is represented. γινωσκων 824 is probably an error for γινώσκω. It is unsupported by the manuscripts, and the editors read γιγνώσκω or γινώσκω, which the sense obviously requires. σθενελος 835 is equally unintelligible, and seems to have no support, editors and manuscripts reading Σθένελον. Yet the superior iotas in 832 and 839 show that the papyrus has had at least one corrector, and one wonders why he was not thoroughgoing. In the case of γινώσκων, indeed, it is probable the ν was marked for excision. There is an additional stroke in the middle of it, which may be thus interpreted. The stroke with which the corrector deleted the a of μαχήσασθαι 833 is hardly more noticeable. But σθενελος shows no trace of the corrector's hand, while the line can hardly be restored in such a way as to justify the nominative.

The corrector has again asserted himself in 833, where he writes ε above the penultimate a of μαχήσασθαι. In this he has the approval of most modern editors, who print μαχήσεσθαι. There are a number of manuscripts, however, which have the reading of the first hand. The papyrus betrays no consciousness of Aristarchus's rejection of 838, 839; but the margins might tell a different story. The reading in 840 is not quite certain. Apparently the first hand wrote μαστειγα, in which the corrector deleted the ε.

In the following transcription the lacunae are supplied from the text of Ludwich, except that, in view of the usage of the papyrus, the dative iotas are omitted. Accents, points, and marks of quantity are printed only where they occur in the papyrus. A

point under a letter means that the reading is not quite certain;
a line, that the corrector has marked the letter as wrong. Some
lines are wanting at both top and bottom of the column.

γινωσ]κων γαρ αρηα μ[αχην ανα κοιρανεοντα
825 τον δ η]μείβετ' επειτ[α θεα γλαυκωπις αθηνη
τυδειδ]η διομηδες ε[μω κεχαρισμενε θυμω
μητε σ]ύγ' ἄρηα το γε δε[ιδιθι μητε τιν αλλον
αθανατ]ων· τοίη τοι εγ[ων επιταρροθος ειμι
αλλ αγ] επ ἄρηϊ πρωτω [εχε μωνυχας ιππους
830 τυψον] δε σχεδιην· μη[δ αζεο θουρον αρηα
τουτο]ν μαινομενον τ[υκτον κακον αλλοπροσαλλον
ος πρ]ω‘ην μεν εμοι τ[ε και ηρη στευτ αγορευων
τρωσι] μαχήσασθαι αταρ [αργειοισιν αρηξειν
νυν δ]ε μετα τρώεσσιν [ομιλει των δε λελασται
835 ως φα]μενη σθενελος [μεν αφ ιππων ωσε χαμαζε
χειρι] παλιν ερύσᾱσ ὁ δ' α[ρ εμμαπεως απορουσεν
η δ ες] διφρον εβαινε π[αραι διομηδεα διον
εμμεμα]υια θεα· μεγα δ' εβ[ραχε φηγινος αξων
βριθ]οσυνη‘· δε[ι]νην γα[ρ αγεν θεον ανδρα δ αριστον
840 λαζετ]ο δε μαστε[ι]γα και ἡ[νια παλλας αθηνη
αυτικ επ] ἄ[ρηι πρωτω εχε μωνυχας ιππους

824: γινωσκω Ludwich, Leaf; γιγνώσκω Dindorf, La Roche, Van
     Leeuwen, with GHᵇNᵇ; -κω corr.
827: το γε with ASBMUᵇ¹; τόν γε FTWPˣUᵇ²NᵃEᶜ¹Uᵃ¹Yᶜ², Eust.;
     τόνδε JLPCQᶜUᵃ²UᶜZ; τὸν EᵇKᵇ.
831: τυκτον; στυκτὸν Van Leeuwen.
832: πρωην man. prim. Dindorf.
     πρωιην corr. Leaf; πρῴην La Roche, Van Leeuwen, Lud-
     wich, with AGXY.
833: μαχήσασθαι man. prim. HJPˣHᵇNᵃQᶜUYᶜ.
     μαχήσεσθαι corr. Dindorf, La Roche, Leaf, Ludwich.
     μαχέσθαι X¹; μαχέσασθαι UᵃX² μαχέσσεσθαι Van Leeuwen.
     αταρ; αὐτὰρ PˣEᶜKᵇYᶜ.
835: σθενελος; Σθένελον Dindorf, La Roche, Van Leeuwen, Leaf,
     Ludwich, etc.

