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Meteorology

Aristotle

ΜΕΤΕΩΡΟΛΟΓΙΚΑ
ΠΕΡΙ ΚΟΣΜΟΥ

Meteorology

With On the Cosmos

---

with a word-for-word interlinear English translation

preserving the original word order



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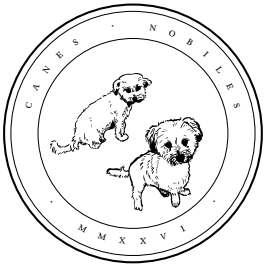

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Set from the First Thousand Years of Greek, with corrections

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Words the editors seclude are not printed; words
they supply are printed without their brackets.

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ARISTOTLE

ΜΕΤΕΩΡΟΛΟΓΙΚΑ

Meteorology

BOOK I

ΜΕΤΕΩΡΟΛΟΓΙΚΩΝ Α.

I · THE PLAN OF THE INQUIRY

The first causes of nature, motion, the ordered movement of the stars, and the elements and their change into one another have been treated already. What remains is what earlier thinkers called meteorology: what happens by nature, less regularly than the first element, in the region nearest the stars, such as the Milky Way, comets, and shooting stars; the affections common to air and water; the kinds and parts of earth, with winds and earthquakes; thunderbolts, whirlwinds, and fire-winds. Animals and plants come after.

Περὶ μὲν οὖν τῶν πρώτων αἰτίων τῆς φύσεως καὶ
About indeed then the first causes of-the nature and
περὶ πάσης κινήσεως φυσικῆς, ἔτι δὲ περὶ τῶν κατὰ
about all motion natural further and about the according-to
τὴν ἄνω φορὰν διακεκοσμημένων ἄστρων καὶ περὶ τῶν
the upper movement arranged stars and about the
στοιχείων τῶν σωματικῶν, πόσα τε καὶ ποῖα, καὶ
elements the bodily how-many both and of-what-sort and
τῆς εἰς ἄλληλα μεταβολῆς, καὶ περὶ γενέσεως καὶ φθορᾶς
of-the into one-another change and about generation and destruction
τῆς κοινῆς εἴρηται πρότερον. Λοιπὸν δ' ἐστὶ μέρος τῆς
the common it-has-been-said before Remaining and is part of-the
μεθόδου ταύτης ἔτι θεωρητέον, ὃ πάντες οἱ πρότερον
inquiry this still to-be-studied which all the earlier
μετεωρολογίαν ἐκάλουν· ταῦτα δ' ἐστὶν ὅσα συμβαίνει
meteorology called these-things and are as-many-as happen
κατὰ φύσιν μέν, ἀτακτοτέραν μέντοι τῆς τοῦ πρώτου
according-to nature indeed more-disorderly however than-that of-the first
στοιχείου τῶν σωμάτων, περὶ τὸν γειτνιῶντα μάλιστα
element of-the bodies about the neighboring most

τόπον τῇ φορᾷ τῶν ἄστρων, οἷον περί τε γάλακτος καὶ
place to-the movement of-the stars as about both milky-way and
κομητῶν καὶ τῶν ἐκπυρουμένων καὶ κινουμένων φασμάτων,
comets and the being-ignited and moving apparitions
ὅσα τε θείημεν ἂν ἀέρος εἶναι κοινὰ πάθη καὶ ὕδατος,
as-many-as both we-would-set — of-air to-be common affections and of-water
ἔτι δὲ γῆς ὅσα εἴδη καὶ μέρη καὶ πάθη τῶν μερῶν,
further and of-earth as-many-as kinds and parts and affections of-the parts
ἐξ ὧν περί τε πνευμάτων καὶ σεισμῶν θεωρήσαιμεν ἂν
from which about both winds and earthquakes we-would-study —
τὰς αἰτίας καὶ περὶ πάντων τῶν γινομένων κατὰ τὰς
the causes and about all the happening according-to the
κινήσεις τὰς τούτων· ἐν οἷς τὰ μὲν ἀποροῦμεν,
motions the of-these in which the(-ones) indeed we-are-at-a-loss-about
τῶν δ' ἐφαπτόμεθά τινα τρόπον· ἔτι δὲ περὶ
the(-others) and we-grasp in-some way further and about
κεραυνῶν πτώσεως καὶ τυφώνων καὶ πρηστήρων καὶ τῶν
thunderbolts' falling and whirlwinds and fire-winds and the
ἄλλων τῶν ἐγκυκλίων, ὅσα διὰ πῆξιν συμβαίνει
other the recurrent as-many-as because-of solidification happen
πάθη τῶν αὐτῶν σωμάτων τούτων. Διελθόντες δὲ
affections of-the same bodies these Having-gone-through and
περὶ τούτων, θεωρήσωμεν εἴ τι δυνάμεθα κατὰ τὸν
about these let-us-study if anything we-are-able according-to the
ὑφηγημένον τρόπον ἀποδοῦναι περὶ ζῴων καὶ φυτῶν,
prescribed way to-give-an-account about animals and plants
καθόλου τε καὶ χωρίς· σχεδὸν γὰρ τούτων ῥηθέντων τέλος
generally both and separately nearly for these having-been-said end
ἂν εἴη γεγονὸς τῆς ἐξ ἀρχῆς ἡμῖν προαιρέσεως
— would-be having-come-about of-the from beginning our undertaking
πάσης. Ὧδ' οὖν ἀρξάμενοι λέγωμεν περὶ αὐτῶν πρῶτον.
all Thus then having-begun let-us-speak about them first

There are five bodies: one that moves in a circle, and four that move to or from the center, fire, air, water, and earth, fire floating on top and earth settling beneath, air nearest fire and water nearest earth. The world about the earth is made of these four, and it is continuous with the upper motions, so that all its power is governed from there. That everlasting motion is the first cause to consider; the four bodies are the matter of what happens here.

Ἐπεὶ γὰρ διώρισται πρότερον ἡμῖν μία μὲν ἀρχὴ τῶν
Since for it-has-been-defined before by-us one indeed principle of-the
σωμάτων, ἐξ ὧν συνέστηκεν ἡ τῶν ἐγκυκλίως φερομένων
bodies from which is-composed the of-the in-a-circle moving
σωμάτων φύσις, ἄλλα δὲ τέτταρα σώματα διὰ τὰς
bodies nature other and four bodies because-of the
τέτταρας ἀρχάς, ὧν διπλῆν εἶναί φαμεν τὴν κίνησιν,
four principles of-which twofold to-be we-say the motion
τὴν μὲν ἀπὸ τοῦ μέσου, τὴν δ' ἐπὶ τὸ μέσον·
the(-one) indeed from the center the(-other) and toward the center
τεττάρων δ' ὄντων τούτων, πυρὸς καὶ ἀέρος καὶ ὕδατος
four and being these of-fire and of-air and of-water
καὶ γῆς, τὸ μὲν τούτοις πᾶσιν ἐπιπολάζον εἶναι πῦρ,
and of-earth the(-one) indeed on-these all floating-on-top to-be fire
τὸ δ' ὑφιστάμενον γῆν· δύο δ' ἃ πρὸς αὑτὰ τούτοις
the(-other) and settling-beneath earth two and which to themselves to-these
ἀνάλογον ἔχει· ἀὴρ μὲν γὰρ πυρὸς ἐγγυτάτω τῶν ἄλλων,
proportionately are air indeed for to-fire nearest of-the others
ὕδωρ δὲ γῆς. Ὁ δὴ περὶ τὴν γῆν ὅλος κόσμος ἐκ
water and to-earth The indeed about the earth whole cosmos from
τούτων συνέστηκε τῶν σωμάτων· περὶ ὃν τὰ συμβαίνοντα
these is-composed the bodies about which the happening
πάθη φαμὲν εἶναι ληπτέον. Ἔστι δ' ἐξ ἀνάγκης συνεχής
affections we-say to-be one-must-grasp It-is and from necessity continuous

πως οὗτος ταῖς ἄνω φοραῖς, ὥστε πᾶσαν αὐτοῦ τὴν
somehow this with-the upper movements so-that all its the
δύναμιν κυβερνᾶσθαι ἐκεῖθεν· ὅθεν γὰρ ἡ τῆς κινήσεως
power to-be-governed from-there whence for the of-the motion
ἀρχὴ πᾶσιν, ἐκείνην αἰτίαν νομιστέον πρώτην.
beginning for-all that cause one-must-consider first
Πρὸς δὲ τούτοις ἡ μὲν ἀΐδιος καὶ τέλος οὐκ ἔχουσα
Besides and these the(-one) indeed everlasting and end not having
τῷ τόπῳ τῆς κινήσεως, ἀλλ᾽ ἀεὶ ἐν τέλει· ταῦτα
in-the place of-the motion but always in end these
δὲ τὰ σώματα πάντα πεπερασμένους διέστηκε τόπους
and the bodies all limited stand-apart places
ἀλλήλων. Ὥστε τῶν συμβαινόντων περὶ αὐτὸν πῦρ μὲν
from-one-another So-that of-the happening about it fire indeed
καὶ γῆν καὶ τὰ συγγενῆ τούτοις ὡς ἐν ὕλης εἴδει τῶν
and earth and the akin to-these as in matter's form of-the
γιγνομένων αἴτια χρὴ νομίζειν (τὸ γὰρ ὑποκείμενον
coming-to-be causes it-is-needful to-consider the for subject
καὶ πάσχον τοῦτον προσαγορεύομεν τὸν τρόπον), τὸ δ᾽
and undergoing this we-call the way the and
οὕτως αἴτιον ὡς ὅθεν ἡ τῆς κινήσεως ἀρχή, τὴν τῶν
thus cause as whence the of-the motion beginning the of-the
ἀεὶ κινουμένων αἰτιατέον δύναμιν.
always being-moved one-must-hold-responsible power

Earth is small beside the heavens, and the space between is filled neither by air nor by fire alone. The first element, the ancients' aether, fills the upper region; below it lies a hot, dry exhalation that we call fire though it is not flame, and below that air. Clouds do not form high up, since that air is more like fire and turns with the heavens, nor close to the earth, where reflected heat scatters them; the sun's motion heats the air.

Ἀναλαβόντες οὖν τὰς ἐξ ἀρχῆς θέσεις καὶ τοὺς εἰρημένους
Having-taken-up then the from beginning positions and the said
πρότερον διορισμούς, λέγωμεν περί τε τῆς τοῦ γάλακτος
before definitions let-us-speak about both the of-the milky-way
φαντασίας καὶ περὶ κομητῶν καὶ τῶν ἄλλων ὅσα
appearance and about comets and the others as-many-as
τυγχάνει τούτοις ὄντα συγγενῆ. Φαμὲν δὲ πῦρ καὶ ἀέρα καὶ
happen to-these being akin We-say and fire and air and
ὕδωρ καὶ γῆν γίνεσθαι ἐξ ἀλλήλων, καὶ ἕκαστον ἐν ἑκάστῳ
water and earth to-come-about from one-another and each in each
ὑπάρχειν τούτων δυνάμει, ὥσπερ καὶ τῶν ἄλλων οἷς
to-be-present of-these potentially just-as also of-the others for-which
ἕν τι καὶ ταὐτὸν ὑπόκειται, εἰς ὃ ἀναλύονται ἔσχατον.
one some and the-same underlies into which they-are-resolved last
Πρῶτον μὲν οὖν ἀπορήσειεν ἄν τις περὶ τὸν καλούμενον
First indeed then would-be-at-a-loss — anyone about the so-called
ἀέρα, τίνα τε χρὴ λαβεῖν αὐτοῦ τὴν φύσιν ἐν τῷ
air what both it-is-needful to-take its the nature in the
περιέχοντι κόσμῳ τὴν γῆν, καὶ πῶς ἔχει τάξει πρὸς τἆλλα
surrounding cosmos the earth and how it-is in-order toward the-other
τὰ λεγόμενα στοιχεῖα τῶν σωμάτων. Ὁ μὲν γὰρ τῆς γῆς
the so-called elements of-the bodies The indeed for of-the earth
ὄγκος πηλίκος ἄν τις εἴη πρὸς τὰ περιέχοντα μεγέθη,
bulk how-great — some would-be toward the surrounding magnitudes

οὐκ ἄδηλον· ἤδη γὰρ ὦπται διὰ τῶν ἀστρολογικῶν
not unclear already for it-has-been-seen through the astronomical
θεωρημάτων ἡμῖν ὅτι πολὺ καὶ τῶν ἄστρων ἐνίων ἐλάττων
theorems by-us that much even than-the stars some less
ἐστίν. Ὕδατος δὲ φύσιν συνεστηκυῖαν καὶ ἀφωρισμένην οὔθ'
it-is Of-water and nature constituted and separated neither
ὁρῶμεν οὔτ' ἐνδέχεται κεχωρισμένην εἶναι τοῦ περὶ τὴν
we-see nor it-is-possible separated to-be from-the about the
γῆν ἱδρυμένου σώματος, οἷον τῶν τε φανερῶν, θαλάττης
earth situated body as of-the both visible sea
καὶ ποταμῶν, κἂν εἴ τι κατὰ βάθους ἄδηλον ἡμῖν ἐστίν.
and rivers even if anything in depth unclear to-us is
Τὸ δὲ δὴ μεταξὺ τῆς γῆς τε καὶ τῶν ἐσχάτων ἄστρων
The and indeed between the earth both and the outermost stars
πότερον ἕν τι νομιστέον εἶναι σῶμα τὴν φύσιν ἢ
whether one some one-must-consider to-be body the nature or
πλείων, κἂν εἰ πλείω, πόσα, καὶ μέχρι ποῦ διώρισται
more even if more how-many and up-to where it-has-been-defined
τοῖς τόποις; Ἡμῖν μὲν οὖν εἴρηται πρότερον περὶ τοῦ
by-the places By-us indeed then it-has-been-said before about the
πρώτου στοιχείου, ποιόν τι τὴν δύναμίν ἐστι, καὶ ὅτι
first element of-what-sort some the power it-is and that
πᾶς ὁ περὶ τὰς ἄνω φορὰς κόσμος ἐκείνου τοῦ σώματος
all the about the upper movements cosmos of-that the body
πλήρης ἐστίν. Καὶ ταύτην τὴν δόξαν οὐ μόνον ἡμεῖς
full is And this the opinion not only we
τυγχάνομεν ἔχοντες, φαίνεται δ' ἀρχαία τις ὑπόληψις αὕτη
happen holding it-appears but ancient some supposition this
καὶ τῶν πρότερον ἀνθρώπων· ὁ γὰρ λεγόμενος αἰθὴρ
also of-the earlier men the for so-called aether
παλαιὰν εἴληφε τὴν προσηγορίαν, ἣν Ἀναξαγόρας μὲν
ancient has-received the appellation which Anaxagoras indeed

τῷ πυρὶ ταὐτὸν ἡγήσασθαί μοι δοκεῖ σημαίνειν· τά τε
with-the fire the-same to-have-thought to-me seems to-mean the both
γὰρ ἄνω πλήρη πυρὸς εἶναι, κἀκεῖνος τὴν ἐκεῖ δύναμιν
for upper-regions full of-fire to-be and-he the there power
αἰθέρα καλεῖν ἐνόμισεν, τοῦτο μὲν ὀρθῶς νομίσας· τὸ
aether to-call thought this indeed rightly having-thought the
γὰρ ἀεὶ σῶμα θέον ἅμα θεῖόν τι τὴν φύσιν ἐοίκασιν
for always body running at-once divine some the nature they-seem
ὑπολαβεῖν, καὶ διώρισαν ὀνομάζειν αἰθέρα τὸ τοιοῦτον ὡς
to-have-supposed and decided to-name aether the such as
ὂν οὐθενὶ τῶν παρ' ἡμῖν τὸ αὐτό· οὐ γὰρ δὴ φήσομεν
being for-none of-the among us the same not for indeed we-shall-say
ἅπαξ οὐδὲ δὶς οὐδ' ὀλιγάκις τὰς αὐτὰς δόξας ἀνακυκλεῖν
once nor twice nor few-times the same opinions to-circle-round
γινομένας ἐν τοῖς ἀνθρώποις, ἀλλ' ἀπειράκις.
arising among the men but infinitely-often
Ὅσοι δὲ πῦρ καθαρὸν εἶναί φασι τὸ περιέχον καὶ μὴ
As-many-as and fire pure to-be say the surrounding and not
μόνον τὰ φερόμενα σώματα, τὸ δὲ μεταξὺ γῆς καὶ τῶν
only the moving bodies the and between earth and the
ἄστρων ἀέρα, θεωρήσαντες ἂν τὰ νῦν δεικνύμενα διὰ τῶν
stars air having-studied — the now being-shown through the
μαθημάτων ἱκανῶς ἴσως, ἂν ἐπαύσαντο ταύτης τῆς παιδικῆς
mathematics sufficiently perhaps — would-have-ceased this the childish
δόξης· λίαν γὰρ ἁπλοῦν τὸ νομίζειν μικρὸν τοῖς μεγέθεσιν
opinion very for simple the to-think small in-the magnitudes
εἶναι τῶν φερομένων ἕκαστον, ὅτι φαίνεται θεωροῦσιν ἡμῖν
to-be of-the moving each because it-appears viewing to-us
ἐντεῦθεν οὕτως. Εἴρηται μὲν οὖν καὶ πρότερον ἐν τοῖς περὶ
from-here thus It-has-been-said indeed then also before in the about
τὸν ἄνω τόπον θεωρήμασι, λέγωμεν δὲ τὸν αὐτὸν λόγον καὶ
the upper place theorems let-us-say and the same argument also

νῦν. Εἰ γὰρ τά τε διαστήματα πλήρη πυρὸς καὶ τὰ σώματα
now If for the both intervals full of-fire and the bodies
συνέστηκεν ἐκ πυρός, πάλαι φροῦδον ἂν ἦν ἕκαστον
are-composed of fire long-ago gone — would-be each
τῶν ἄλλων στοιχείων. Ἀλλὰ μὴν οὐδ' ἀέρος γε μόνου
of-the other elements But indeed not-even of-air at-least alone
πλήρη· πολὺ γὰρ ἂν ὑπερβάλλοι τὴν ἰσότητα τῆς κοινῆς
full much for — would-exceed the equality of-the common
ἀναλογίας πρὸς τὰ σύστοιχα σώματα, κἂν εἰ δύο στοιχείων
proportion toward the coordinate bodies even if of-two elements
πλήρης ὁ μεταξὺ γῆς καὶ οὐρανοῦ τόπος ἐστίν· οὐδὲν γὰρ
full the between earth and heaven place is nothing for
ὡς εἰπεῖν μόριον ὁ τῆς γῆς ἐστὶν ὄγκος, ἐν ᾧ συνείληπται
so-to say part the of-the earth is bulk in which is-included
πᾶν καὶ τὸ τοῦ ὕδατος πλῆθος, πρὸς τὸ περιέχον μέγεθος.
all and the of-the water amount toward the surrounding magnitude
Ὁρῶμεν δ' οὐκ ἐν τοσούτῳ μεγέθει γινομένην τὴν
We-see and not in so-great magnitude happening the
ὑπεροχὴν τῶν ὄγκων, ὅταν ἐξ ὕδατος ἀὴρ γένηται
excess of-the bulks whenever from water air come-about
διακριθέντος ἢ πῦρ ἐξ ἀέρος. Ἀνάγκη δὲ τὸν αὐτὸν
being-separated or fire from air It-is-necessary and the same
ἔχειν λόγον ὃν ἔχει τὸ τοσονδὶ καὶ μικρὸν ὕδωρ πρὸς
to-have ratio which has the so-much and small water toward
τὸν ἐξ αὐτοῦ γινόμενον ἀέρα, καὶ τὸν πάντα πρὸς τὸ
the from it coming-about air also the whole toward the
πᾶν ὕδωρ. Διαφέρει δ' οὐθὲν οὐδ' εἴ τις φήσει μὲν
whole water It-matters and nothing not-even if anyone will-say indeed
μὴ γίγνεσθαι ταῦτα ἐξ ἀλλήλων, ἴσα μέντοι τὴν δύναμιν
not to-come-about these from one-another equal however the power
εἶναι· κατὰ τοῦτον γὰρ τὸν τρόπον ἀνάγκη τὴν ἰσότητα
to-be in this for the way it-is-necessary the equality

τῆς δυνάμεως ὑπάρχειν τοῖς μεγέθεσιν αὐτῶν, ὥσπερ κἂν
of-the power to-belong to-the magnitudes of-them just-as even
εἰ γιγνόμενα ἐξ ἀλλήλων ὑπῆρχεν. Ὅτι μὲν οὖν οὔτ' ἀὴρ
if coming-about from one-another they-were That indeed then neither air
οὔτε πῦρ συμπεπλήρωκε μόνον τὸν μεταξὺ τόπον, φανερόν
nor fire has-filled alone the between place evident
ἐστιν· λοιπὸν δὲ διαπορήσαντας εἰπεῖν πῶς τέτακται τὰ
it-is remaining and having-raised-difficulties to-say how are-arranged the
δύο πρὸς τὴν τοῦ πρώτου σώματος θέσιν, λέγω δὲ ἀέρα
two toward the of-the first body position I-mean and air
τε καὶ πῦρ, καὶ διὰ τίν' αἰτίαν ἡ θερμότης ἀπὸ τῶν
both and fire and because-of what cause the heat from the
ἄνωθεν ἄστρων γίγνεται τοῖς περὶ τὴν γῆν τόποις.
upper stars comes-about for-the about the earth places
Περὶ ἀέρος οὖν εἰπόντες πρῶτον, ὥσπερ ὑπεθέμεθα,
About air then having-spoken first just-as we-proposed
λέγωμεν οὕτω καὶ περὶ τούτων πάλιν. Εἰ δὴ γίνεται
let-us-speak thus also about these again If indeed comes-about
ὕδωρ ἐξ ἀέρος καὶ ἀὴρ ἐξ ὕδατος, διὰ τίνα
water from air and air from water because-of what
ποτ' αἰτίαν οὐ συνίσταται νέφη κατὰ τὸν ἄνω τόπον;
ever cause not are-formed clouds in the upper place
Προσῆκε γὰρ μᾶλλον ὅσῳ πορρώτερον ὁ τόπος
It-would-have-befitted for rather by-as-much-as farther the place
τῆς γῆς καὶ ψυχρότερος, διὰ τὸ μήθ' οὕτω πλησίον
from-the earth and colder because-of the neither so near
εἶναι τῶν ἄστρων θερμῶν ὄντων μήτε τῶν ἀπὸ τῆς γῆς
to-be to-the stars hot being nor of-the from the earth
ἀνακλωμένων ἀκτίνων, αἳ κωλύουσι πλησίον τῆς γῆς
reflected rays which prevent near the earth
συνίστασθαι, διακρίνουσαι τῇ θερμότητι τὰς συστάσεις·
to-be-formed separating by-the heat the formations

γίνονται γὰρ αἱ τῶν νεφῶν ἀθροίσεις, οὗ λήγουσιν ἤδη
come-about for the of-the clouds gatherings where cease already
διὰ τὸ σχίζεσθαι εἰς ἀχανὲς αἱ ἀκτῖνες. Ἢ οὖν οὐκ ἐξ
because-of the to-be-scattered into the-void the rays Either then not from
ἅπαντος τοῦ ἀέρος ὕδωρ πέφυκεν γίγνεσθαι, ἢ εἰ ὁμοίως
all the air water is-by-nature to-come-about or if equally
ἐξ ἅπαντος, ὁ περὶ τὴν γῆν οὐ μόνον ἀήρ ἐστιν ἀλλ᾽
from all the about the earth not only air is but
οἷον ἀτμίς, διὸ πάλιν συνίσταται εἰς ὕδωρ. Ἀλλὰ μὴν
as vapor wherefore again it-is-condensed into water But indeed
εἰ τοσοῦτος ὢν ὁ ἀὴρ ἅπας ἀτμίς ἐστιν, δόξειεν ἂν πολὺ
if so-great being the air all vapor is would-seem — much
ὑπερβάλλειν ἡ τοῦ ἀέρος φύσις καὶ ἡ τοῦ ὕδατος, εἴπερ
to-exceed the of-the air nature and the of-the water if-indeed
τά τε διαστήματα τῶν ἄνω πλήρη ἐστὶ σώματός
the both intervals of-the upper-things full are of-body
τινος, καὶ πυρὸς μὲν ἀδύνατον διὰ τὸ κατεξηράνθαι
some and of-fire indeed impossible because-of the to-have-been-dried-up
ἂν τἆλλα πάντα, λείπεται δ᾽ ἀέρος καὶ τοῦ περὶ τὴν
— the-other-things all it-remains and of-air and of-the about the
γῆν πᾶσαν ὕδατος· ἡ γὰρ ἀτμὶς ὕδατος διάκρισίς ἐστιν.
earth all water the for vapor of-water separation is
Περὶ μὲν οὖν τούτων ἠπορήσθω τοῦτον τὸν
About indeed then these let-it-have-been-raised-as-a-difficulty this the
τρόπον· ἡμεῖς δὲ λέγωμεν ἅμα πρός τε τὰ λεχθησόμενα
way we but let-us-speak at-once with-a-view-to both the going-to-be-said
διορίζοντες καὶ πρὸς τὰ νῦν εἰρημένα. Τὸ μὲν γὰρ ἄνω
defining and to the now said The indeed for upper
καὶ μέχρι σελήνης ἕτερον εἶναι σῶμά φαμεν πυρός τε καὶ
and up-to moon other to-be body we-say than-fire both and
ἀέρος, οὐ μὴν ἀλλ᾽ ἐν αὐτῷ γε τὸ μὲν καθαρώτερον
air not indeed but in it at-least the(-one) indeed purer

εἶναι τὸ δ' ἧττον εἰλικρινές, καὶ διαφορὰς ἔχειν, καὶ
to-be the(-other) and less unmixed and differences to-have and
μάλιστα ᾗ καταλήγει πρὸς τὸν ἀέρα καὶ πρὸς τὸν περὶ
most where it-ends toward the air and toward the about
τὴν γῆν κόσμον. Φερομένου δὲ τοῦ πρώτου στοιχείου
the earth cosmos Being-carried and the first element
κύκλῳ καὶ τῶν ἐν αὐτῷ σωμάτων, τὸ προσεχὲς ἀεὶ
in-a-circle and the in it bodies the adjoining always
τοῦ κάτω κόσμου καὶ σώματος τῇ κινήσει διακρινόμενον
of-the lower cosmos and body by-the motion being-separated
ἐκπυροῦται καὶ ποιεῖ τὴν θερμότητα. Δεῖ δὲ νοεῖν οὕτως
is-ignited and makes the heat One-must and conceive thus
καὶ ἐντεῦθεν ἀρξαμένους. Τὸ γὰρ ὑπὸ τὴν ἄνω περιφορὰν
also from-here having-begun The for below the upper revolution
σῶμα οἷον ὕλη τις οὖσα καὶ δυνάμει θερμὴ καὶ ψυχρὰ καὶ
body as matter some being and potentially hot and cold and
ξηρὰ καὶ ὑγρά, καὶ ὅσα ἄλλα τούτοις ἀκολουθεῖ πάθη,
dry and moist and as-many-as other to-these follow affections
γίγνεται τοιαύτη καὶ ἔστιν ὑπὸ κινήσεώς τε καὶ ἀκινησίας,
becomes such and is by motion both and rest
ἧς τὴν αἰτίαν καὶ τὴν ἀρχὴν εἰρήκαμεν πρότερον.
of-which the cause and the principle we-have-told before
Ἐπὶ μὲν οὖν τοῦ μέσου καὶ περὶ τὸ μέσον τὸ βαρύτατόν
At indeed then the center and about the center the heaviest
ἐστι καὶ ψυχρότατον ἀποκεκριμένον, γῆ καὶ ὕδωρ· περὶ
is and coldest separated-off earth and water about
δὲ ταῦτα καὶ τὰ ἐχόμενα τούτων, ἀήρ τε καὶ ὃ διὰ
and these and the adjoining these air both and what because-of
συνήθειαν καλοῦμεν πῦρ, οὐκ ἔστι δὲ πῦρ· ὑπερβολὴ γὰρ
habit we-call fire not is but fire excess for
θερμοῦ καὶ οἷον ζέσις ἐστὶ τὸ πῦρ. Ἀλλὰ δεῖ νοῆσαι
of-hot and as-it-were boiling is the fire But one-must to-conceive

τοῦ λεγομένου ὑφ᾽ ἡμῶν ἀέρος τὸ μὲν περὶ τὴν γῆν
of-the being-called by us air the(-part) indeed about the earth
οἷον ὑγρὸν καὶ θερμὸν εἶναι διὰ τὸ ἀτμίζειν τε καὶ
as moist and hot to-be because-of the to-steam both and
ἀναθυμίασιν ἔχειν γῆς, τὸ δ᾽ ὑπὲρ τοῦτο θερμὸν ἤδη
exhalation to-have of-earth the(-part) and above this hot already
καὶ ξηρόν. Ἔστι γὰρ ἀτμίδος μὲν φύσις ὑγρὸν καὶ θερμόν,
and dry Is for of-vapor indeed nature moist and hot
ἀναθυμιάσεως δὲ θερμὸν καὶ ξηρόν· καὶ ἔστιν ἀτμὶς μὲν
of-exhalation and hot and dry and is vapor indeed
δυνάμει οἷον ὕδωρ, ἀναθυμίασις δὲ δυνάμει οἷον πῦρ. Τοῦ
potentially like water exhalation and potentially like fire Of-the
μὲν οὖν ἐν τῷ ἄνω τόπῳ μὴ συνίστασθαι νέφη ταύτην
indeed then in the upper place not to-be-formed clouds this
ὑποληπτέον αἰτίαν εἶναι, ὅτι οὐκ ἔνεστιν ἀὴρ μόνον ἀλλὰ
one-must-suppose cause to-be that not is-in air only but
μᾶλλον οἷον πῦρ. Οὐθὲν δὲ κωλύει καὶ διὰ τὴν κύκλῳ
rather as-it-were fire Nothing and prevents also because-of the in-a-circle
φορὰν κωλύεσθαι συνίστασθαι νέφη ἐν τῷ ἄνω τόπῳ· ῥεῖν
movement to-be-prevented to-be-formed clouds in the upper place to-flow
γὰρ ἀναγκαῖον ἅπαντα τὸν κύκλῳ ἀέρα, ὅσος μὴ ἐντὸς
for necessary all the in-a-circle air as-much-as not within
τῆς περιφερείας λαμβάνεται τῆς ἀπαρτιζούσης ὥστε τὴν
the circumference is-included the completing so-that the
γῆν σφαιροειδῆ εἶναι πᾶσαν· φαίνεται γὰρ καὶ νῦν ἡ τῶν
earth spherical to-be whole it-appears for even now the of-the
ἀνέμων γένεσις ἐν τοῖς λιμνάζουσι τόποις τῆς γῆς, καὶ
winds generation in the marshy places of-the earth and
οὐχ ὑπερβάλλειν τὰ πνεύματα τῶν ὑψηλοτάτων ὀρῶν.
not to-exceed the winds than-the highest mountains

Ῥεῖ δὲ κύκλῳ διὰ τὸ συνεφέλκεσθαι τῇ τοῦ ὅλου
It-flows and in-a-circle because-of the to-be-drawn-along with-the of-the whole
περιφορᾷ. Τὸ μὲν γὰρ πῦρ τῷ ἄνω στοιχείῳ, τῷ δὲ πυρὶ
revolution The indeed for fire to-the upper element to-the and fire
ὁ ἀὴρ συνεχής ἐστιν· ὥστε καὶ διὰ τὴν κίνησιν κωλύεται
the air continuous is so-that also because-of the motion it-is-prevented
συγκρίνεσθαι εἰς ὕδωρ, ἀλλ' ἀεὶ ὅ τι ἂν βαρύνηται μόριον
to-be-combined into water but always what ever — be-weighed-down part
αὐτοῦ ἐκθλιβομένου εἰς τὸν ἄνω τόπον τοῦ θερμοῦ κάτω
of-it being-squeezed-out into the upper place the hot downward
φέρεται, ἄλλα δ' ἐν μέρει συναναφέρεται τῷ ἀναθυμιωμένῳ
is-carried other-parts and in turn are-carried-up-with the exhaled
πυρί, καὶ οὕτω συνεχῶς τὸ μὲν ἀέρος διατελεῖ πλῆρες
fire and thus continually the(-one) indeed of-air continues full
ὂν τὸ δὲ πυρός, καὶ ἀεὶ ἄλλο καὶ ἄλλο γίνεται ἕκαστον
being the(-other) and of-fire and always other and other becomes each
αὐτῶν. Περὶ μὲν οὖν τοῦ μὴ γίγνεσθαι νέφη μηδ' εἰς ὕδωρ
of-them About indeed then the not to-come-about clouds nor into water
σύγκρισιν, καὶ πῶς δεῖ λαβεῖν περὶ τοῦ μεταξὺ τόπου
combination and how one-must to-take about the between place
τῶν ἄστρων καὶ τῆς γῆς, καὶ τίνος ἐστὶ σώματος πλήρης,
of-the stars and the earth and of-what is body full
τοσαῦτα εἰρήσθω. Περὶ δὲ τῆς γιγνομένης θερμότητος,
so-much let-it-have-been-said About and the arising heat
ἣν παρέχεται ὁ ἥλιος, μᾶλλον μὲν καθ' αὑτὸ καὶ ἀκριβῶς
which provides the sun more indeed by itself and precisely
ἐν τοῖς περὶ αἰσθήσεως προσήκει λέγειν (πάθος γάρ τι τὸ
in the about perception it-befits to-speak affection for some the
θερμὸν αἰσθήσεως ἐστιν), διὰ τίνα δ' αἰτίαν γίγνεται
hot of-perception is because-of what but cause it-comes-about
μὴ τοιούτων ὄντων ἐκείνων τὴν φύσιν, λεκτέον καὶ νῦν.
not such being those the nature one-must-say also now

Ὁρῶμεν δὴ τὴν κίνησιν ὅτι δύναται διακρίνειν τὸν ἀέρα
We-see indeed the motion that it-is-able to-separate the air
καὶ ἐκπυροῦν, ὥστε καὶ τὰ φερόμενα τηκόμενα φαίνεσθαι
and to-ignite so-that also the moving-things melting to-appear
πολλάκις. Τὸ μὲν οὖν γίγνεσθαι τὴν ἀλέαν καὶ τὴν
often The indeed then to-come-about the warmth and the
θερμότητα ἱκανή ἐστι παρασκευάζειν καὶ ἡ τοῦ ἡλίου
heat sufficient is to-produce even the of-the sun
φορὰ μόνον· ταχεῖάν τε γὰρ δεῖ καὶ μὴ πόρρω εἶναι.
movement alone swift both for one-must and not far to-be
Ἡ μὲν οὖν τῶν ἄστρων ταχεῖα μὲν πόρρω δέ, ἡ δὲ
The indeed then of-the stars swift indeed far but the and
τῆς σελήνης κάτω μὲν βραδεῖα δέ· ἡ δὲ τοῦ ἡλίου ἄμφω
of-the moon low indeed slow but the and of-the sun both
ταῦτ' ἔχει ἱκανῶς. Τὸ δὲ μάλιστα γίγνεσθαι ἅμα τῷ
these-things has sufficiently The and most to-come-about together-with the
ἡλίῳ αὐτῷ τὴν θερμότητα εὔλογον, λαμβάνοντας τὸ ὅμοιον
sun itself the heat reasonable taking the like
ἐκ τῶν παρ' ἡμῖν γιγνομένων· καὶ γὰρ ἐνταῦθα τῶν βίᾳ
from the among us happening-things also for here of-the by-force
φερομένων ὁ πλησιάζων ἀὴρ μάλιστα γίνεται θερμός. Καὶ
being-carried the approaching air most becomes hot And
τοῦτ' εὐλόγως συμβαίνει· μάλιστα γὰρ ἡ τοῦ στερεοῦ
this reasonably happens most for the of-the solid
διακρίνει κίνησις αὐτόν. Διά τε ταύτην οὖν τὴν αἰτίαν
separates motion it Because-of both this then the cause
ἀφικνεῖται πρὸς τόνδε τὸν τόπον ἡ θερμότης, καὶ διὰ
arrives at this the place the heat and because-of
τὸ τὸ περιέχον πῦρ τὸν ἀέρα διαρραίνεσθαι τῇ κινήσει
the the surrounding fire the air to-be-scattered by-the motion
πολλάκις καὶ φέρεσθαι κάτω βίᾳ. Σημεῖον δ' ἱκανὸν ὅτι
often and to-be-carried downward by-force Sign and sufficient that

ὁ ἄνω τόπος οὐκ ἔστι θερμὸς οὐδ' ἐκπεπυρωμένος καὶ αἱ
the upper place not is hot nor ignited also the
διαδρομαὶ τῶν ἀστέρων. Ἐκεῖ μὲν γὰρ οὐ γίνονται, κάτω
runnings of-the stars There indeed for not they-come-about below
δέ· καίτοι τὰ μᾶλλον κινούμενα καὶ μᾶλλον ἐκπυροῦται.
but and-yet the more being-moved even more is-ignited
Πρὸς δὲ τούτοις ὁ ἥλιος, ὅσπερ μάλιστα εἶναι δοκεῖ
Besides and these the sun which-very most to-be seems
θερμός, φαίνεται λευκὸς ἀλλ' οὐ πυρώδης ὤν.
hot appears white but not fiery being

IV · SHOOTING STARS

The earth gives off two exhalations, one moist and vaporous, the other dry and smoky; the dry rises above the moist and lies under the circling body. When motion kindles it, flames, torches, and goats appear, according to the shape and amount of the tinder. A shooting star is either an ignition, like the smoke under a lamp catching from the flame above, or a body squeezed out by cold, like pips flicked from the fingers, and so it mostly runs aslant. All this happens below the moon.