836: ερύσᾱσ; ἐρύσασα S.

838, 839: 'Αθετοῦνται Aristarchus.

839: Van Leeuwen puts this verse in the margin; P¹ has it after 840.

840: δε; δὴ X²; γὰρ H.

μαστειγα *man. prim.*; μαστιγα *corr.*, Dindorf, La Roche, Van Leeuwen, Leaf, etc.

VII. HOMER, *ILIAD* Θ, 1–68

The papyrus (Π^w in Ludwich's apparatus), which is thick and full of holes, formed a part of a roll, inscribed on one side only, in columns 16 cm. in height, each containing thirty-three lines. Parts of two such columns remain, giving the closing words of the lines of one and the opening words of those of the other, but in no case preserving a complete line. The hand is an even uncial, written with evident care. There are occasional accents and points of punctuation, with little, unless it be their sporadic occurrence, to suggest that they are the work of a second hand. Acute, grave, and circumflex accents all occur; the last with a diphthong being written so as to embrace both letters. I have observed no breathings. Of punctuation marks, the apostrophe, the colon (high point), and possibly the period, appear. The apostrophe is used, though irregularly, to mark elision. The period seems to occur in l. 11. Perhaps in ll. 20 (between θεοι and πασαι) and 66 (after ην) we have cases of the middle point — στιγμὴ μέση. The cases of the high point are clear, as indicated in the transcription.

Iota is adscript in datives: as in [ακροτατη]ι, κορυφηι, l. 3; αυτηι, [θα]λασσηι, l. 24; αλληλῃσι, l. 63, etc. ν written after δαναοισι, l. 11, is marked for erasure. There seems to be no attempt at separating the letters into words. Of the character of the hand, it is enough to say that, letter for letter, it generally presents close resemblances to the writing of the Bankes papyrus of *Iliad* Ω. The strokes in the Bankes papyrus are perhaps a trifle finer, while its accents and punctuation, on the other hand, are far more clumsy and rude. These, however, it is agreed, are by a later hand, which is hardly the case with the accents of the fragment before us. One point of real difference between the two — almost the only point that interrupts this correspondence — is in the matter of ι-adscript. The iotas adscript of the Bankes papyrus have

been said to be the work of the hand that supplied the coarse punctuation and accents which so mar that manuscript. In our fragment, on the other hand, whatever might be thought of accents and points, the adscripts are quite clearly the work of the first hand. This is evidenced by the appearance of ι-adscript with the second η of ἀλλήλῃσι, l. 63; for had it been inserted by a late hand, the adjoining letters would inevitably have looked crowded, and of this there is no suggestion. Yet the resemblances of the two manuscripts remain sufficient, at least, to warrant the belief that they are the works of the same school of writing, and not far separated from one another in point of time.

The question of the date of the Bankes *Iliad* thus becomes important for the determination of that of our papyrus, for which the prevailing date of the accompanying grain receipts, 159 A. D., affords at best only a *terminus ad quem*. Between the extremes of the dates that have been suggested for the Bankes papyrus, from three to four centuries intervene. Wattenbach,[1] in 1867, characterized it as perhaps the finest example preserved to us of old Alexandrian calligraphy in the time of the Ptolemies; La Roche[2] thinks it probably comes from the time of the last Ptolemies or the first century B. C., but may be one hundred years younger; Gardthausen,[3] while he nowhere precisely dates the papyrus, considers it older than the Hypereides, and this again he regards as earlier than 150 A. D. The possibility that the Louvre fragments of *Iliad* N, which Silvestre assigned to the first century B. C., were found with the Bankes papyrus has been suggested by the editors of the Louvre fragments,[4] and may serve as a further attestation of the earlier date. The same dating has been revived, in connection with a facsimile of a few lines of the papyrus, in Harper's *Classical Dictionary* (p. 840). An origin in the second century after Christ, however, has been maintained by Maunde Thompson, accepted by Blass, Leaf, and Van Leeuwen, and adopted as probable in the Palaeographical Society's first volume; while

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[1] *Anleitung zur griechischen Paläographie*, p. 5.