Τούτων δὲ διωρισμένων, λέγωμεν διὰ τίν' αἰτίαν αἵ τε
These and having-been-defined let-us-say because-of what cause the both
φλόγες αἱ καόμεναι φαίνονται περὶ τὸν οὐρανὸν καὶ οἱ
flames the burning appear about the heaven and the
διαθέοντες ἀστέρες καὶ οἱ καλούμενοι ὑπό τινων δαλοὶ καὶ
shooting stars and the so-called by some torches and
αἶγες· ταῦτα γὰρ πάντ' ἐστὶ τὸ αὐτὸ καὶ διὰ τὴν αὐτὴν
goats these for all is the same and because-of the same
αἰτίαν, διαφέρει δὲ τῷ μᾶλλον καὶ ἧττον. Ἀρχὴ δ'
cause they-differ but in-the more and less Beginning and
ἐστὶ καὶ τούτων καὶ πολλῶν ἄλλων ἥδε. Θερμαινομένης
is both of-these and of-many others this-here Being-heated

γὰρ τῆς γῆς ὑπὸ τοῦ ἡλίου τὴν ἀναθυμίασιν ἀναγκαῖον
for the earth by the sun the exhalation necessary
γίνεσθαι μὴ ἁπλῆν, ὥς τινες οἴονται, ἀλλὰ διπλῆν, τὴν
to-come-about not simple as some think but double the(-one)
μὲν ἀτμιδωδεστέραν τὴν δὲ πνευματωδεστέραν, τὴν
indeed more-vaporous the(-other) and more-windy the(-one)
μὲν τοῦ ἐν τῇ γῇ καὶ ἐπὶ τῇ γῇ ὑγροῦ ἀτμίδα, τὴν
indeed of-the in the earth and on the earth moisture vapor the(-other)
δ' αὐτῆς τῆς γῆς οὔσης ξηρᾶς καπνώδη· καὶ τούτων
and of-it the earth being dry smoky and of-these
τὴν μὲν πνευματώδη ἐπιπολάζειν διὰ τὸ θερμόν,
the(-one) indeed windy to-float-on-top because-of the hot
τὴν δ' ὑγροτέραν ὑφίστασθαι διὰ τὸ βάρος. Καὶ
the(-other) and moister to-settle-beneath because-of the weight And
διὰ ταῦτα τοῦτον τὸν τρόπον κεκόσμηται τὸ πέριξ·
because-of these-things in-this the way is-arranged the around
πρῶτον μὲν γὰρ ὑπὸ τὴν ἐγκύκλιον φοράν ἐστι τὸ
first indeed for under the circular movement is the
θερμὸν καὶ ξηρόν, ὃ λέγομεν πῦρ (ἀνώνυμον γὰρ τὸ
hot and dry which we-call fire nameless for the
κοινὸν ἐπὶ πάσης τῆς καπνώδους διακρίσεως· ὅμως
common in-the-case-of all the smoky separation nevertheless
δὲ διὰ τὸ μάλιστα πεφυκέναι τὸ τοιοῦτον ἐκκάεσθαι
and because-of the most to-be-by-nature the such to-be-ignited
τῶν σωμάτων οὕτως ἀναγκαῖον χρῆσθαι τοῖς ὀνόμασιν),
of-the bodies thus necessary to-use the names
ὑπὸ δὲ ταύτην τὴν φύσιν ἀήρ.
under and this the nature air
Δεῖ δὲ νοῆσαι οἷον ὑπέκκαυμα τοῦτο ὃ νῦν εἴπομεν
One-must and conceive as-it-were tinder this which now we-called
πῦρ περιτετάσθαι τῆς περὶ τὴν γῆν σφαίρας ἔσχατον, ὥστε
fire to-be-spread-around of-the about the earth sphere outermost so-that

μικρᾶς κινήσεως τυχὸν ἐκκάεσθαι πολλάκις ὥσπερ τὸν
small motion having-met-with to-be-ignited often just-as the
καπνόν· ἔστι γὰρ ἡ φλὸξ πνεύματος ξηροῦ ζέσις. Ἧι ἂν
smoke is for the flame of-wind dry boiling Where —
οὖν μάλιστα εὐκαίρως ἔχῃ ἡ τοιαύτη σύστασις, ὅταν
then most opportunely be-disposed the such formation whenever
ὑπὸ τῆς περιφορᾶς κινηθῇ πως, ἐκκαίεται. Διαφέρει δ'
by the revolution it-be-moved somehow it-is-ignited It-differs and
ἤδη κατὰ τὴν τοῦ ὑπεκκαύματος θέσιν ἢ τὸ πλῆθος· ἂν
already according-to the of-the tinder position or the amount if
μὲν γὰρ πλάτος ἔχῃ καὶ μῆκος τὸ ὑπέκκαυμα, πολλάκις
indeed for breadth have and length the tinder often
ὁρᾶται καιομένη φλὸξ ὥσπερ ἐν ἀρούρᾳ καιομένης
is-seen burning flame just-as in plowland burning
καλάμης, ἂν δὲ κατὰ μῆκος μόνον, οἱ καλούμενοι δαλοὶ
stubble if but in length only the so-called torches
καὶ αἶγες καὶ ἀστέρες. Καὶ ἐὰν μὲν πλέον τὸ ὑπέκκαυμα
and goats and stars And if indeed more the tinder
ᾖ κατὰ τὸ μῆκος ἢ τὸ πλάτος, ὅταν μὲν οἷον
be in the length than the breadth whenever indeed as-it-were
ἀποσπινθηρίζῃ ἅμα καιόμενον (τοῦτο δὲ γίνεται διὰ
throw-off-sparks at-once burning this and comes-about because-of
τὸ παρεκπυροῦσθαι, κατὰ μικρὰ μέν, ἐπ' ἀρχὴν δέ), αἴξ
the to-be-ignited-at-the-side in small indeed toward beginning but goat
καλεῖται, ὅταν δ' ἄνευ τούτου τοῦ πάθους, δαλός.
is-called whenever but without this the affection torch
Ἐὰν δὲ τὰ μήκη τῆς ἀναθυμιάσεως κατὰ μικρά τε καὶ
If and the lengths of-the exhalation in small both and
πολλαχῇ διεσπαρμένα ᾖ καὶ ὁμοίως κατὰ πλάτος καὶ
in-many-places scattered be and likewise in breadth and
βάθος, οἱ δοκοῦντες ἀστέρες διάττειν γίνονται. Ὁτὲ μὲν
depth the seeming stars to-shoot come-about At-times indeed

οὖν ὑπὸ τῆς κινήσεως ἡ ἀναθυμίασις ἐκκαιομένη γεννᾷ
then by the motion the exhalation being-ignited generates
αὐτά· ὁτὲ δὲ ὑπὸ τοῦ διὰ τὴν ψύξιν συνισταμένου
them at-times and by the because-of the cooling contracting
ἀέρος ἐκκρούεται καὶ ἐκθλίβεται τὸ θερμόν, διὸ καὶ
air is-squeezed-out and is-pressed-out the hot wherefore also
ἔοικεν ἡ φορὰ ῥίψει μᾶλλον αὐτῶν, ἀλλ' οὐκ ἐκκαύσει.
resembles the movement a-throw rather of-them but not an-ignition
Ἀπορήσειε γὰρ ἄν τις πότερον ὥσπερ ἡ ὑπὸ τοὺς
One-might-be-at-a-loss for — anyone whether just-as the under the
λύχνους τιθεμένη ἀναθυμίασις ἀπὸ τῆς ἄνωθεν φλογὸς
lamps placed exhalation from the upper flame
ἅπτει τὸν κάτωθεν λύχνον (θαυμαστὴ γὰρ καὶ τούτου
kindles the lower lamp wondrous for also of-this
ἡ ταχυτής ἐστι καὶ ὁμοία ῥίψει, ἀλλ' οὐχ ὡς ἄλλου καὶ
the speed is and like a-throw but not as of-other and
ἄλλου γιγνομένου πυρός), ἢ ῥίψεις τοῦ αὐτοῦ σώματός
other coming-about fire or throws of-the same body
εἰσιν αἱ διαδρομαί. Ἔοικε δὲ δὴ δι' ἄμφω· καὶ γὰρ
are the runnings It-seems and indeed because-of both also for
οὕτως ὡς ἡ ἀπὸ τοῦ λύχνου γίνεται, καὶ ἔνια διὰ
thus as the from the lamp comes-about and some because-of
τὸ ἐκθλίβεσθαι ῥιπτεῖται, ὥσπερ οἱ ἐκ τῶν δακτύλων
the to-be-squeezed-out are-thrown just-as the from the fingers
πυρῆνες, ὥστε καὶ εἰς θάλασσαν καὶ εἰς γῆν φαίνεσθαι
fruit-stones so-that also into sea and onto land to-appear
πίπτοντα, καὶ νύκτωρ καὶ μεθ' ἡμέραν αἰθρίας οὔσης.
falling both by-night and by day clear-sky being
Κάτω δὲ ῥιπτεῖται διὰ τὸ τὴν πύκνωσιν εἰς τὸ κάτω
Downward and are-thrown because-of the the condensation toward the downward
ῥέπειν τὴν ἀπωθοῦσαν. Διὸ καὶ οἱ κεραυνοὶ κάτω
to-incline the pushing-away Wherefore also the thunderbolts downward

πίπτουσιν· πάντων γὰρ τούτων ἡ γένεσις οὐκ ἔκκαυσις ἀλλ'
fall of-all for these the generation not ignition but
ἔκκρισις ὑπὸ τῆς ἐκθλίψεώς ἐστιν, ἐπεὶ κατὰ φύσιν γε τὸ
ejection by the squeezing-out is since according-to nature at-least the
θερμὸν ἄνω πέφυκε φέρεσθαι πᾶν. Ὅσα μὲν οὖν μᾶλλον
hot upward is-by-nature to-be-carried all As-many-as indeed then rather
ἐν τῷ ἀνωτάτω τόπῳ συνίσταται, ἐκκαομένης γίγνεται τῆς
in the uppermost place are-formed being-ignited come-about the
ἀναθυμιάσεως, ὅσα δὲ κατώτερον, ἐκκρινομένης διὰ
exhalation as-many-as and lower being-ejected because-of
τὸ συνιέναι καὶ ψύχεσθαι τὴν ὑγροτέραν ἀναθυμίασιν· αὕτη
the to-contract and to-be-cooled the moister exhalation this
γὰρ συνιοῦσα καὶ κάτω ῥέπουσα ἀπωθεῖ πυκνουμένη καὶ
for contracting and downward inclining pushes-away being-condensed and
κάτω ποιεῖ τοῦ θερμοῦ τὴν ῥίψιν· διὰ δὲ τὴν θέσιν
downward makes of-the hot the throw because-of and the position
τῆς ἀναθυμιάσεως, ὅπως ἂν τύχῃ κειμένη τοῦ πλάτους
of-the exhalation however — happen lying of-the breadth
καὶ τοῦ βάθους, οὕτω φέρεται ἢ ἄνω ἢ κάτω ἢ εἰς
and of-the depth thus is-carried either upward or downward or to
τὸ πλάγιον. Τὰ πλεῖστα δ' εἰς τὸ πλάγιον διὰ τὸ
the side The most and to the side because-of the
δύο φέρεσθαι φοράς, βίᾳ μὲν κάτω, φύσει δ' ἄνω·
two to-be-carried movements by-force indeed downward by-nature but upward
πάντα γὰρ κατὰ τὴν διάμετρον φέρεται τὰ τοιαῦτα.
all for along the diagonal are-carried the such-things
Διὸ καὶ τῶν διαθεόντων ἀστέρων ἡ πλείστη λοξὴ
Wherefore also of-the shooting stars the most oblique
γίνεται φορά. Πάντων δὴ τούτων αἴτιον ὡς μὲν ὕλη
becomes movement Of-all indeed these cause as indeed matter
ἡ ἀναθυμίασις, ὡς δὲ τὸ κινοῦν ὁτὲ μὲν ἡ ἄνω φορά,
the exhalation as and the moving at-times indeed the upper movement

ὁτὲ δ᾽ ἡ τοῦ ἀέρος συγκρινομένου πῆξις. Πάντα δὲ
at-times and the of-the air contracting solidification All and
κάτω σελήνης ταῦτα γίνεται. Σημεῖον δ᾽ ἡ φαινομένη
below moon these-things come-about Sign and the apparent
αὐτῶν ταχυτὴς ὁμοία οὖσα τοῖς ὑφ᾽ ἡμῶν ῥιπτουμένοις,
their speed like being to-the by us thrown-things
ἃ διὰ τὸ πλησίον εἶναι ἡμῶν πολὺ δοκεῖ τῷ τάχει
which because-of the near to-be us much seem in-the speed
παραλλάττειν ἄστρα τε καὶ ἥλιον καὶ σελήνην.
to-surpass stars both and sun and moon

V · CHASMS AND COLORS IN THE NIGHT SKY

On clear nights chasms, trenches, and blood-red colors appear. The cause is the same: the upper air condenses and kindles, and light seen through denser air takes every color, crimson and purple most, while reflection colors it as a mirror does. These signs do not last, since the condensation passes quickly. Bright fire against a dark ground makes a chasm seem deep, and by night only the crimson shows.

Φαίνεται δέ ποτε συνιστάμενα νύκτωρ αἰθρίας οὔσης
Appear and at-times forming by-night clear-sky being
πολλὰ φάσματα ἐν τῷ οὐρανῷ, οἷον χάσματά τε καὶ
many apparitions in the heaven as chasms both and
βόθυνοι καὶ αἱματώδη χρώματα. Αἴτιον δὲ καὶ τούτων τὸ
trenches and blood-red colors Cause and also of-these the
αὐτό. Ἐπεὶ γὰρ φανερός ἐστι συνιστάμενος ὁ ἄνω ἀὴρ
same Since for evident is forming the upper air
ὥστ᾽ ἐκπυροῦσθαι, καὶ τὴν ἐκπύρωσιν ὁτὲ μὲν τοιαύτην
so-as to-be-ignited and the ignition at-times indeed such
γίγνεσθαι ὥστε φλόγα δοκεῖν κάεσθαι, ὁτὲ δ᾽ οἷον
to-come-about so-that flame to-seem to-burn at-times and as-it-were

δαλοὺς φέρεσθαι καὶ ἀστέρας, οὐθὲν ἄτοπον εἰ χρωματίζεται
torches to-be-carried and stars nothing strange if is-colored
ὁ αὐτὸς οὗτος ἀὴρ συνιστάμενος παντοδαπὰς χρόας·
the same this air forming all-kinds-of colors
διά τε γὰρ πυκνοτέρου διαφαινόμενον ἔλαττον φῶς καὶ
through both for denser showing-through less light and
ἀνάκλασιν δεχόμενος ὁ ἀὴρ παντοδαπὰ χρώματα ποιήσει,
reflection receiving the air all-kinds-of colors will-make
μάλιστα δὲ φοινικοῦν ἢ πορφυροῦν διὰ τὸ ταῦτα
most and crimson or purple because-of the these
μάλιστα ἐκ τοῦ πυρώδους καὶ λευκοῦ φαίνεσθαι μιγνυμένων
most from the fiery and white to-appear being-mixed
κατὰ τὰς ἐπιπροσθήσεις, οἷον ἀνίσχοντα τὰ ἄστρα καὶ
by the interpositions as rising the stars and
δυόμενα, ἐὰν ᾖ καῦμα, καὶ διὰ καπνοῦ φοινικᾶ
setting if there-be heat and through smoke crimson
φαίνεται. Καὶ τῇ ἀνακλάσει δὲ ποιήσει, ὅταν τὸ ἔνοπτρον
appear Also by-the reflection and it-will-make whenever the mirror
ᾖ τοιοῦτον ὥστε μὴ τὸ σχῆμα ἀλλὰ τὸ χρῶμα δέχεσθαι.
be such so-that not the shape but the color to-receive
Τοῦ δὲ μὴ πολὺν χρόνον μένειν ταῦτα ἡ σύστασις αἰτία
Of-the and not long time to-last these-things the formation cause
ταχεῖα οὖσα. Τὰ δὲ χάσματα ἀναρρηγνυμένου τοῦ φωτὸς ἐκ
swift being The and chasms breaking-out the light from
κυανέου καὶ μέλανος ποιεῖ τι βάθος ἔχειν δοκεῖν. Πολλάκις
dark-blue and black makes some depth to-have to-seem Often
δ' ἐκ τῶν τοιούτων καὶ δαλοὶ ἐκπίπτουσιν, ὅταν συγκριθῇ
and from the such also torches fall-out whenever it-be-condensed
μᾶλλον· συνιὸν δέ τι χάσμα δοκεῖ. Ὅλως δ' ἐν τῷ μέλανι
more contracting but some chasm it-seems Wholly and in the black
τὸ λευκὸν πολλὰς ποιεῖ ποικιλίας, οἷον ἡ φλὸξ ἐν τῷ καπνῷ.
the white many makes variations as the flame in the smoke

Ἡμέρας μὲν οὖν ὁ ἥλιος κωλύει, νυκτὸς δ' ἔξω τοῦ
By-day indeed then the sun prevents by-night but apart-from the
φοινικοῦ τὰ ἄλλα δι' ὁμοιόχροιαν οὐ φαίνεται. Περὶ
crimson the other-things because-of sameness-of-color not appear About
μὲν οὖν τῶν διαθεόντων ἀστέρων καὶ τῶν ἐκπυρουμένων,
indeed then the shooting stars and the being-ignited
ἔτι δὲ τῶν ἄλλων τῶν τοιούτων φασμάτων ὅσα ταχείας
further and the other the such apparitions as-many-as quick
ποιεῖται τὰς φαντασίας, ταύτας ὑπολαβεῖν δεῖ τὰς αἰτίας.
make the appearances these to-suppose one-must the causes

VI · EARLIER VIEWS OF COMETS

Anaxagoras and Democritus called comets a conjunction of planets; some Pythagoreans, a planet seen rarely because it rises little above the horizon; Hippocrates of Chios and Aeschylus held that the tail is our sight reflected toward the sun from moisture the star draws up. All are refuted: comets appear outside the zodiac and several at once, they appear in the south and in winter, some fixed stars have tails, comets fade without leaving a star, and planets have met without making one.

Περὶ δὲ τῶν κομητῶν καὶ τοῦ καλουμένου γάλακτος
About and the comets and the so-called milky-way
λέγωμεν, διαπορήσαντες πρὸς τὰ παρὰ τῶν ἄλλων εἰρημένα
let-us-speak having-raised-difficulties toward the from the others said
πρῶτον. Ἀναξαγόρας μὲν οὖν καὶ Δημόκριτός φασιν εἶναι
first Anaxagoras indeed then and Democritus say to-be
τοὺς κομήτας σύμφασιν τῶν πλανήτων ἀστέρων, ὅταν
the comets an-appearance-together of-the wandering stars whenever
διὰ τὸ πλησίον ἐλθεῖν δόξωσι θιγγάνειν ἀλλήλων. Τῶν δ'
because-of the near to-come they-seem to-touch one-another Of-the and
Ἰταλικῶν τινὲς καὶ καλουμένων Πυθαγορείων ἕνα λέγουσιν
Italians some and so-called Pythagoreans one say

αὐτὸν εἶναι τῶν πλανήτων ἀστέρων, ἀλλὰ διὰ πολλοῦ τε
it to-be of-the wandering stars but through long both
χρόνου τὴν φαντασίαν αὐτοῦ εἶναι καὶ τὴν ὑπερβολὴν ἐπὶ
time the appearance of-it to-be and the elevation for
μικρόν, ὅπερ συμβαίνει καὶ περὶ τὸν τοῦ Ἑρμοῦ ἀστέρα·
little which-very happens also about the of-the Hermes star
διὰ γὰρ τὸ μικρὸν ἐπαναβαίνειν πολλὰς ἐκλείπει φάσεις,
because-of for the little to-rise many it-fails appearances
ὥστε διὰ χρόνου φαίνεται πολλοῦ. Παραπλησίως δὲ
so-that through time it-appears long Similarly and
τούτοις καὶ οἱ περὶ Ἱπποκράτην τὸν Χῖον καὶ τὸν μαθητὴν
to-these also the about Hippocrates the Chian and the pupil
αὐτοῦ Αἰσχύλον ἀπεφήναντο. Πλὴν τήν γε κόμην οὐκ
of-him Aeschylus declared Except the at-least tail not
ἐξ αὑτοῦ φασὶν ἔχειν, ἀλλὰ πλανώμενον διὰ τὸν
from itself they-say to-have but wandering because-of the
τόπον ἐνίοτε λαμβάνειν ἀνακλωμένης τῆς ἡμετέρας ὄψεως
place sometimes to-take being-reflected the our sight
ἀπὸ τῆς ἑλκομένης ὑγρότητος ὑπ᾽ αὐτοῦ πρὸς τὸν ἥλιον.
from the drawn-up moisture by it toward the sun
Διὰ δὲ τὸ ὑπολείπεσθαι βραδύτατα τῷ χρόνῳ διὰ
Because-of and the to-fall-behind most-slowly in-the time through
πλείστου χρόνου φαίνεσθαι τῶν ἄλλων ἄστρων, ὡς ὅταν
most time to-appear of-the other stars as whenever
ἐκ ταὐτοῦ φανῇ ὑπολελειμμένον ὅλον τὸν ἑαυτοῦ κύκλον·
from the-same it-appear having-fallen-behind whole the its-own circle
ὑπολείπεσθαι δ᾽ αὐτὸν καὶ πρὸς ἄρκτον καὶ πρὸς νότον.
to-fall-behind and it both toward north and toward south
Ἐν μὲν οὖν τῷ μεταξὺ τόπῳ τῶν τροπικῶν οὐχ ἕλκειν τὸ
In indeed then the between place of-the tropics not to-draw the
ὕδωρ πρὸς ἑαυτὸν διὰ τὸ κεκαῦσθαι ὑπὸ τῆς τοῦ ἡλίου
water toward itself because-of the to-have-been-burnt by the of-the sun

φορᾶς· πρὸς δὲ νότον ὅταν φέρηται, δαψίλειαν μὲν ἔχειν
movement toward but south whenever it-is-carried abundance indeed to-have
τῆς τοιαύτης νοτίδος, ἀλλὰ διὰ τὸ μικρὸν εἶναι τὸ ὑπὲρ
of-the such moisture but because-of the small to-be the above
τῆς γῆς τμῆμα τοῦ κύκλου, τὸ δὲ κάτω πολλαπλάσιον,
the earth segment of-the circle the and below many-times-greater
οὐ δύνασθαι τὴν ὄψιν τῶν ἀνθρώπων φέρεσθαι κλωμένην
not to-be-able the sight of-the men to-be-carried being-reflected
πρὸς τὸν ἥλιον οὔτε τῷ τροπικῷ πλησιάζοντος οὔτ' ἐπὶ
toward the sun neither to-the tropic approaching nor at
θεριναῖς τροπαῖς ὄντος τοῦ ἡλίου. Διόπερ ἐν τούτοις μὲν
summer solstice being the sun Wherefore in these indeed
τοῖς τόποις οὐδὲ γίγνεσθαι κομήτην αὐτόν· ὅταν δὲ πρὸς
the places not-even to-become comet it whenever but toward
βορέαν ὑπολειφθεὶς τύχῃ, λαμβάνειν κόμην διὰ τὸ
north having-fallen-behind it-happen to-take tail because-of the
μεγάλην εἶναι τὴν περιφέρειαν τὴν ἄνωθεν τοῦ ὁρίζοντος,
great to-be the arc the above of-the horizon
τὸ δὲ κάτω μέρος τοῦ κύκλου μικρόν· ῥᾳδίως γὰρ τὴν
the and lower part of-the circle small easily for the
ὄψιν τῶν ἀνθρώπων ἀφικνεῖσθαι τότε πρὸς τὸν ἥλιον.
sight of-the men to-arrive then at the sun
Πᾶσι δὲ τούτοις τὰ μὲν κοινῇ συμπίπτει λέγειν
For-all and these the(-things) indeed in-common it-befalls to-say
ἀδύνατα, τὰ δὲ καὶ χωρίς. Πρῶτον μὲν οὖν τοῖς
impossible the(-things) and also separately First indeed then for-those
λέγουσιν ὅτι τῶν πλανωμένων ἐστὶν εἷς ἀστέρων ὁ κομήτης·
saying that of-the wandering is one stars the comet
οἱ γὰρ πλανώμενοι πάντες ἐν τῷ κύκλῳ ὑπολείπονται
the for wandering all in the circle fall-behind
τῷ τῶν ζῳδίων, κομῆται δὲ πολλοὶ ὠμμένοι εἰσὶν ἔξω
the of-the zodiac comets but many seen are outside

τοῦ κύκλου. Εἶτα καὶ πλείους ἑνὸς ἅμα γεγένηται
the circle Then also more than-one at-once have-come-about
πολλάκις. Πρὸς δὲ τούτοις, εἰ διὰ τὴν ἀνάκλασιν τὴν
often Besides and these if because-of the reflection the
κόμην ἴσχουσι, καθάπερ φησὶν Αἰσχύλος καὶ Ἱπποκράτης,
tail they-hold just-as says Aeschylus and Hippocrates
ἔδει ποτὲ φαίνεσθαι καὶ ἄνευ κόμης τὸν ἀστέρα
it-was-needful sometimes to-appear also without tail the star
τοῦτον, ἐπειδήπερ ὑπολείπεται μὲν καὶ εἰς ἄλλους τόπους,
this since it-falls-behind indeed also into other places
τὴν δὲ κόμην ἴσχει οὐ πανταχοῦ. Νῦν δ' οὐθεὶς ὤπται
the but tail holds not everywhere Now but none has-been-seen
παρὰ τοὺς πέντε ἀστέρας. Οὗτοι δὲ πολλάκις ἅμα πάντες
besides the five stars These and often at-once all
μετέωροι φαίνονται ὑπὲρ τοῦ ὁρίζοντος. Καὶ φανερῶν
aloft appear above the horizon Also visible
δ' αὐτῶν ὄντων ἁπάντων καὶ μὴ φαινομένων ἁπάντων,
and them being all and not appearing all
ἀλλ' ἐνίων ὄντων πρὸς τῷ ἡλίῳ, οὐθὲν ἧττον κομῆται
but some being near the sun nothing less comets
φαίνονται γιγνόμενοι πολλάκις. Ἀλλὰ μὴν οὐδὲ τοῦτο
appear coming-about often But indeed not-even this
ἀληθές, ὅτι ἐν τῷ πρὸς ἄρκτον τόπῳ γίνεται κομήτης
true that in the toward north place comes-about comet
μόνον, ἅμα καὶ τοῦ ἡλίου ὄντος περὶ θερινὰς τροπάς· ὅ
only at-once also the sun being about summer solstices the
τε γὰρ μέγας κομήτης ὁ γενόμενος περὶ τὸν ἐν Ἀχαΐᾳ
both for great comet the having-come-about about the in Achaea
σεισμὸν καὶ τὴν τοῦ κύματος ἔφοδον ἀπὸ δυσμῶν τῶν
earthquake and the of-the wave onset from settings the
ἰσημερινῶν ἀνέσχε, καὶ πρὸς νότον ἤδη πολλοὶ γεγόνασιν.
equinoctial rose and toward south already many have-come-about

Ἐπὶ δ' ἄρχοντος Ἀθήνῃσιν Εὐκλέους τοῦ Μόλωνος
In and archon at-Athens Eucles the son-of-Molon
ἐγένετο κομήτης ἀστὴρ πρὸς ἄρκτον μηνὸς γαμηλιῶνος
there-came-about comet star toward north in-month Gamelion
περὶ τροπὰς ὄντος τοῦ ἡλίου χειμερινάς· καίτοι τοσοῦτον
about solstice being the sun winter and-yet so-much
ἀνακλασθῆναι καὶ αὐτοὶ τῶν ἀδυνάτων εἶναί φασιν.
to-be-reflected even they-themselves of-the impossible-things to-be say
Κοινὸν δὲ καὶ τούτοις καὶ τοῖς τὴν σύναψιν λέγουσι πρῶτον
Common and also to-these and to-the the conjunction saying first
μὲν ὅτι καὶ τῶν ἀπλανῶν λαμβάνουσι κόμην τινές. Καὶ
indeed that also of-the fixed take tail some And
τοῦτ' οὐ μόνον Αἰγυπτίοις πιστεῦσαι δεῖ, καίτοι κἀκεῖνοί
this not only to-Egyptians to-trust one-must and-yet they-too
φασιν, ἀλλὰ καὶ ἡμεῖς ἐφεωράκαμεν· τῶν γὰρ ἐν τῷ
say but also we have-observed of-the for in the
ἰσχίῳ τοῦ κυνὸς ἀστήρ τις ἔσχε κόμην, ἀμαυρὰν μέντοι·
hip of-the Dog star some had tail dim however
ἀτενίζουσι μὲν γὰρ εἰς αὐτὸν ἀμυδρὸν ἐγίγνετο τὸ φέγγος,
gazing indeed for at it faint became the brightness
παραβλέπουσι δ' ἠρέμα τὴν ὄψιν πλεῖον. Πρὸς δὲ τούτοις
looking-aside but slightly the sight more Besides and these
ἅπαντες οἱ καθ' ἡμᾶς ὠμμένοι ἄνευ δύσεως ἠφανίσθησαν
all the in our-time seen without setting vanished
ἐν τῷ ὑπὲρ τοῦ ὁρίζοντος τόπῳ ἀπομαρανθέντες κατὰ
in the above the horizon place having-withered little-by
μικρὸν οὕτως, ὥστε μήτε ἑνὸς ἀστέρος ὑπολειφθῆναι
little so so-that neither of-one star to-be-left-behind
σῶμα μήτε πλειόνων, ἐπεὶ καὶ ὁ μέγας ἀστὴρ περὶ οὗ
body nor of-more since also the great star about which
πρότερον ἐμνήσθημεν, ἐφάνη μὲν χειμῶνος ἐν πάγοις καὶ
earlier we-made-mention appeared indeed of-winter in frosts and

αἰθρίαις ἀφ᾽ ἑσπέρας, ἐπὶ Ἀστείου ἄρχοντος, καὶ τῇ
clear-skies from evening in Asteius archon and on-the
μὲν πρώτῃ οὐκ ὤφθη ὡς προδεδυκὼς τοῦ ἡλίου, τῇ δ᾽
indeed first not was-seen as having-set-before the sun on-the but
ὑστεραίᾳ ὤφθη· ὅσον ἐνδέχεται γὰρ ἐλάχιστον ὑπελείφθη
next-day was-seen as-much-as it-is-possible for least it-fell-behind
καὶ εὐθὺς ἔδυ· τὸ δὲ φέγγος ἀπέτεινε μέχρι τοῦ τρίτου
and at-once set the and brightness extended up-to the third
μέρους τοῦ οὐρανοῦ οἷον ἅλμα, διὸ καὶ ἐκλήθη ὁδός.
part of-the heaven as leap wherefore also it-was-called road
Ἐπανῆλθε δὲ μέχρι τῆς ζώνης τοῦ Ὡρίωνος, καὶ ἐνταῦθα
It-went-back and up-to the belt of-the Orion and there
διελύθη. Καίτοι Δημόκριτός γε προσπεφιλονείκηκε τῇ δόξῃ
was-dissolved And-yet Democritus at-least has-contended-for the opinion
τῇ αὑτοῦ· φησὶ γὰρ ὦφθαι διαλυομένων τῶν κομητῶν
the his-own he-says for to-have-been-seen dissolving the comets
ἀστέρας τινάς. Τοῦτο δ᾽ οὐχ ὁτὲ μὲν ἔδει γίγνεσθαι
stars some This and not at-times indeed it-was-needful to-happen
ὁτὲ δ᾽ οὔ, ἀλλ᾽ ἀεί. Πρὸς δὲ τούτοις καὶ οἱ Αἰγύπτιοί φασι
at-times and not but always Besides and these also the Egyptians say
καὶ τῶν πλανήτων καὶ πρὸς αὑτοὺς καὶ πρὸς τοὺς ἀπλανεῖς
also of-the planets both toward themselves and toward the fixed
γίνεσθαι συνόδους, καὶ αὐτοὶ ἑωράκαμεν τὸν ἀστέρα τὸν τοῦ
to-come-about conjunctions and ourselves we-have-seen the star the of-the
Διὸς τῶν ἐν τοῖς διδύμοις συνελθόντα τινὶ δὶς ἤδη καὶ
Zeus of-the in the Twins having-come-together with-one twice already and
ἀφανίσαντα, ἀλλ᾽ οὐ κομήτην γενόμενον. Ἔτι δὲ καὶ ἐκ τοῦ
having-hidden-it but not comet having-become Further and also from the
λόγου φανερόν· οἱ γὰρ ἀστέρες κἂν εἰ μείζους κἂν ἐλάττους
argument evident the for stars even if greater even-if smaller
φαίνωνται, ἀλλ᾽ ὅμως ἀδιαίρετοί γε καθ᾽ ἑαυτοὺς εἶναι
appear but nevertheless indivisible at-least by themselves to-be

δοκοῦσιν. Ὥσπερ οὖν καὶ εἰ ἦσαν ἀδιαίρετοι, ἁψάμενοι
seem Just-as then also if they-were indivisible having-touched
οὐθὲν ἂν ἐποίησαν μέγεθος μεῖζον, οὕτω καὶ ἐπειδὴ οὐκ
nothing — would-have-made magnitude greater thus also since not
εἰσὶ μὲν φαίνονται δὲ ἀδιαίρετοι, καὶ συνελθόντες οὐθὲν
they-are indeed they-appear but indivisible also having-come-together nothing
φανοῦνται μείζους τὸ μέγεθος ὄντες. Ὅτι μὲν οὖν αἱ
will-appear greater in-the magnitude being That indeed then the
λεγόμεναι περὶ αὐτῶν αἰτίαι ψευδεῖς οὖσαι τυγχάνουσιν, εἰ μὴ
being-said about them causes false being happen if not
διὰ πλειόνων, ἀλλὰ καὶ διὰ τούτων ἱκανῶς δῆλόν ἐστιν.
through more but even through these sufficiently clear it-is

VII · WHAT COMETS ARE

Where a dry, hot exhalation of the right consistency is drawn into the upper region, the circling motion kindles it without quickly consuming it, and a comet appears, on its own or attached to a star, its tail like a halo; spread evenly it is a comet, drawn out in length a bearded star. Comets are signs of wind and drought, since they show much dry exhalation: the stone that fell at Aegospotami was carried up by a wind while a comet shone. Comets are few because the sun and the stars scatter the exhalation, and most of it gathers in the Milky Way.

Ἐπεὶ δὲ περὶ τῶν ἀφανῶν τῇ αἰσθήσει νομίζομεν ἱκανῶς
Since and about the unclear to-the perception we-consider sufficiently
ἀποδεδεῖχθαι κατὰ τὸν λόγον, ἐὰν εἰς τὸ δυνατὸν
to-have-been-demonstrated according-to the argument if to the possible
ἀναγάγωμεν, ἔκ τε τῶν νῦν φαινομένων ὑπολάβοι τις ἂν
we-bring-it-back from both the now appearing would-suppose anyone —
ὧδε περὶ τούτων μάλιστα συμβαίνειν. Ὑπόκειται γὰρ ἡμῖν
thus about these most to-happen It-is-supposed for by-us

τοῦ κόσμου τοῦ περὶ τὴν γῆν, ὅσον ὑπὸ τὴν ἐγκύκλιόν
of-the cosmos of-the about the earth as-much-as under the circular
ἐστι φοράν, εἶναι τὸ πρῶτον μέρος ἀναθυμίασιν ξηρὰν καὶ
is movement to-be the first part exhalation dry and
θερμήν. Αὕτη δὲ αὐτή τε καὶ τοῦ συνεχοῦς ὑπ' αὐτὴν
hot This and itself both and of-the continuous below it
ἀέρος ἐπὶ πολὺ συμπεριάγεται περὶ τὴν γῆν ὑπὸ τῆς φορᾶς
air over much is-carried-round-with about the earth by the movement
καὶ τῆς κινήσεως τῆς κύκλῳ· φερομένη δὲ καὶ κινουμένη
and the motion the in-a-circle being-carried and and being-moved
τοῦτον τὸν τρόπον, ᾗ ἂν τύχῃ εὔκρατος οὖσα, πολλάκις
this the way where — it-happen well-tempered being often
ἐκπυροῦται, διό φαμεν γίγνεσθαι καὶ τὰς τῶν σποράδων
is-ignited wherefore we-say to-come-about also the of-the scattered
ἀστέρων διαδρομάς. Ὅταν οὖν εἰς τὴν τοιαύτην πύκνωσιν
stars runnings Whenever then into the such condensation
ἐμπέσῃ διὰ τὴν τῶν ἄνωθεν κίνησιν ἀρχὴ πυρώδης,
fall because-of the of-the from-above motion beginning fiery
μήτε οὕτω πολλὴ λίαν ὥστε ταχὺ καὶ ἐπὶ πολὺ ἐκκάειν, μήθ'
neither so much very so-that quickly and over much to-burn-out nor
οὕτως ἀσθενὴς ὥστ' ἀποσβεσθῆναι ταχύ, ἀλλὰ πλείων καὶ
so weak so-that to-be-extinguished quickly but more and
ἐπὶ πολύ, ἅμα δὲ κάτωθεν συμπίπτῃ ἀναβαίνειν εὔκρατον
over much at-once and from-below it-happen to-rise well-tempered
ἀναθυμίασιν, ἀστὴρ τοῦτο γίνεται κομήτης, ὅπως ἂν τὸ
exhalation star this becomes comet in-whatever-way — the
ἀναθυμιώμενον τύχῃ ἐσχηματισμένον· ἐὰν μὲν γὰρ πάντῃ
exhaled happen shaped if indeed for everywhere
ὁμοίως, κομήτης, ἐὰν δ' ἐπὶ μῆκος, καλεῖται πωγωνίας.
alike comet if but in length is-called bearded