[2] *Homerische Textkritik*, p. 439.

[3] *Griechische Paläographie*, p. 154.

[4] *Notices et extraits*, tome XVIII, pp. 110, 111.

Wattenbach in the last edition of his *Anleitung* no longer defends the earlier date.   With this determination as to the kindred manuscript, the evidence accompanying our payprus readily combines, and we may with some confidence refer the fragment to the first half of the second century after Christ.

The first column begins with the first line of Θ.   It may be that the roll contained only this book; so thick a piece of papyrus would soon make a bulky roll, and would hardly have been selected for copying a very considerable part of the *Iliad*.   Θ in columns like these, with due allowance for margins, would make a roll 7 feet 9 inches in length.   The Bankes papyrus of *Iliad* Ω, lacking the first 126 lines, makes a roll 7 feet 8 inches long, with 42 to 44 lines to the column; the roll, when complete, cannot have been over 9 feet in length; and this may be taken as indicating what was considered a convenient size for a roll of Homer.

The textual evidence of the fragment is interesting.   Line 6[1] of the traditional text was evidently never in this copy.   Bekker notes its absence from Codex Venetus A.   Nauck, who, with F. A. Wolf, Cauer, and Pierron, prints the line unbracketed, nevertheless, with La Roche, cites A and D as omitting it; von Christ, retaining it, remarks, "om. AD, habet C et D in marg."   Leaf and Rzach bracket the line, with La Roche and Hentze, and Ludwich suspects it, while Van Leeuwen relegates it to the margin.   As various editors have suggested, the line probably crept into the text of Θ under the shadow of l. 5, with which it forms a couplet in T 101, 102.

The final -ν of Δαναοῖσιν, l. 11, was written by the scribe, and then marked for erasure.   The matter is a small one, but has received the attention of the editors.   Bekker, Leaf, Cauer, Pierron, and Nauck retain the consonant; Wolf, La Roche, Ludwich, and Van Leeuwen reject it.   It has been pointed out that Θ 11 = N 9.[2]   In the latter place all texts, I believe, have Δαναοῖσιν. There the word concludes a sentence and a paragraph; and as the following verse begins with a vowel, there is much to be said

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[1] ὄφρ' εἴπω τά με θυμὸς ἐνὶ στήθεσσι κελεύει.   T 102 differs only in reading στήθεσσιν ἀνώγει.

[2] Save that Θ 11 reads ἀρηγέμεν for the ἀρηξέμεν of N 9.

for the strong ending. In Θ 11, however, the word is followed by a comma only, and the first word of 12 begins with two consonants. The need of -ν is much less evident here than in N 9. Lines 11, 25, 26, and 18–40, which have been regarded with some suspicion by many critics, are not omitted from our text, the fragment, in its attestation of these lines, further allying itself with the received text. An itacism, χρι- for χρει-, is to be observed in 57; probably also in 44, χρυσιην for χρυσειην.

Line 59[1] seems to be lacking, though it must be said that the writing here is so faint and the papyrus so fragmentary that one cannot be certain. I think it certain that either 58 or 59 was never in this copy; and what few letters I have been able to recover seem to belong to 58. Of course in point of sense, 59 can be dispensed with much better than 58, as 59 without 58 would be meaningless. The two lines appear as a couplet in B 809, 810, and perhaps the appearance of the second with the first in Θ in the received text is a parallel to the case of Θ 5, 6, discussed above; that is, 58 may have drawn 59 after it into the received text here, just as 5 seems to have brought 6 after it, above. It should be noted, too, that the second line of our couplet occurs in ω 70 without the first; which may show that its connection with the first is not as close as I have assumed; while quite as fairly suggesting that if the second may occur without the first, the first may occur without the second. I know of no other manuscript support for this rejection; and as far as my observation goes, no editor has conjectured it.