Ὥσπερ δ᾽ ἡ τοιαύτη φορὰ ἀστέρος φορὰ δοκεῖ
Just-as and the such movement of-star movement seems
εἶναι, οὕτω καὶ ἡ μονὴ ἡ ὁμοία ἀστέρος μονὴ δοκεῖ
to-be thus also the staying the like of-star staying seems
εἶναι· παραπλήσιον γὰρ τὸ γιγνόμενον οἷον εἴ τις εἰς
to-be similar for the happening as if anyone into
ἀχύρων θημῶνα καὶ πλῆθος ὤσειε δαλὸν ἢ πυρὸς
of-chaff heap and mass should-thrust torch or of-fire
ἀρχὴν ἐμβάλοι μικράν· φαίνεται γὰρ ὁμοία καὶ ἡ τῶν
beginning should-throw-in small appears for like also the of-the
ἀστέρων διαδρομὴ τούτῳ· ταχὺ γὰρ διὰ τὴν εὐφυΐαν
stars running to-this quickly for because-of the good-nature
τοῦ ὑπεκκαύματος διαδίδωσιν ἐπὶ μῆκος. Εἰ δὴ τοῦτο
of-the tinder it-spreads in length If indeed this
διαμείνειε καὶ μὴ καταμαρανθείη διελθόν, ᾗ μάλιστα
should-last and not should-wither having-gone-through where most
ἐπύκνωσε τὸ ὑπέκκαυμα, γένοιτ᾽ ἂν ἀρχὴ τῆς φορᾶς
it-condensed the tinder would-become — beginning of-the movement
ἡ τελευτὴ τῆς διαδρομῆς. Τοιοῦτον ὁ κομήτης ἐστὶν
the end of-the running Such the comet is
ἀστήρ, ὥσπερ διαδρομὴ ἀστέρος, ἔχων ἐν αὑτῷ πέρας καὶ
star just-as running of-star having in itself limit and
ἀρχήν. Ὅταν μὲν οὖν ἐν αὐτῷ τῷ κάτω τόπῳ ἡ ἀρχὴ
beginning Whenever indeed then in itself the lower place the beginning
τῆς συστάσεως ᾖ, καθ᾽ ἑαυτὸν φαίνεται κομήτης· ὅταν
of-the formation be by itself appears comet whenever
δ᾽ ὑπὸ τῶν ἄστρων τινός, ἢ τῶν ἀπλανῶν ἢ τῶν
but by of-the stars some either of-the fixed or of-the
πλανήτων, ὑπὸ τῆς κινήσεως συνιστῆται ἡ ἀναθυμίασις,
planets by the motion be-formed the exhalation
τότε κομήτης γίγνεται τούτων τις· οὐ γὰρ πρὸς αὐτοῖς ἡ
then comet becomes of-these some not for at themselves the

κόμη γίγνεται τοῖς ἄστροις, ἀλλ᾽ ὥσπερ αἱ ἅλῳ περὶ τὸν
tail comes-about the stars but just-as the halos about the
ἥλιον φαίνονται καὶ τὴν σελήνην παρακολουθοῦσαι, καίπερ
sun appear and the moon following although
μεθισταμένων τῶν ἄστρων, ὅταν οὕτως ᾖ πεπυκνωμένος
moving the stars whenever thus be condensed
ὁ ἀὴρ ὥστε τοῦτο γίγνεσθαι τὸ πάθος ὑπὸ τὴν τοῦ ἡλίου
the air so-that this to-come-about the affection under the of-the sun
πορείαν, οὕτω καὶ ἡ κόμη τοῖς ἄστροις οἷον ἅλως ἐστίν.
course thus also the tail to-the stars as-it-were halo is
Πλὴν ἡ μὲν γίγνεται δι᾽ ἀνάκλασιν τοιαύτη
Except the(-one) indeed comes-about because-of reflection such
τὴν χρόαν, ἐκεῖ δ᾽ ἐπ᾽ αὐτῶν τὸ χρῶμα φαινόμενόν
the color there but on themselves the color appearing
ἐστιν. Ὅταν μὲν οὖν κατ᾽ ἀστέρα γένηται ἡ τοιαύτη
is Whenever indeed then by star come-about the such
σύγκρισις, τὴν αὐτὴν ἀνάγκη φαίνεσθαι φορὰν κινούμενον
combination the same necessity to-appear movement moving
τὸν κομήτην ἥνπερ φέρεται ὁ ἀστήρ· ὅταν δὲ συστῇ
the comet which-very is-carried the star whenever but it-form
καθ᾽ αὑτόν, τότε ὑπολειπόμενοι φαίνονται. Τοιαύτη γὰρ ἡ
by itself then falling-behind they-appear Such for the
φορὰ τοῦ κόσμου τοῦ περὶ τὴν γῆν. Τοῦτο γὰρ μάλιστα
movement of-the cosmos of-the about the earth This for most
μηνύει μὴ εἶναι ἀνάκλασίν τινα τὸν κομήτην, ὡς ἅλω ἐν
indicates not to-be reflection some the comet as halo in
ὑπεκκαύματι καθαρῷ πρὸς αὐτὸν τὸν ἀστέρα γιγνομένην,
tinder pure toward itself the star coming-about
καὶ μὴ ὡς λέγουσιν οἱ περὶ Ἱπποκράτην, πρὸς τὸν
and not as say the about Hippocrates toward the
ἥλιον, ὅτι καὶ καθ᾽ αὑτὸν γίγνεται κομήτης πολλάκις καὶ
sun that also by itself comes-about comet often and

πλεονάκις ἢ περὶ τῶν ὡρισμένων τινὰς ἀστέρων. Περὶ
more-often than about the determined some stars About
μὲν οὖν τῆς ἅλω τὴν αἰτίαν ὕστερον ἐροῦμεν· περὶ δὲ
indeed then the halo the cause later we-shall-tell about and
τοῦ πυρώδη τὴν σύστασιν αὐτῶν εἶναι τεκμήριον χρὴ
the fiery the composition of-them to-be evidence it-is-needful
νομίζειν ὅτι σημαίνουσι γιγνόμενοι οἱ πλείους πνεύματα καὶ
to-consider that signify coming-about the more winds and
αὐχμούς· δῆλον γὰρ ὅτι γίγνονται διὰ τὸ πολλὴν εἶναι
droughts clear for that they-come-about because-of the much to-be
τὴν τοιαύτην ἔκκρισιν, ὥστε ξηρότερον ἀναγκαῖον εἶναι
the such secretion so-that drier necessary to-be
τὸν ἀέρα, καὶ διακρίνεσθαι καὶ διαλύεσθαι τὸ διατμίζον
the air and to-be-separated and to-be-dissolved the evaporating
ὑγρὸν ὑπὸ τοῦ πλήθους τῆς θερμῆς ἀναθυμιάσεως, ὥστε
moisture by the amount of-the hot exhalation so-that
μὴ συνίστασθαι ῥᾳδίως εἰς ὕδωρ.
not to-be-condensed easily into water
Σαφέστερον δ' ἐροῦμεν καὶ περὶ τούτου τοῦ πάθους,
More-clearly and we-shall-speak also about this the affection
ὅταν καὶ περὶ πνευμάτων λέγειν ᾖ καιρός. Ὅταν μὲν
whenever also about winds to-speak be season Whenever indeed
οὖν πυκνοὶ καὶ πλείους φαίνωνται, καθάπερ λέγομεν, ξηροὶ
then dense and more appear just-as we-say dry
καὶ πνευματώδεις γίγνονται οἱ ἐνιαυτοὶ ἐπιδήλως· ὅταν δὲ
and windy become the years manifestly whenever but
σπανιώτεροι καὶ ἀμαυρότεροι τὸ μέγεθος, ὁμοίως μὲν οὐ
rarer and dimmer in-the magnitude similarly indeed not
γίνεται τὸ τοιοῦτον, οὐ μὴν ἀλλ' ὡς ἐπὶ τὸ πολὺ γίγνεταί
happens the such not indeed but as on the most-part comes-about
τις ὑπερβολὴ πνεύματος ἢ κατὰ χρόνον ἢ κατὰ μέγεθος,
some excess of-wind either in time or in magnitude

ἐπεὶ καὶ ὅτε ὁ ἐν Αἰγὸς ποταμοῖς ἔπεσε λίθος ἐκ τοῦ
since also when the at Goat's Rivers fell stone from the
ἀέρος, ὑπὸ πνεύματος ἀρθεὶς ἐξέπεσε μεθ' ἡμέραν· ἔτυχε
air by wind lifted it-fell-out by day it-happened
δὲ καὶ τότε κομήτης ἀστὴρ γενόμενος ἀφ' ἑσπέρας. Καὶ
and also then comet star having-come-about from evening And
περὶ τὸν μέγαν ἀστέρα τὸν κομήτην ξηρὸς ἦν ὁ χειμὼν καὶ
about the great star the comet dry was the winter and
βόρειος, καὶ τὸ κῦμα δι' ἐναντίωσιν ἐγίγνετο πνευμάτων·
northerly and the wave because-of opposition came-about of-winds
ἐν μὲν γὰρ τῷ κόλπῳ βορέας κατεῖχεν, ἔξω δὲ νότος
in indeed for the gulf north-wind prevailed outside but south-wind
ἔπνευσε μέγας. Ἔτι δ' ἐπ' ἄρχοντος ἐγένετο Νικομάχου
blew great Further and in archon came-about Nicomachus
Ἀθήνησιν ὀλίγας ἡμέρας κομήτης περὶ τὸν ἰσημερινὸν
at-Athens few days comet about the equinoctial
κύκλον, οὐκ ἀφ' ἑσπέρας ποιησάμενος τὴν ἀνατολήν, ἐφ'
circle not from evening having-made the rising on
ᾧ τὸ περὶ Κόρινθον πνεῦμα γενέσθαι συνέπεσεν. Τοῦ δὲ
which the about Corinth wind to-come-about it-happened Of-the and
μὴ γίνεσθαι πολλοὺς μηδὲ πολλάκις κομήτας, καὶ μᾶλλον
not to-come-about many nor often comets and more
ἐκτὸς τῶν τροπικῶν ἢ ἐντός, αἴτιος ἥ τε τοῦ ἡλίου καὶ
outside the tropics than within cause the both of-the sun and
ἡ τῶν ἀστέρων κίνησις, οὐ μόνον ἐκκρίνουσα τὸ θερμόν,
the of-the stars motion not only secreting the hot
ἀλλὰ καὶ διακρίνουσα τὸ συνιστάμενον. Μάλιστα δ' αἴτιον
but also separating the forming Most and cause
ὅτι τὸ πλεῖστον εἰς τὴν τοῦ γάλακτος ἀθροίζεται χώραν.
that the most into the of-the milky-way gathers region

Some Pythagoreans called the Milky Way the track of a fallen star or of the sun; Anaxagoras and Democritus, the light of stars that the earth's shadow hides from the sun; others, a reflection of sight to the sun. Each is refuted: the shadow moves with the sun, while the Milky Way keeps among the same stars. It is a comet's tail on the largest scale: its circle is the greatest and the most crowded with bright stars, which draw up exhalation that kindles, as its doubling and unevenness show.

Ὅπως δὲ καὶ διὰ τίν' αἰτίαν γίνεται καὶ τί ἐστι τὸ
How and also because-of what cause it-comes-about and what is the
γάλα, λέγωμεν ἤδη. Προδιέλθωμεν δὲ καὶ περὶ τούτου
milky-way let-us-speak now Let-us-go-through-first and also about this
τὰ παρὰ τῶν ἄλλων εἰρημένα πρῶτον. Τῶν μὲν οὖν
the from the others said first Of-the indeed then
καλουμένων Πυθαγορείων φασί τινες ὁδὸν εἶναι ταύτην οἱ
so-called Pythagoreans say some road to-be this the(-ones)
μὲν τῶν ἐκπεσόντων τινὸς ἄστρων, κατὰ τὴν λεγομένην ἐπὶ
indeed of-the having-fallen some of-stars at the being-told in
Φαέθοντος φθοράν, οἱ δὲ τὸν ἥλιον τοῦτον τὸν κύκλον
Phaethon's-time destruction the(-others) and the sun this the circle
φέρεσθαί ποτέ φασιν· οἷον οὖν διακεκαῦσθαι τὸν τόπον
to-be-carried once say as-if then to-have-been-burnt the place
τοῦτον ἤ τι τοιοῦτον ἄλλο πεπονθέναι πάθος ὑπὸ τῆς
this or some such other to-have-suffered affection by the
φορᾶς αὐτοῦ. Ἄτοπον δὲ τὸ μὴ συννοεῖν ὅτι εἴπερ τοῦτ'
movement of-it Strange and the not to-realize that if-indeed this
ἦν τὸ αἴτιον, ἔδει καὶ τὸν τῶν ζῳδίων κύκλον οὕτως
were the cause it-was-needful also the of-the zodiac circle thus
ἔχειν, καὶ μᾶλλον ἢ τὸν τοῦ γάλακτος· ἅπαντα γὰρ ἐν
to-be and more than the of-the milky-way all for in
αὐτῷ φέρεται τὰ πλανώμενα καὶ οὐχ ὁ ἥλιος μόνος. Δῆλος
it are-carried the wandering-stars and not the sun alone Visible

δ' ἡμῖν ἅπας ὁ κύκλος· ἀεὶ γὰρ αὐτοῦ φανερὸν ἡμικύκλιον
and to-us whole the circle always for of-it visible semicircle
τῆς νυκτός. Ἀλλὰ πεπονθὸς οὐθὲν φαίνεται τοιοῦτον, πλὴν
of-the night But having-suffered nothing appears such except
εἴ τι συνάπτει μόριον αὐτοῦ πρὸς τὸν τοῦ γάλακτος κύκλον.
if any adjoins part of-it toward the of-the milky-way circle
Οἱ δὲ περὶ Ἀναξαγόραν καὶ Δημόκριτον φῶς εἶναι τὸ
The and about Anaxagoras and Democritus light to-be the
γάλα λέγουσιν ἄστρων τινῶν· τὸν γὰρ ἥλιον ὑπὸ τὴν γῆν
milky-way say of-stars some the for sun under the earth
φερόμενον οὐχ ὁρᾶν ἔνια τῶν ἄστρων. Ὅσα μὲν οὖν
being-carried not to-see some of-the stars As-many-as indeed then
περιορᾶται ὑπ' αὐτοῦ, τούτων μὲν οὐ φαίνεσθαι τὸ φῶς
are-seen-round by it of-these indeed not to-appear the light
(κωλύεσθαι γὰρ ὑπὸ τῶν τοῦ ἡλίου ἀκτίνων)· ὅσοις
to-be-prevented for by the of-the sun rays for-as-many-as
δ' ἀντιφράττει ἡ γῆ ὥστε μὴ ὁρᾶσθαι ὑπὸ τοῦ ἡλίου, τὸ
and screens the earth so-that not to-be-seen by the sun the
τούτων οἰκεῖον φῶς φασὶν εἶναι τὸ γάλα. Φανερὸν δ' ὅτι
of-these own light they-say to-be the milky-way Evident and that
καὶ τοῦτ' ἀδύνατον. Τὸ μὲν γὰρ γάλα ἀεὶ τὸ αὐτὸ ἐν τοῖς
also this impossible The indeed for milky-way always the same in the
αὐτοῖς ἐστὶν ἄστροις (φαίνεται γὰρ μέγιστος ὢν κύκλος),
same is stars it-appears for greatest being circle
ὑπὸ δὲ τοῦ ἡλίου ἀεὶ ἕτερα τὰ οὐχ ὁρώμενα διὰ τὸ
by but the sun always other the not seen because-of the
μὴ ἐν ταὐτῷ μένειν τόπῳ. Ἔδει οὖν μεθισταμένου τοῦ
not in the-same to-remain place It-was-needful then moving the
ἡλίου μεθίστασθαι καὶ τὸ γάλα· νῦν δ' οὐ φαίνεται τοῦτο
sun to-move also the milky-way now but not appears this
γινόμενον. Πρὸς δὲ τούτοις, εἰ καθάπερ δείκνυται ἐν τοῖς
happening Besides and these if just-as is-shown in the

περὶ ἀστρολογίαν θεωρήμασιν, οὕτως ἔχει, καὶ τό τε τοῦ
about astronomy theorems thus it-is and the both of-the
ἡλίου μέγεθος μεῖζόν ἐστιν ἢ τὸ τῆς γῆς καὶ τὸ διάστημα
sun magnitude greater is than the of-the earth and the distance
πολλαπλασίως μεῖζον τὸ τῶν ἄστρων πρὸς τὴν γῆν ἢ
many-times greater the of-the stars toward the earth than
τὸ τοῦ ἡλίου, καθάπερ τὸ τοῦ ἡλίου πρὸς τὴν γῆν ἢ τὸ
the of-the sun just-as the of-the sun toward the earth than the
τῆς σελήνης, οὐκ ἂν πόρρω που ἀπὸ τῆς γῆς ὁ κῶνος
of-the moon not — far surely from the earth the cone
ὁ ἀπὸ τοῦ ἡλίου συμβάλλοι τὰς ἀκτῖνας, οὐδ' ἂν ἡ
the from the sun would-bring-together the rays nor — the
σκιὰ πρὸς τοῖς ἄστροις εἴη τῆς γῆς, ἡ καλουμένη νύξ.
shadow at the stars would-be of-the earth the so-called night
Ἀλλ' ἀνάγκη πάντα τὸν ἥλιον τὰ ἄστρα περιορᾶν, καὶ
But necessity all the sun the stars to-see-round and
μηθενὶ τὴν γῆν ἀντιφράττειν αὐτῶν. Ἔτι δ' ἐστὶ τρίτη τις
for-none the earth to-screen of-them Further and is third some
ὑπόληψις περὶ αὐτοῦ· λέγουσι γάρ τινες ἀνάκλασιν εἶναι τὸ
supposition about it say for some reflection to-be the
γάλα τῆς ἡμετέρας ὄψεως πρὸς τὸν ἥλιον, ὥσπερ καὶ τὸν
milky-way of-the our sight toward the sun just-as also the
ἀστέρα τὸν κομήτην. Ἀδύνατον δὲ καὶ τοῦτο. Εἰ μὲν γὰρ
star the comet Impossible and also this If indeed for
τό τε ὁρῶν ἠρεμοίη καὶ τὸ ἔνοπτρον καὶ τὸ ὁρώμενον
the both seeing should-be-at-rest and the mirror and the seen
ἅπαν, ἐν τῷ αὐτῷ σημείῳ τοῦ ἐνόπτρου τὸ αὐτὸ φαίνοιτ'
all in the same point of-the mirror the same would-appear
ἂν μέρος τῆς ἐμφάσεως· εἰ δὲ κινοῖτο τὸ ἔνοπτρον καὶ
— part of-the reflected-image if but should-move the mirror and
τὸ ὁρώμενον ἐν τῷ αὐτῷ μὲν ἀποστήματι πρὸς τὸ ὁρῶν
the seen in the same indeed distance toward the seeing

καὶ ἠρεμοῦν, πρὸς ἄλληλα δὲ μήτε ἰσοταχῶς μήτ' ἐν τῷ
and at-rest toward one-another but neither at-equal-speed nor in the
αὐτῷ ἀεὶ διαστήματι, ἀδύνατον τὴν αὐτὴν ἔμφασιν ἐπὶ
same always interval impossible the same image on
τοῦ αὐτοῦ εἶναι μέρους τοῦ ἐνόπτρου. Τὰ δ' ἐν τῷ τοῦ
the same to-be part of-the mirror The and in the of-the
γάλακτος κύκλῳ φερόμενα ἄστρα κινεῖται καὶ ὁ ἥλιος
milky-way circle moving stars are-moved and the sun
πρὸς ὃν ἡ ἀνάκλασις, μενόντων ἡμῶν, καὶ ὁμοίως καὶ
toward which the reflection remaining us and likewise and
ἴσον πρὸς ἡμᾶς ἀπέχοντα, αὐτῶν δ' οὐκ ἴσον· ὁτὲ μὲν
equally to us being-distant of-them but not equally at-times indeed
γὰρ μέσων νυκτῶν ὁ δελφὶς ἐπιτέλλει, ὁτὲ δ' ἕωθεν,
for at-mid nights the Dolphin rises at-times and at-dawn
τὰ δὲ μόρια τοῦ γάλακτος τὰ αὐτὰ μένει ἐν ἑκάστῳ.
the but parts of-the milky-way the same remain in each
Καίτοι οὐκ ἔδει, εἰ ἦν ἔμφασις, ἀλλὰ μὴ ἐν αὐτοῖς
And-yet not it-was-needful if it-were image but not in them
τι ἦν τοῦτο τὸ πάθος τοῖς τόποις. Ἔτι δὲ νύκτωρ ἐν
some were this the affection the places Further and by-night in
ὕδατι καὶ τοιούτοις ἐνόπτροις τὸ μὲν γάλα ἐμφαίνεται
water and such mirrors the indeed milky-way is-reflected
θεωροῦσιν, τὸ δὲ τὴν ὄψιν ἀνακλᾶσθαι πρὸς τὸν ἥλιον πῶς
to-those-viewing the but the sight to-be-reflected toward the sun how
δυνατόν; Ὅτι μὲν οὖν οὔτε ὁδὸς τῶν πλανήτων οὐδενὸς
possible That indeed then neither road of-the planets of-any
οὔτε φῶς ἐστὶ τῶν μὴ ὁρωμένων ἄστρων οὔτ' ἀνάκλασις,
nor light is of-the not seen stars nor reflection
ἐκ τούτων φανερόν. Σχεδὸν δὲ ταῦτ' ἐστὶ τά γε
from these evident Nearly and these-things are the at-least
μέχρι τοῦ νῦν παραδεδομένα παρὰ τῶν ἄλλων. Ἡμεῖς
up-to the now handed-down from the others We

δὲ λέγωμεν ἀναλαβόντες τὴν ὑποκειμένην ἀρχὴν ἡμῖν.
but let-us-speak having-taken-up the laid-down principle by-us
Εἴρηται γὰρ πρότερον ὅτι τὸ ἔσχατον τοῦ λεγομένου
It-has-been-said for before that the outermost of-the being-called
ἀέρος δύναμιν ἔχει πυρός, ὥστε τῇ κινήσει διακρινομένου
air power has of-fire so-that by-the motion being-separated
τοῦ ἀέρος ἀποκρίνεσθαι τοιαύτην σύστασιν οἵαν καὶ τοὺς
the air to-be-secreted such composition as also the
κομήτας ἀστέρας εἶναί φαμεν. Τοιοῦτον δὴ δεῖ νοῆσαι
comets stars to-be we-say Such indeed one-must to-conceive
τὸ γιγνόμενον ὅπερ ἐπ' ἐκείνων, ὅταν μὴ αὐτὴ καθ'
the coming-about which-very in those whenever not itself by
αὑτὴν γένηται ἡ τοιαύτη ἔκκρισις, ἀλλ' ὑπό τινος τῶν
itself come-about the such secretion but by some of-the
ἄστρων ἢ τῶν ἐνδεδεμένων ἢ τῶν πλανωμένων· τότε
stars either of-the fixed or of-the wandering then
γὰρ οὗτοι φαίνονται κομῆται διὰ τὸ παρακολουθεῖν
for these appear comets because-of the to-follow
αὐτῶν τῇ φορᾷ ὥσπερ τῷ ἡλίῳ τὴν τοιαύτην σύγκρισιν,
their the movement just-as to-the sun the such combination
ἀφ' ἧς διὰ τὴν ἀνάκλασιν τὴν ἅλω φαίνεσθαί φαμεν,
from which because-of the reflection the halo to-appear we-say
ὅταν οὕτω τύχῃ κεκραμένος ὁ ἀήρ.
whenever thus happen mixed the air
Ὃ δὴ καθ' ἕνα συμβαίνει τῶν ἀστέρων, τοῦτο δεῖ
What indeed by one happens of-the stars this one-must
λαβεῖν γιγνόμενον περὶ ὅλον τὸν οὐρανὸν καὶ τὴν ἄνω
to-take coming-about about whole the heaven and the upper
φορὰν ἅπασαν· εὔλογον γάρ, εἴπερ ἡ ἑνὸς ἄστρου κίνησις,
movement all reasonable for if-indeed the of-one star motion
καὶ τὴν τῶν ἁπάντων ποιεῖν τι τοιοῦτον καὶ ἐκριπίζειν.
also the of-the all to-make something such and to-fan-up

Καὶ πρὸς τούτοις ἔτι καθ' ὃν τόπον πυκνότατα, καὶ
And besides these further in which place densest and
πλεῖστα καὶ μέγιστα τυγχάνουσιν ὄντα τῶν ἄστρων. Ὁ μὲν
most and greatest happen being of-the stars The indeed
οὖν τῶν ζῳδίων κύκλος διὰ τὴν τοῦ ἡλίου φορὰν καὶ
then of-the zodiac circle because-of the of-the sun movement and
τὴν τῶν πλανήτων διαλύει τὴν τοιαύτην σύστασιν, διόπερ
the of-the planets dissolves the such composition wherefore
οἱ πολλοὶ τῶν κομητῶν ἐκτὸς γίνονται τῶν τροπικῶν. Ἔτι
the most of-the comets outside come-about the tropics Further
δ' οὔτε περὶ ἥλιον οὔτε περὶ σελήνην γίγνεται κόμη· θᾶττον
and neither about sun nor about moon comes-about tail sooner
γὰρ διακρίνουσιν ἢ ὥστε συστῆναι τοιαύτην σύγκρισιν.
for they-separate than so-as to-form such combination
Οὗτος δ' ὁ κύκλος ἐν ᾧ τὸ γάλα φαίνεται τοῖς ὁρῶσιν,
This and the circle in which the milky-way appears to-the seeing
ὅ τε μέγιστος ὢν τυγχάνει καὶ τῇ θέσει κείμενος οὕτως
the both greatest being happens and in-the position lying so
ὥστε πολὺ τοὺς τροπικοὺς ὑπερβάλλειν. Πρὸς δὲ τούτοις
so-that much the tropics to-exceed Besides and these
ἄστρων ὁ τόπος πλήρης ἐστὶ τῶν τε μεγίστων καὶ
with-stars the place full is the both greatest and
λαμπροτάτων, καὶ ἔτι τῶν σποράδων καλουμένων (τοῦτο
brightest and further the scattered so-called this
δ' ἐστὶ καὶ τοῖς ὄμμασιν ἰδεῖν φανερόν), ὥστε διὰ ταῦτα
and is also to-the eyes to-see evident so-that because-of these-things
συνεχῶς καὶ ἀεὶ ταύτην πᾶσαν ἀθροίζεσθαι τὴν σύγκρισιν.
continually and always this all to-gather the combination
Σημεῖον δέ· καὶ γὰρ αὐτοῦ τοῦ κύκλου πλεῖον τὸ φῶς ἐστὶν
Sign and also for itself of-the circle more the light is
ἐν θατέρῳ ἡμικυκλίῳ τῷ τὸ δίπλωμα ἔχοντι· ἐν τούτῳ γὰρ
in the-other semicircle the the doubling having in this for

πλείω καὶ πυκνότερά ἐστιν ἄστρα ἢ ἐν θατέρῳ, ὡς οὐ
more and denser are stars than in the-other as not
δι᾽ ἑτέραν τιν᾽ αἰτίαν γιγνομένου τοῦ φέγγους ἢ διὰ
because-of other some cause coming-about the brightness than because-of
τὴν τῶν ἄστρων φοράν· εἰ γὰρ ἔν τε τῷ κύκλῳ τούτῳ
the of-the stars movement if for in both the circle this
γίνεται ἐν ᾧ τὰ πλεῖστα κεῖται τῶν ἄστρων, καὶ αὐτοῦ
it-comes-about in which the most lie of-the stars and itself
τοῦ κύκλου ἐν ᾧ μᾶλλον φαίνεται καταπεπυκνῶσθαι καὶ
of-the circle in which more it-appears to-have-been-condensed both
μεγέθει καὶ πλήθει ἀστέρων, ταύτην εἰκὸς ὑπολαβεῖν
in-magnitude and in-number of-stars this reasonable to-suppose
οἰκειοτάτην αἰτίαν εἶναι τοῦ πάθους. Θεωρείσθω δ᾽ ὅ τε
most-proper cause to-be of-the affection Let-be-viewed and the both
κύκλος καὶ τὰ ἐν αὐτῷ ἄστρα ἐκ τῆς ὑπογραφῆς. Τοὺς
circle and the in it stars from the diagram The
δὲ σποράδας καλουμένους οὕτω μὲν εἰς τὴν σφαῖραν οὐκ
and scattered so-called thus indeed into the sphere not
ἔστι τάξαι διὰ τὸ μηδεμίαν διὰ τέλους ἔχειν φανερὰν
it-is-possible to-set because-of the none through end to-have clear
ἕκαστον θέσιν, εἰς δὲ τὸν οὐρανὸν ἀναβλέπουσίν ἐστι δῆλον·
each position into but the heaven to-those-looking-up it-is clear
ἐν μόνῳ γὰρ τούτῳ τῶν κύκλων τὰ μεταξὺ πλήρη τοιούτων
in only for this of-the circles the between full of-such
ἀστέρων ἐστίν, ἐν δὲ τοῖς ἄλλοις διαλείπει φανερῶς.
stars is in but the others it-leaves-gaps clearly
Ὥστ᾽ εἴπερ καὶ περὶ τοῦ φαίνεσθαι κομήτας ἀποδεχόμεθα
So-that if-indeed also about the to-appear comets we-accept
τὴν αἰτίαν ὡς εἰρημένην μετρίως, καὶ περὶ τοῦ γάλακτος
the cause as said moderately also about the milky-way
τὸν αὐτὸν ὑποληπτέον τρόπον ἔχειν· ὃ γὰρ ἐκεῖ περὶ
the same one-must-suppose way to-hold what for there about

ἕνα ἐστὶ πάθος ἡ κόμη, τοῦτο περὶ κύκλον τινὰ συμβαίνει
one is affection the tail this about circle some happens
γίγνεσθαι τὸ αὐτό, καὶ ἔστι τὸ γάλα, ὡς εἰπεῖν οἷον
to-come-about the same and is the milky-way so to-say as-it-were
ὁριζόμενον, ἡ τοῦ μεγίστου διὰ τὴν ἔκκρισιν κύκλου
defined the of-the greatest because-of the secretion circle
κόμη. Διὸ καθάπερ εἴπομεν πρότερον, οὐ πολλοὶ
tail Wherefore just-as we-said before not many
οὐδὲ πολλάκις γίγνονται κομῆται, διὰ τὸ συνεχῶς
nor often come-about comets because-of the continually
ἀποκεκρίσθαι τε καὶ ἀποκρίνεσθαι καθ' ἑκάστην περίοδον
to-have-been-secreted both and to-be-secreted in each period
εἰς τοῦτον τὸν τόπον ἀεὶ τὴν τοιαύτην σύστασιν. Περὶ
into this the place always the such composition About
μὲν οὖν τῶν γιγνομένων ἐν τῷ περὶ τὴν γῆν κόσμῳ τῷ
indeed then the coming-about in the about the earth cosmos the
συνεχεῖ ταῖς φοραῖς εἴρηται, περί τε τῆς διαδρομῆς
continuous with-the movements it-has-been-said about both the running
τῶν ἄστρων καὶ τῆς ἐκπιμπραμένης φλογός, ἔτι περί τε
of-the stars and the burning flame further about both
κομητῶν καὶ τοῦ καλουμένου γάλακτος· σχεδὸν γάρ ἐστι
comets and the so-called milky-way nearly for are
τοσαῦτα τὰ πάθη τὰ φαινόμενα περὶ τὸν τόπον τοῦτον.
so-many the affections the appearing about the place this

The region nearest the earth, second after the one above it, belongs to water and air. The sun's approach and retreat move it: heat raises moisture as vapor, which cools as it rises and falls again as water, a circle that imitates the sun's. This is a river flowing up and down, perhaps the Ocean the ancients hinted at. Vapor is the exhalation of water, cloud is vapor condensing, and mist is the remnant of cloud, a sign of fair weather rather than of rain; falling water is drizzle in small drops and rain in large.

Περὶ δὲ τοῦ τῇ θέσει μὲν δευτέρου τόπου μετὰ τοῦτον,
About and the in-the position indeed second place after this
πρώτου δὲ περὶ τὴν γῆν λέγωμεν· οὗτος γὰρ κοινὸς ὕδατός
first but about the earth let-us-speak this for common of-water
τε τόπος καὶ ἀέρος καὶ τῶν συμβαινόντων περὶ τὴν ἄνω
both place and of-air and of-the happening about the upper
γένεσιν αὐτοῦ. Ληπτέον δὲ καὶ τούτων τὰς ἀρχὰς καὶ τὰς
generation of-it One-must-grasp and also of-these the principles and the
αἰτίας πάντων ὁμοίως. Ἡ μὲν οὖν ὡς κινοῦσα καὶ κυρία
causes of-all alike The indeed then as moving and sovereign
καὶ πρώτη τῶν ἀρχῶν ὁ κύκλος ἐστίν, ἐν ᾧ φανερῶς ἡ
and first of-the principles the circle is in which evidently the
τοῦ ἡλίου φορὰ διακρίνουσα καὶ συγκρίνουσα τῷ γίγνεσθαι
of-the sun movement separating and combining by-the to-come
πλησίον ἢ πορρώτερον αἰτία τῆς γενέσεως καὶ τῆς φθορᾶς
near or farther cause of-the generation and of-the destruction
ἐστίν. Μενούσης δὲ τῆς γῆς, τὸ περὶ αὐτὴν ὑγρὸν ὑπὸ
is Remaining and the earth the about it moisture by
τῶν ἀκτίνων καὶ ὑπὸ τῆς ἄλλης τῆς ἄνωθεν θερμότητος
the rays and by the other the from-above heat
ἀτμιδούμενον φέρεται ἄνω· τῆς δὲ θερμότητος ἀπολιπούσης
being-vaporized is-carried upward the and heat having-left

τῆς ἀναγούσης αὐτό, καὶ τῆς μὲν διασκεδαννυμένης
the raising it and the(-one) indeed being-dispersed
πρὸς τὸν ἄνω τόπον, τῆς δὲ καὶ σβεννυμένης διὰ
toward the upper place the(-other) and also being-quenched because-of
τὸ μετεωρίζεσθαι πορρώτερον εἰς τὸν ὑπὲρ τῆς γῆς
the to-be-raised farther into the above the earth
ἀέρα, συνίσταται πάλιν ἡ ἀτμὶς ψυχομένη διά τε τὴν
air is-condensed again the vapor being-cooled because-of both the
ἀπόλειψιν τοῦ θερμοῦ καὶ τὸν τόπον, καὶ γίνεται ὕδωρ
leaving of-the hot and the place and becomes water
ἐξ ἀέρος· γενόμενον δὲ φέρεται πάλιν πρὸς τὴν γῆν.
from air having-become and is-carried again toward the earth
Ἔστι δ' ἡ μὲν ἐξ ὕδατος ἀναθυμίασις ἀτμίς, ἡ
Is and the(-one) indeed from water exhalation vapor the(-one)
δ' ἐξ ἀέρος εἰς ὕδωρ νέφος· ὁμίχλη δὲ νεφέλης περίττωμα
and from air into water cloud mist and of-cloud residue
τῆς εἰς ὕδωρ συγκρίσεως. Διόπερ σημεῖον μᾶλλόν ἐστιν
of-the into water condensation Wherefore sign rather is
εὐδίας ἢ ὑδάτων· οἷον γάρ ἐστιν ἡ ὁμίχλη νεφέλη
of-fair-weather than of-rains as-it-were for is the mist cloud
ἄγονος. Γίνεται δὲ κύκλος οὗτος μιμούμενος τὸν τοῦ ἡλίου
barren Comes-about and circle this imitating the of-the sun
κύκλον· ἅμα γὰρ ἐκεῖνος εἰς τὰ πλάγια μεταβάλλει καὶ
circle at-once for that-one to the sides changes also
οὗτος ἄνω καὶ κάτω. Καὶ δεῖ νοῆσαι τοῦτον ὥσπερ
this-one upward and downward And one-must to-conceive this just-as
ποταμὸν ῥέοντα κύκλῳ ἄνω καὶ κάτω, κοινὸν ἀέρος καὶ
river flowing in-a-circle upward and downward common of-air and
ὕδατος· πλησίον μὲν γὰρ ὄντος τοῦ ἡλίου ὁ τῆς ἀτμίδος
of-water near indeed for being the sun the of-the vapor
ἄνω ῥεῖ ποταμός, ἀφισταμένου δὲ ὁ τοῦ ὕδατος κάτω.
upward flows river withdrawing but the of-the water downward

Καὶ τοῦτ᾽ ἐνδελεχὲς ἐθέλει γίγνεσθαι κατά γε τὴν τάξιν·
And this continuous tends to-come-about according-to at-least the order
ὥστ᾽ εἴπερ ᾐνίττοντο τὸν ὠκεανὸν οἱ πρότερον, τάχ᾽ ἂν
so-that if-indeed were-binting-at the Ocean the earlier perhaps —
τοῦτον τὸν ποταμὸν λέγοιεν τὸν κύκλῳ ῥέοντα περὶ τὴν
this the river they-would-mean the in-a-circle flowing about the
γῆν. Ἀναγομένου δὲ τοῦ ὑγροῦ ἀεὶ διὰ τὴν τοῦ θερμοῦ
earth Being-raised and the moisture always because-of the of-the hot
δύναμιν καὶ πάλιν φερομένου κάτω διὰ τὴν ψύξιν πρὸς
power and again being-carried downward because-of the cooling toward
τὴν γῆν, οἰκείως τὰ ὀνόματα τοῖς πάθεσι κεῖται καί τισι
the earth fittingly the names to-the affections are-set and to-some
διαφοραῖς αὐτῶν· ὅταν μὲν γὰρ κατὰ μικρὰ φέρηται,
differences of-them whenever indeed for in small it-is-carried
ψακάδες, ὅταν δὲ κατὰ μείζω μόρια, ὑετὸς καλεῖται.
drizzles whenever but in greater parts rain it-is-called

X · DEW AND HOARFROST

Vapor raised a little by day and cooled at night falls as dew; if it freezes before it becomes water, as hoarfrost. Both form in clear, still weather, since without a clear sky the vapor is not raised and in wind it cannot condense; dew comes in warmer seasons and places, hoarfrost in colder. Hoarfrost does not form on mountains, since the vapor is not raised so far and the wind there disperses it. Dew comes with south winds, except in the Pontus, where the cold north wind packs the heat in.