Column I

ηως μεν κροκοπ]επλος εκιδνατο πασαν επ' αιαν ·
ζευς δε θεων αγορη]ν ποιησατο τερπικεραυνος
ακροτατη]ι κορυφηι πολυδε[ιραδο]ς [ουλ]υμποιο ·
αυτος δε σφ αγορευε θ]εοι [δ υπο παντ]ες ακουον ·
5 κεκλυτε μευ παντες τε θ]εοι [πασαι τ]ε θέαιναι ·
7 μητε τις ουν θηλεια θεο]ς το[γε μητε τι]ς άρσην
πειρατω διακερσαι εμον] ε[π]ο[ς αλλ αμ]α πάντες
αινειτ οφρα ταχιστα τελε]υτ[ησω τ]άδε έργα

[1] πεζοί θ' ἱππῆές τε · πολὺς δ' ὀρυμαγδὸς ὀρώρει.

10 ον δ αν εγων απανευθε] θεων [ε]θ[ε]λοντα νοήσω
ελθοντ η τρωεσσιν αρηγέμεν] ἠ δαναοῖσιν.
πληγεις ου κατα κοσμον] ελ[ευ]σεται ουλυμπον δε
η μιν ελων ριψω ες ταρτ]αρον ηεροεντα
τηλε μαλ ηχι βαθιστον υπο χθ]ονός εστι βερεθρον·

15 ενθα σιδηρειαι τε πυλαι και χαλκε]ος ουδος
τοσσον ενερθ αιδεω οσο]ν ουρα[νὸς ε]στ' απο γα[ι]ης·
γνωσετ επειθ ὁ]σον ειμ[ι θε]ῶ[ν κάρ]τιστος α[π]αν[των
ει δ αγε πειρησασθ]ε [θεοι ίνα ειδετ]ε πάν[τες
σειρην χρυσειην ε]ξ ου[ρανοθ]εν [κρε]μασαντ[ες

20 παντες δ εξαπτεσ]θε θεοι πασαι [τε θεα]ιναι·
αλλ ουκ αν ερυσαιτ] εξ ουρανόθε[ν π]εδ[ι]ον δε
ζην υπατον μηστωρ ουδ ει μαλα] πο[λ]λα κα[μοιτε
αλλ οτε δη και εγω προ]φ[ρων] εθελ[ο]ι[μ]ι ερυσσ[αι
αυτηι κεν γαιηι ερυ]σαιμ' αυτῆι τ[ε θα]λάσσηι·

25 σειρην μεν κεν επ]ειτα περι ρίον ουλ[ύ]μπο[ιο
δησαιμην τα δε κ α]υτε μετη[ο]ρα πάντα γέ[νοιτο
τοσσον εγω περι τ ει]μι θε[ω]ν [π]ερί τ' ειμ' ανθρω[πω]ν
ως εφαθ οι δ αρα παντες ακην εγενοντο] σιωπ[ηι
μυθον αγασσαμενοι μαλα γαρ κρατερως αγ]όρευ[σεν

The rest of the column, containing ll. 30–34, is broken away.
Possibly the last letter, with the high point following it, of the
long line 32, now lost, is apparent below column i.

Column II

35 αλλ' η τοι πολεμου [μεν αφεξομεθ ως συ κελευεις
βουλην δ' αργειοι[ς υποθησομεθ η τις ονησει
ως μη παντ[ε]ς [ολωνται οδυσσαμενοιο τεοιο
την δ' επιμειδ[ησας προσεφη νεφεληγερετα ζευς
θαρσει τριτογε[νεια φιλον τεκος ου νυ τι θυμωι

40 προφρονι μυθέ[ομαι εθελω δε τοι ηπιος ειναι
ως ειπων υπ ὁ[χεσφι τιτυσκετο χαλκοποδ ιππω
ωκυπετα χρυ[σεηισιν εθειρηισιν κομοωντε
χρ[υσ]ον δ' αυτο[ς εδυνε περι χροι γεντο δ ιμασθλην
χρυσι[η]ν ευτυ[κτον εου δ επεβησετο διφρου

45 μασ[τιξε]ν δ' ελ[ααν τω δ ουκ ακοντε πετεσθην

μεσσ[ηγυς γαιης τε και ουρανου ἀστεροεντος
ιδην δ[ικανεν πολυπιδακα μητερα θηρων
γ]αργαρο[ν ενθ]α δ[ε οι τεμενος βωμος τε θυηεις
ενθ' ι[ππους] ε[στησε πατηρ ανδρων τε θεων τε
50 λυσας εξ οχε[ων κατα δ ηερα πουλυν εχευεν
αυτος δ εν [κορυφηισι καθεζετο κυδει γαιων
ε[ισο]ρο[ω]ν τ[ρωων τε πολιν και νηας αχαιων
οι] δ [αρα δειπνο]ν [ἑλοντο καρηκομοωντες αχαιοι
ριμ[φα κατα κλισι]α[ς απο δ αυτου θωρησσοντο
55 τ]ρωες [δ αυθ ετερωθεν ανα πτολιν ωπλιζοντο
παυ[ροτεροι μεμασαν δε και ως υσμινι μαχεσθαι
χρι[οι αναγκαιηι] προ τ[ε παιδων και προ γυναικων
58 π[ασαι] δ' [ωιγνυ]ντο π[υλαι εκ δ εσσυτο λαος
60 οι δ οτε δη ρ] ες χῶρον [ενα ξυνιοντες ικοντο
συ[ν ρ εβαλον] ρινους συν [δ εγχεα και μενε ανδρων
χαλκεο]θωρηκων αται[ρ ασπιδες ομφαλοεσσαι
επληντ]' αλληληισι πο[λυς δ ορυμαγδος ορωρει
ε]νθα δ [ά]μ' οιμωγη [τε και ευχωλη πελεν ανδρων
65 ολ[λυ]ν[τ]ων τε και ολ[λ]υμε[νων ρεε δ αιματι γαια
οφρ[α μεν ηως η]ν [και αεξετο ιερον ημαρ
τ]οφρα [μαλ αμφο]τερων [βελε ηπτετο πιπτε δε λαος
η]μος δ' η[ελιος] μεσον ο[υρανον αμφιβεβηκει

1: Ἀθ. Zenodotus.
2: ποιησατο om. J[1]. The line seems to end with a colon.
4: ακουον; ἤκουον SH[b]. The line seems to end with a colon.
6: ὄφρ' εἴπω, τά με θυμὸς ἐνὶ στήθεσσι κελεύει. Omitted with
   AS[1]P[x]; added by S[3]BM, etc.
7: θεος; θεῶν Aristarchus, Apollonius.
11: The accent of ἀρηγέμεν is visible. The dot after the line
   may be a period; or possibly an additional sign to indicate the
   erasure of ν. δανοιοισιν was first written, then corrected to
   δαναοισι. δαναοισιν, WY[b].
12: ολυμπον is corrected to ουλυμπον.
14: βέλεθρον Y[b].
15: Deleted in Bekker, 2d ed.

17: The acute accent over the first o of οσον is visible, as also that over the lost a of καρτιστος. Is the mark over the first letter of απαντων a trace of a rough breathing? θεὸs, Y^b.

18: The accute accent of ινα is visible.

22: κάμοιτε U^b2, Aristot.

23: ἐρῦσαι W, ἐρύσαι X, ἐρῦσσαι HY^b.