Ἐκ δὲ τοῦ καθ᾽ ἡμέραν ἀτμίζοντος ὅσον ἂν μὴ
From and the by day evaporating as-much-as — not
μετεωρισθῇ δι᾽ ὀλιγότητα τοῦ ἀνάγοντος αὐτὸ πυρὸς
be-raised because-of smallness of-the raising it fire
πρὸς τὸ ἀναγόμενον ὕδωρ, πάλιν καταφερόμενον ὅταν
in-relation-to the raised water again being-carried-down whenever

ψυχθῇ νύκτωρ, καλεῖται δρόσος καὶ πάχνη, πάχνη μὲν
it-be-cooled by-night is-called dew and hoarfrost hoarfrost indeed
ὅταν ἡ ἀτμὶς παγῇ πρὶν εἰς ὕδωρ συγκριθῆναι πάλιν
whenever the vapor be-frozen before into water to-be-condensed again
(γίνεται δὲ χειμῶνος, καὶ μᾶλλον ἐν τοῖς χειμερινοῖς
it-comes-about and in-winter and more in the wintry
τόποις), δρόσος δ' ὅταν συγκριθῇ εἰς ὕδωρ ἡ ἀτμίς, καὶ
places dew and whenever be-condensed into water the vapor and
μήθ' οὕτως ἔχῃ ἡ ἀλέα ὥστε ξηρᾶναι τὸ ἀναχθέν, μήθ'
neither so be the warmth so-as to-dry the raised nor
οὕτω ψῦχος ὥστε παγῆναι τὴν ἀτμίδα αὐτὴν διὰ τὸ
so cold so-as to-be-frozen the vapor itself because-of the
ἢ τὸν τόπον ἀλεεινότερον ἢ τὴν ὥραν εἶναι· γίνεται
either the place warmer or the season to-be it-comes-about
γὰρ μᾶλλον ἡ δρόσος ἐν εὐδίᾳ καὶ ἐν τοῖς εὐδιεινοτέροις
for more the dew in fair-weather and in the fairer-weathered
τόποις, ἡ δὲ πάχνη, καθάπερ εἴρηται, τοὐναντίον· δῆλον
places the but hoarfrost just-as has-been-said the-opposite clear
γὰρ ὡς ἡ ἀτμὶς θερμότερον ὕδατος (ἔχει γὰρ τὸ ἀνάγον ἔτι
for that the vapor hotter than-water has for the raising still
πῦρ), ὥστε πλείονος ψυχρότητος αὐτὴν πῆξαι. Γίνεται δ'
fire so-that more cold it to-freeze It-comes-about and
ἄμφω αἰθρίας τε καὶ νηνεμίας· οὔτε γὰρ ἀναχθήσεται μὴ
both in-clear-sky both and in-windlessness neither for will-be-raised not
οὔσης αἰθρίας, οὔτε συστῆναι δύναιτ' ἂν ἀνέμου πνέοντος.
being clear-sky nor to-be-condensed could — wind blowing
Σημεῖον δ' ὅτι γίνεται ταῦτα διὰ τὸ μὴ πόρρω
Sign and that come-about these-things because-of the not far
μετεωρίζεσθαι τὴν ἀτμίδα· ἐπὶ γὰρ τοῖς ὄρεσιν οὐ γίνεται
to-be-raised the vapor on for the mountains not comes-about
πάχνη. Αἰτία δὲ μία μὲν αὕτη, ὅτι ἀνάγεται ἐκ τῶν
hoarfrost Cause and one indeed this that it-is-raised from the

κοίλων καὶ ἐφύδρων τόπων, ὥστε καθάπερ φορτίον
hollow and watery places so-that just-as burden
φέρουσα πλέον ἡ ἀνάγουσα θερμότης ἢ καθ' αὑτὴν οὐ
carrying more the raising heat than by itself not
δύναται μετεωρίζειν ἐπὶ πολὺν τόπον αὐτὸ τοῦ ὕψους, ἀλλ'
is-able to-raise to much place it of-the height but
ἐγγὺς ἀφίησι πάλιν· ἑτέρα δ' ὅτι καὶ ῥεῖ μάλιστα ὁ ἀὴρ
near lets-go again other and that also flows most the air
ῥέων ἐν τοῖς ὑψηλοῖς, ὃς διαλύει τὴν τοιαύτην σύστασιν.
flowing in the high-places which dissolves the such formation
Γίνεται δ' ἡ δρόσος πανταχοῦ· νοτίοις, οὐ βορείοις,
Comes-about and the dew everywhere with-south-winds not with-north-winds
πλὴν ἐν τῷ Πόντῳ. Ἐκεῖ δὲ τοὐναντίον· βορείοις μὲν
except in the Pontus There and the-opposite with-north-winds indeed
γὰρ γίγνεται, νοτίοις δ' οὐ γίγνεται. Αἴτιον δ' ὁμοίως
for it-comes-about with-south-winds but not it-comes-about Cause and likewise
ὥσπερ ὅτι εὐδίας μὲν γίγνεται, χειμῶνος δ' οὔ· ὁ
just-as that in-fair-weather indeed it-comes-about in-storm but not the
μὲν γὰρ νότος εὐδίαν ποιεῖ, ὁ δὲ βορέας χειμῶνα·
indeed for south-wind fair-weather makes the but north-wind storm
ψυχρὸς γάρ, ὥστ' ἐκ τοῦ χειμῶνος τῆς ἀναθυμιάσεως
cold for so-that from the storm of-the exhalation
σβέννυσι τὴν θερμότητα. Ἐν δὲ τῷ Πόντῳ ὁ μὲν νότος
it-quenches the heat In and the Pontus the indeed south-wind
οὐχ οὕτως ποιεῖ εὐδίαν ὥστε γίγνεσθαι ἀτμίδα, ὁ δὲ
not so makes fair-weather so-that to-come-about vapor the but
βορέας διὰ τὴν ψυχρότητα ἀντιπεριστὰς τὸ θερμὸν
north-wind because-of the coldness by-surrounding the hot
ἀθροίζει, ὥστε πλεῖον ἀτμίζειν μᾶλλον. Πολλάκις δὲ τοῦτο
gathers so-that more to-steam more Often and this
καὶ ἐν τοῖς ἔξω τόποις ἰδεῖν γινόμενον ἔστιν· ἀτμίζειν
also in the outside places to-see coming-about it-is-possible to-steam

γὰρ τὰ φρέατα βορείοις μᾶλλον ἢ νοτίοις. Ἀλλὰ
for the wells with-north-winds more than with-south-winds But
τὰ μὲν βόρεια σβέννυσι πρὶν συστῆναί τι πλῆθος, ἐν δὲ
the indeed north-winds quench before to-be-formed any amount in but
τοῖς νοτίοις ἐᾶται ἀθροίζεσθαι ἡ ἀναθυμίασις. Αὐτὸ δὲ
the south-winds is-allowed to-gather the exhalation Itself and
τὸ ὕδωρ οὐ πήγνυται, καθάπερ ἐν τῷ περὶ τὰ νέφη τόπῳ.
the water not is-frozen just-as in the about the clouds place

XI · RAIN, SNOW, AND HAIL

Water cooled above falls as rain, snow, or hail. Rain answers to dew and snow to hoarfrost, differing only in quantity: rain forms from much vapor over a large region and a long time, dew within a day over a small one. Snow is frozen cloud and hoarfrost frozen vapor, so both are signs of a cold season or region. Hail has no counterpart near the earth, and its cause will be clear once hail has been discussed.

Ἐκεῖθεν γὰρ τρία φοιτᾷ σώματα συνιστάμενα διὰ τὴν
From-there for three come bodies being-formed because-of the
ψύξιν, ὕδωρ καὶ χιὼν καὶ χάλαζα. Τούτων δὲ τὰ μὲν δύο
cooling water and snow and hail Of-these and the(-ones) indeed two
ἀνάλογον καὶ διὰ τὰς αὐτὰς αἰτίας γίγνεται τοῖς κάτω,
analogous and because-of the same causes come-about to-the below-things
διαφέροντα τῷ μᾶλλον καὶ ἧττον καὶ πλήθει καὶ ὀλιγότητι·
differing in-the more and less and in-amount and in-fewness
χιὼν γὰρ καὶ πάχνη ταὐτόν, καὶ ὑετὸς καὶ δρόσος, ἀλλὰ
snow for and hoarfrost the-same and rain and dew but
τὸ μὲν πολὺ τὸ δ' ὀλίγον. Ὁ μὲν γὰρ ὑετὸς ἐκ
the(-one) indeed much the(-other) and little The indeed for rain from
πολλῆς ἀτμίδος γίγνεται ψυχομένη· τούτου δ' αἴτιον ὅ τε
much vapor comes-about being-cooled of-this and cause the both

τόπος πολὺς καὶ ὁ χρόνος ὧν, ἐν ᾧ συλλέγεται καὶ ἐξ οὗ.
region large and the time being in which it-is-collected and from which
Τὸ δ' ὀλίγον ἡ δρόσος· ἐφήμερος γὰρ ἡ σύστασις καὶ ὁ
The and little the dew ephemeral for the formation and the
τόπος μικρός· δηλοῖ δ' ἥ τε γένεσις οὖσα ταχεῖα καὶ βραχὺ
region small shows and the both generation being quick and small
τὸ πλῆθος. Ὁμοίως δὲ καὶ πάχνη καὶ χιών· ὅταν γὰρ παγῇ
the amount Likewise and also hoarfrost and snow whenever for be-frozen
τὸ νέφος, χιών ἐστιν, ὅταν δ' ἡ ἀτμίς, πάχνη. Διὸ ἢ
the cloud snow it-is whenever but the vapor hoarfrost Wherefore either
ὥρας ἢ χώρας ἐστὶ σημεῖον ψυχρᾶς· οὐ γὰρ ἂν ἐπήγνυτο
of-season or of-region it-is sign cold not for — it-would-be-frozen
ἔτι πολλῆς ἐνούσης θερμότητος, εἰ μὴ ἐπεκράτει τὸ ψῦχος.
still much being-in heat if not prevailed the cold
Ἐν γὰρ τῷ νέφει ἔτι ἔνεστι πολὺ τὸ θερμὸν τὸ ὑπόλοιπον
In for the cloud still is-in much the hot the remainder
τοῦ ἐξατμίσαντος ἐκ τῆς γῆς τὸ ὑγρὸν πυρός. Χάλαζα
of-the having-evaporated from the earth the moisture fire Hail
δ' ἐκεῖ μὲν γίγνεται, ἐν δὲ τῷ πλησίον τῆς γῆς ἀτμίζοντι
and there indeed comes-about in but the near the earth steaming
τοῦτ' ἐλλείπει· καθάπερ γὰρ εἴπομεν, ὡς μὲν ἐκεῖ χιών,
this is-lacking just-as for we-said as indeed there snow
ἐνταῦθα γίγνεται πάχνη, ὡς δ' ἐκεῖ ὑετός, ἐνταῦθα δρόσος·
here comes-about hoarfrost as and there rain here dew
ὡς δ' ἐκεῖ χάλαζα, ἐνταῦθα οὐκ ἀνταποδίδωσι τὸ ὅμοιον.
as but there hail here not corresponds the like
Τὸ δ' αἴτιον εἰποῦσι περὶ χαλάζης ἔσται δῆλον.
The and cause to-us-having-spoken about hail will-be clear

Hail is ice, yet it falls most in spring and autumn and seldom in winter. Some say a cloud pushed up into the cold freezes; but the large, unrounded hailstones freeze near the earth. The cause is mutual replacement: warm air drives the cold inward, so a cloud freezes faster, as water heated beforehand cools sooner. Freezing thus comes, against Anaxagoras, when cloud descends into warm air, not when it rises into cold; the same cause makes rains more violent in warm weather and brings the summer rains of Arabia and Ethiopia.

Δεῖ δὲ λαβεῖν ἅμα καὶ τὰ συμβαίνοντα περὶ τὴν γένεσιν
One-must and grasp at-once also the happening about the generation
αὐτῆς, τά τε μὴ πλανῶντα καὶ τὰ δοκοῦντ᾽ εἶναι παράλογα.
of-it the both not misleading and the seeming to-be paradoxical
Ἔστι μὲν γὰρ ἡ χάλαζα κρύσταλλος, πήγνυται δὲ τὸ
Is indeed for the hail ice is-frozen and the
ὕδωρ τοῦ χειμῶνος· αἱ δὲ χάλαζαι γίνονται ἔαρος μὲν καὶ
water in-the winter the but hails come-about in-spring indeed and
μετοπώρου μάλιστα, εἶτα καὶ τῆς ὀπώρας, χειμῶνος δ᾽
in-autumn most then also in-the late-summer in-winter but
ὀλιγάκις, καὶ ὅταν ἧττον ᾖ ψῦχος. Καὶ ὅλως δὲ γίνονται
rarely and when less be cold Also wholly and come-about
χάλαζαι μὲν ἐν τοῖς εὐδιεινοτέροις τόποις, αἱ δὲ χιόνες ἐν
hails indeed in the fairer-weathered places the but snows in
τοῖς ψυχροτέροις. Ἄτοπον δὲ καὶ τὸ πήγνυσθαι ὕδωρ ἐν τῷ
the colder Strange and also the to-be-frozen water in the
ἄνω τόπῳ· οὔτε γὰρ παγῆναι δυνατὸν πρὶν γενέσθαι ὕδωρ,
upper place neither for to-freeze possible before to-become water
οὔτε τὸ ὕδωρ οὐθένα χρόνον οἷόν τε μένειν μετέωρον ὄν.
nor the water for-no time possible — to-remain aloft being
Ἀλλὰ μὴν οὐδ᾽ ὥσπερ αἱ ψακάδες ἄνω μὲν ὀχοῦνται
But indeed not-even just-as the drops above indeed ride

διὰ μικρότητα, ἐνδιατρίψασαι δ' ἐπὶ τοῦ ἀέρος, ὥσπερ
because-of smallness having-lingered and on the air just-as
καὶ ἐπὶ τοῦ ὕδατος γῆ καὶ χρυσὸς διὰ μικρομέρειαν
also on the water earth and gold because-of fineness-of-parts
πολλάκις ἐπιπλέουσιν, οὕτως ἐπὶ τοῦ ἀέρος τὸ ὕδωρ,
often float thus on the air the water
συνελθόντων δὲ πολλῶν μικρῶν μεγάλαι καταφέρονται
having-come-together and many small large are-carried-down
ψακάδες· τοῦτο γὰρ οὐκ ἐνδέχεται γενέσθαι ἐπὶ τῆς
drops this for not is-possible to-come-about in-the-case-of the
χαλάζης· οὐ γὰρ συμφύεται τὰ πεπηγότα ὥσπερ τὰ ὑγρά.
hail not for grow-together the frozen-things just-as the liquids
Δῆλον οὖν ὅτι ἄνω τοσοῦτον ὕδωρ ἔμεινεν· οὐ γὰρ ἂν
Clear then that above so-much water remained not for —
ἐπάγη τοσοῦτον. Τοῖς μὲν οὖν δοκεῖ τοῦ πάθους
it-would-have-frozen so-much To-the(-ones) indeed then it-seems of-the affection
αἴτιον εἶναι τούτου καὶ τῆς γενέσεως, ὅταν ἀπωσθῇ
cause to-be this and of-the generation whenever be-pushed-away
τὸ νέφος εἰς τὸν ἄνω τόπον μᾶλλον ὄντα ψυχρὸν διὰ
the cloud into the upper place more being cold because-of
τὸ λήγειν ἐκεῖ τὰς ἀπὸ τῆς γῆς τῶν ἀκτίνων ἀνακλάσεις,
the to-cease there the from the earth of-the rays reflections
ἐλθὸν δ' ἐκεῖ πήγνυσθαι τὸ ὕδωρ. Διὸ καὶ θέρους
having-come and there to-be-frozen the water Wherefore also in-summer
μᾶλλον καὶ ἐν ταῖς ἀλεεινοῖς χώραις γίνεσθαι τὰς
more and in the warm regions to-come-about the
χαλάζας, ὅτι ἐπὶ πλεῖον τὸ θερμὸν ἀνωθεῖ ἀπὸ τῆς γῆς
hails because to more the hot pushes-upward from the earth
τὰς νεφέλας. Συμβαίνει δ' ἐν τοῖς σφόδρα ὑψηλοῖς ἥκιστα
the clouds It-happens and in the very high-places least
γίνεσθαι χάλαζαν· καίτοι ἔδει, ὥσπερ καὶ τὴν χιόνα
to-come-about hail and-yet it-was-needful just-as also the snow