24: ἐρύσαιμι S, ἐρύσσαιμ' J. ST read κεν for τε.

25, 26: 'Αθ. Zenodotus; om. Aristid. περι ρίον; al. περιρριον. The accent of ουλυμποιο seems to be visible.

27: ειμ'; al. ειμι.

28–40: 'Αθ. Aristarchus.

36: βουλήν τ' P^x.

37: ἀθετοῦσιν· οὐδὲ ἐν τῇ Ζηνοδότου ἐφέροντο sch. T.

41: εἰπὼν om. J^1.

45: μάστιξε δ' GWY^bP; μάστιξέν τ' CZ.

46: μεσσηγὺ P. An apostrophe after μεσ of μεσσηγυς?

48: ενθα δε S^1, ἔνθα δέ AS^2, ἔνθα τέ M.

49: ἔνθα X.

50: λύσας δ' H.

52: Zenodotus has vs. 1 after vs. 52.

54: κλισιης C.

55: τρῶες H^b.

57: χρειῆ P^xU^bC^bY^c1, χρείη L.

59: πεζοί θ' ἱππῆές τε· πολὺs δ' ὀρυμαγδὸs ὀρώρει. Omitted.

62: αὐτὰρ SB^1MJWP^x.

63: ἀλλήλῃσι Ludwich. ἀλλήλοισι W^1P^xY^bKP^1CY^c.

64: ἔνθα δ' ἄμ' Ludwich. ἔνθ' ἄμ' BMJKP^x; ἔνθ' ἄμα X; ἔνθ' ἄρ Y^b; ἔνθ' ἄρα H^b; ἔνθα δ' Y^hY^p. The accent of άμα is visible.

APPENDIX

THE PAPYRI OF THE KÔM USHÎM AND ASHMUNÊN GROUPS AS FAR AS PUBLISHED

Nos. 93, 101, 104 are said to be from Ashmunên; the others are from Kôm Ushîm.

1-91. Grain Receipts: *The University of Chicago Studies in Classical Philology*, III, pp. 1-66. (No. 67 completed in *Classical Philology*, I, p. 172.)

92. Homer, *Iliad* Θ, 1-68: *American Journal of Archaeology*, Second Series, II, pp. 347-56; *Chicago Literary Papyri*, pp. 38-43.

93. Homer, *Iliad* E, 824-41: *American Journal of Philology*, XXI, 310-14; *Chicago Literary Papyri*, pp. 33-37.

94. Boat Ticket: *The University of Chicago Decennial Publications*, V, p. 28.

95. Legal Proceedings: *ibid.*, pp. 29, 30.

96. Accounts: *ibid.*, pp. 30-73.

97. Termination of Partnership: *Classical Philology*, I, p. 168.

98. Claim of Title: *ibid.*, p. 169.

99. Accounts: *ibid.*, III.

100. Declaration: *ibid.*, I, p. 167.

• 101. Alexandrian Hexameters: *Journal of Hellenic Studies*, XXIII, pp. 237-47; *Chicago Literary Papyri*, pp. 6-18.

102. Docket of a Village Scribe: *Classical Philology*, I, p. 173.

103. Isocrates, *To Nicocles*, chaps. 9-11: *Chicago Literary Papyri*, pp. 3-5.

104. Letter: *ibid.*, p. 173.

105. Report of Officials: *ibid.*, p. 174.

106. Address to Village Officials: *ibid.*, p. 174.

107. Address to the Praefect: *ibid.*, p. 175.

108. Medical Prescriptions: *American Journal of Philology*, XXIV, pp. 327-29; *Chicago Literary Papyri*, pp. 28-30.

109. Tax Receipt: *Classical Philology*, I, p. 173.

110. Petition to the Strategus: *ibid.*, p. 170.

124. Homer, *Iliad* B, 1-20: *ibid.*, p. 167; *Chicago Literary Papyri*, pp. 31, 32.

INDEX OF TEXTS NOT OTHERWISE EXTANT
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