ὁρῶμεν ἐπὶ τοῖς ὑψηλοῖς μάλιστα γιγνομένην. Ἔτι δὲ
we-see on the high-places most coming-about Further and
πολλάκις ὦπται νέφη φερόμενα σὺν ψόφῳ πολλῷ παρ᾽
often have-been-seen clouds being-carried with noise much along
αὐτὴν τὴν γῆν, ὥστε φοβερὸν εἶναι τοῖς ἀκούουσι καὶ ὁρῶσιν
itself the earth so-that fearsome to-be to-the hearing and seeing
ὡς ἐσομένου τινὸς μείζονος. Ὁτὲ δὲ καὶ ἄνευ ψόφου
as going-to-be something greater At-times and also without noise
τοιούτων ὀφθέντων νεφῶν χάλαζα γίνεται πολλὴ καὶ τὸ
such having-been-seen clouds hail comes-about much and in-the
μέγεθος ἄπιστος, καὶ τοῖς σχήμασιν οὐ στρογγύλη, διὰ τὸ
magnitude incredible and in-the shapes not round because-of the
μὴ πολὺν χρόνον γίνεσθαι τὴν φορὰν αὐτῆς ὡς πλησίον τῆς
not much time to-come-about the movement of-it as near the
πήξεως γενομένης τῆς γῆς, ἀλλ᾽ οὐχ ὥσπερ ἐκεῖνοί φασιν.
freezing having-come-about the earth but not just-as those say
Ἀλλὰ μὴν ἀναγκαῖον ὑπὸ τοῦ μάλιστ᾽ αἰτίου τῆς πήξεως
But indeed necessary by the most cause of-the freezing
μεγάλας γίνεσθαι χαλάζας· κρύσταλλος γὰρ ἡ χάλαζα,
large to-come-about hails ice for the hail
καὶ τοῦτο παντὶ δῆλον. Μεγάλαι δ᾽ εἰσὶν αἱ τοῖς
and this to-everyone clear Large and are the in-the
σχήμασι μὴ στρογγύλαι. Τοῦτο δὲ σημεῖον τοῦ παγῆναι
shapes not round This and sign of-the to-be-frozen
πλησίον τῆς γῆς· αἱ γὰρ φερόμεναι πόρρωθεν διὰ τὸ
near the earth the for being-carried from-afar because-of the
φέρεσθαι μακρὰν περιθραυόμεναι γίνονται τό τε σχῆμα
to-be-carried far being-broken-around become the both in-shape
περιφερεῖς καὶ τὸ μέγεθος ἐλάττους. Ὅτι μὲν οὖν
rounded and in-the magnitude smaller That indeed then
οὐ τῷ ἀπωθεῖσθαι εἰς τὸν ἄνω τόπον τὸν ψυχρὸν ἡ
not by-the to-be-pushed-away into the upper place the cold the

πῆξις συμβαίνει, δῆλον. Ἀλλ' ἐπειδὴ ὁρῶμεν ὅτι γίνεται
freezing happens clear But since we-see that comes-about
ἀντιπερίστασις τῷ θερμῷ καὶ τῷ ψυχρῷ ἀλλήλοις, διὸ
mutual-replacement to-the hot and to-the cold with-one-another wherefore
ἔν τε ταῖς ἀλέαις ψυχρὰ τὰ κάτω τῆς γῆς καὶ ἀλεεινὰ ἐν
in both the warm-spells cold the below the earth and warm in
τοῖς πάγοις, τοῦτο δεῖ νομίζειν καὶ ἐν τῷ ἄνω γίνεσθαι
the frosts this one-must to-consider also in the upper to-come-about
τόπῳ, ὥστ' ἐν ταῖς ἀλεεινοτέραις ὥραις ἀντιπεριστάμενον
place so-that in the warmer seasons being-surrounded
εἴσω τὸ ψυχρὸν διὰ τὴν κύκλῳ θερμότητα ὁτὲ μὲν
inward the cold because-of the in-a-circle heat at-times indeed
ταχὺ ὕδωρ ἐκ τοῦ νέφους ποιεῖ, ὁτὲ δὲ χάλαζαν.
quickly water from the cloud makes at-times and hail
Διὸ καὶ αἱ ψακάδες πολὺ μείζους ἐν ταῖς ἀλεειναῖς
Wherefore also the drops much larger in the warm
γίνονται ἡμέραις ἢ ἐν τῷ χειμῶνι, καὶ ὕδατα λαβρότερα·
come-about days than in the winter and waters more-violent
λαβρότερα μὲν γὰρ λέγεται ὅταν ἀθροώτερα, ἀθροώτερα
more-violent indeed for it-is-said whenever more-massed more-massed
δὲ διὰ τὸ τάχος τῆς πυκνώσεως. Τοῦτο δὲ γίγνεται
and because-of the speed of-the condensation This and comes-about
αὐτὸ τοὐναντίον ἢ ὡς Ἀναξαγόρας λέγει· ὁ μὲν γὰρ
itself the-opposite than as Anaxagoras says he indeed for
ὅταν εἰς τὸν ψυχρὸν ἀέρα ἐπανέλθῃ φησὶ τοῦτο πάσχειν,
whenever into the cold air it-rise-up says this to-suffer
ἡμεῖς δ' ὅταν εἰς τὸν θερμὸν κατέλθῃ, καὶ μάλιστα
we but whenever into the warm it-descend and most
ὅταν μάλιστα. Ὅταν δ' ἔτι μᾶλλον ἀντιπεριστῇ ἐντὸς
whenever most Whenever and still more be-surrounded within
τὸ ψυχρὸν ὑπὸ τοῦ ἔξω θερμοῦ, ὕδωρ ποιῆσαν ἔπηξε καὶ
the cold by the outside hot water having-made it-froze and

γίνεται χάλαζα. Συμβαίνει δὲ τοῦτο, ὅταν θᾶττον ᾖ ἡ
comes-about hail It-happens and this whenever quicker be the
πῆξις ἢ ἡ τοῦ ὕδατος φορὰ ἡ κάτω· εἰ γὰρ φέρεται
freezing than the of-the water movement the downward if for is-carried
μὲν ἐν τοσῷδε χρόνῳ, ἡ δὲ ψυχρότης σφοδρὰ οὖσα ἐν
indeed in so-much time the and coldness violent being in
ἐλάττονι ἔπηξεν, οὐθὲν κωλύει μετέωρον ὂν παγῆναι, ἐὰν
less froze nothing prevents aloft being to-be-frozen if
ἡ πῆξις ἐν ἐλάττονι γίνηται χρόνῳ τῆς κάτω φορᾶς.
the freezing in less come-about time than-the downward movement
Καὶ ὅσῳ δ' ἂν ἐγγύτερον καὶ ἀθροωτέρα γένηται ἡ
Also by-as-much-as and — nearer and more-massed come-about the
πῆξις, τά τε ὕδατα λαβρότερα γίνεται καὶ αἱ ψακάδες
freezing the both waters more-violent become and the drops
καὶ αἱ χάλαζαι μείζους διὰ τὸ βραχὺν φέρεσθαι τόπον.
and the hails larger because-of the short to-be-carried place
Καὶ οὐ πυκναὶ αἱ ψακάδες αἱ μεγάλαι πίπτουσι διὰ
And not close-set the drops the large fall because-of
τὴν αὐτὴν αἰτίαν. Ἧττον δὲ τοῦ θέρους γίνεται ἢ
the same cause Less and in-the summer it-comes-about than
ἔαρος καὶ μετοπώρου, μᾶλλον μέντοι ἢ χειμῶνος, ὅτι
in-spring and in-autumn more however than in-winter because
ξηρότερος ὁ ἀὴρ τοῦ θέρους· ἐν δὲ τῷ ἔαρι ἔτι ὑγρός,
drier the air in-the summer in and the spring still moist
ἐν δὲ τῷ μετοπώρῳ ἤδη ὑγραίνεται. Γίγνονται δέ ποτε,
in and the autumn already becomes-moist Come-about and sometimes
καθάπερ εἴρηται, καὶ τῆς ὀπώρας χάλαζαι διὰ τὴν
just-as has-been-said also in-the late-summer hails because-of the
αὐτὴν αἰτίαν. Συμβάλλεται δ' ἔτι πρὸς τὴν ταχυτῆτα
same cause Contributes and further toward the speed
τῆς πήξεως καὶ τὸ προτεθερμάνθαι τὸ ὕδωρ· θᾶττον
of-the freezing also the to-have-been-heated-beforehand the water quicker

γὰρ ψύχεται. Διὸ πολλοὶ ὅταν τὸ ὕδωρ ψῦξαι ταχὺ
for it-is-cooled Wherefore many whenever the water to-cool quickly
βουληθῶσιν, εἰς τὸν ἥλιον τιθέασι πρῶτον, καὶ οἱ περὶ
they-wish into the sun place first and the about
τὸν Πόντον ὅταν ἐπὶ τοῦ κρυστάλλου σκηνοποιῶνται
the Pontus whenever on the ice they-make-huts
πρὸς τὰς τῶν ἰχθύων θήρας (θηρεύουσι γὰρ διακόπτοντες
for the of-the fish hunts they-hunt for cutting-through
τὸν κρύσταλλον), ὕδωρ θερμὸν περιχέουσι τοῖς καλάμοις
the ice water hot pour-around the reeds
διὰ τὸ θᾶττον πήγνυσθαι· χρῶνται γὰρ τῷ κρυστάλλῳ
because-of the quicker to-freeze they-use for the ice
ὥσπερ τῷ μολίβδῳ, ἵν' ἠρεμῶσιν οἱ κάλαμοι. Θερμὸν
just-as the lead so-that be-still the reeds Hot
δὲ γίνεται ταχὺ τὸ συνιστάμενον ὕδωρ ἔν τε ταῖς χώραις
and becomes quickly the forming water in both the regions
καὶ ταῖς ὥραις ταῖς ἀλεεινα῀ις.
and the seasons the warm
Γίνεται δὲ καὶ περὶ τὴν Ἀραβίαν καὶ τὴν Αἰθιοπίαν
Come-about and also about the Arabia and the Ethiopia
τοῦ θέρους τὰ ὕδατα καὶ οὐ τοῦ χειμῶνος, καὶ ταῦτα
in-the summer the rains and not in-the winter and these
ῥαγδαῖα, καὶ τῆς αὐτῆς ἡμέρας πολλάκις, διὰ τὴν
violent and on-the same day often because-of the
αὐτὴν αἰτίαν· ταχὺ γὰρ ψύχεται τῇ ἀντιπεριστάσει, ἣ
same cause quickly for it-is-cooled by-the mutual-replacement which
γίνεται διὰ τὸ ἀλεεινὴν εἶναι τὴν χώραν ἰσχυρῶς.
comes-about because-of the warm to-be the region strongly
Περὶ μὲν οὖν ὑετοῦ καὶ δρόσου καὶ νιφετοῦ καὶ πάχνης
About indeed then rain and dew and snow and hoarfrost

καὶ χαλάζης, διὰ τίν᾽ αἰτίαν γίγνεται καὶ τίς ἡ
and hail because-of what cause it-comes-about and what the
φύσις αὐτῶν ἐστίν, εἰρήσθω τοσαῦτα.
nature of-them is let-it-have-been-said so-much

XIII · WINDS AND THE SOURCES OF RIVERS

Some think wind is moving air and rivers are rain stored in hollows. But stored rain could not feed rivers forever: water forms inside the earth as above it, the mountains acting like a sponge that gathers and condenses vapor, which is why the greatest rivers flow from the greatest mountains, as the maps show, from the Caucasus, the Pyrene, and the mountains of Asia and Libya. Some rivers sink underground and rise again.

Περὶ δ᾽ ἀνέμων καὶ πάντων πνευμάτων, ἔτι δὲ
About and winds and all winds further and
ποταμῶν καὶ θαλάττης λέγωμεν, πρῶτον καὶ περὶ τούτων
rivers and sea let-us-speak first also about these
προαπορήσαντες πρὸς ἡμᾶς αὐτούς· ὥσπερ γὰρ καὶ
having-first-raised-difficulties to us ourselves just-as for also
περὶ ἄλλων, οὕτω καὶ περὶ τούτων οὐθὲν παρειλήφαμεν
about others so also about these nothing we-have-received
λεγόμενον τοιοῦτον ὃ μὴ κἂν ὁ τυχὼν εἴπειεν. Εἰσὶ
being-said such which not even the chance-comer would-say There-are
δέ τινες οἵ φασι τὸν καλούμενον ἀέρα κινούμενον μὲν καὶ
and some who say the so-called air moving indeed and
ῥέοντα ἄνεμον εἶναι, συνιστάμενον δὲ τὸν αὐτὸν τοῦτον
flowing wind to-be being-condensed but the same this
πάλιν νέφος καὶ ὕδωρ, ὡς τῆς αὐτῆς φύσεως οὔσης ὕδατος
again cloud and water as of-the same nature being of-water
καὶ πνεύματος, καὶ τὸν ἄνεμον εἶναι κίνησιν ἀέρος. Διὸ
and of-wind and the wind to-be motion of-air Wherefore

καὶ τῶν σοφῶς βουλομένων λέγειν τινὲς ἕνα φασὶν ἄνεμον
also of-the cleverly wishing to-speak some one say wind
εἶναι πάντας τοὺς ἀνέμους, ὅτι συμπέπτωκε καὶ τὸν ἀέρα
to-be all the winds because it-happens also the air
τὸν κινούμενον ἕνα καὶ τὸν αὐτὸν εἶναι πάντα, δοκεῖν δὲ
the moving one and the same to-be all to-seem and
διαφέρειν οὐθὲν διαφέροντα διὰ τοὺς τόπους ὅθεν ἂν
to-differ nothing differing because-of the places whence —
τυγχάνῃ ῥέον ἑκάστοτε, παραπλησίως λέγοντες ὥσπερ ἂν εἴ
it-happen flowing each-time similarly speaking just-as — if
τις οἴοιτο καὶ τοὺς ποταμοὺς πάντας ἕνα ποταμὸν εἶναι.
anyone should-think also the rivers all one river to-be
Διὸ βέλτιον οἱ πολλοὶ λέγουσιν ἄνευ ζητήσεως τῶν
Wherefore better the many speak without inquiry than-those
μετὰ ζητήσεως οὕτω λεγόντων· εἰ μὲν γὰρ ἐκ μιᾶς ἀρχῆς
with inquiry thus speaking if indeed for from one source
ἅπαντες ῥέουσι, κἀκεῖ τὰ πνεύματα τὸν αὐτὸν τρόπον, τάχ᾽
all flow and-there the winds the same way perhaps
ἄν τι λέγοιεν οἱ λέγοντες οὕτως· εἰ δ᾽ ὁμοίως ἐνταῦθα
— something would-say the saying thus if but alike here
κἀκεῖ, δῆλον ὅτι τὸ κόμψευμα ἂν εἴη τοῦτο ψεῦδος,
and-there clear that the subtlety — would-be this falsehood
ἐπεὶ τοῦτό γε προσήκουσαν ἔχει σκέψιν, τί τ᾽ ἐστὶν ὁ
since this at-least fitting has inquiry what both is the
ἄνεμος, καὶ γίνεται πῶς, καὶ τί τὸ κινοῦν, καὶ ἡ ἀρχὴ
wind and comes-about how and what the moving and the source
πόθεν αὐτῶν, καὶ πότερον ἄρ᾽ ὥσπερ ἐξ ἀγγείου δεῖ
whence of-them and whether then just-as from vessel one-must
λαβεῖν ῥέοντα τὸν ἄνεμον, καὶ μέχρι τούτου ῥεῖν ἕως ἂν
to-take flowing the wind and up-to this to-flow until —
κενωθῇ τὸ ἀγγεῖον, οἷον ἐξ ἀσκῶν ἀφιέμενον, ἢ καθάπερ
be-emptied the vessel as from wineskins being-let-out or just-as

καὶ οἱ γραφεῖς γράφουσιν, ἐξ αὑτῶν τὴν ἀρχὴν ἀφιέντας.
also the painters paint from themselves the source letting-out
Ὁμοίως δὲ καὶ περὶ τῆς τῶν ποταμῶν γενέσεως δοκεῖ τισὶν
Likewise and also about the of-the rivers generation it-seems to-some
ἔχειν· τὸ γὰρ ἀναχθὲν ὑπὸ τοῦ ἡλίου ὕδωρ πάλιν ὑόμενον
to-be the for raised by the sun water again being-rained
ἀθροισθὲν ὑπὸ γῆν ῥεῖν ἐκ κοιλίας μεγάλης, ἢ πάντας
gathered under earth to-flow from cavity great either all
ἐκ μιᾶς ἢ ἄλλον ἄλλης· καὶ οὐ γίνεσθαι ὕδωρ οὐθέν,
from one or other from-other and not to-come-about water any
ἀλλὰ τὸ συλλεχθὲν ἐκ τοῦ χειμῶνος εἰς τὰς τοιαύτας
but the collected from the winter into the such
ὑποδοχάς, τοῦτο γίνεσθαι τὸ πλῆθος τῶν ποταμῶν.
receptacles this to-become the amount of-the rivers
Διὸ καὶ μείζους ἀεὶ τοῦ χειμῶνος ῥεῖν ἢ τοῦ
Wherefore also greater always in-the winter to-flow than in-the
θέρους, καὶ τοὺς μὲν ἀενάους εἶναι τοὺς δ' οὐκ
summer and the(-ones) indeed ever-flowing to-be the(-others) and not
ἀενάους· ὅσων μὲν γὰρ διὰ τὸ μέγεθος τῆς κοιλίας
ever-flowing of-as-many-as indeed for because-of the magnitude of-the cavity
πολὺ τὸ συλλεγόμενον ὕδωρ ἐστίν, ὥστε διαρκεῖν καὶ μὴ
much the collected water is so-as to-last-out and not
προαναλίσκεσθαι πρὶν ἐπελθεῖν τὸ ὄμβριον ἐν τῷ χειμῶνι
to-be-used-up-first before to-come the rain in the winter
πάλιν, τούτους μὲν ἀενάους εἶναι διὰ τέλους, ὅσοις
again these indeed ever-flowing to-be through end for-as-many-as
δ' ἐλάττους αἱ ὑποδοχαί, τούτους δὲ δι' ὀλιγότητα
and smaller the receptacles these and because-of scantiness
τοῦ ὕδατος φθάνειν ξηραινομένους πρὶν ἐπελθεῖν τὸ ἐκ
of-the water to-anticipate drying-up before to-come the from
τοῦ οὐρανοῦ, κενουμένου τοῦ ἀγγείου. Καίτοι φανερόν,
the heaven being-emptied the vessel And-yet evident

εἴ τις βούλεται ποιήσας οἷον ὑποδοχὴν πρὸ ὀμμάτων
if anyone wishes having-made as-it-were receptacle before eyes
τῷ καθ' ἡμέραν ὕδατι ῥέοντι συνεχῶς νοῆσαι τὸ πλῆθος·
for-the by day water flowing continually to-conceive the amount
ὑπερβάλλοι γὰρ ἂν τῷ μεγέθει τὸν τῆς γῆς ὄγκον ἢ
it-would-exceed for — in-the magnitude the of-the earth bulk or
οὐ πολὺ ἂν ἐλλείποι τὸ δεχόμενον πᾶν τὸ ῥέον ὕδωρ
not much — would-fall-short the receiving all the flowing water
εἰς τὸν ἐνιαυτόν. Ἀλλὰ δῆλον ὅτι συμβαίνει μὲν καὶ
in the year But clear that happens indeed also
πολλὰ τοιαῦτα πολλαχῇ τῆς γῆς, οὐ μὴν ἀλλ' ἄτοπον
many such-things in-many-places of-the earth not indeed but strange
εἴ τις μὴ νομίζοι διὰ τὴν αὐτὴν αἰτίαν ὕδωρ ἐξ
if anyone not should-think because-of the same cause water from
ἀέρος γίγνεσθαι δι' ἥνπερ ὑπὲρ γῆς καὶ ἐν τῇ γῇ.
air to-come-about because-of which-very above earth also in the earth
Ὥστ' εἴπερ κἀκεῖ διὰ ψυχρότητα συνίσταται ὁ ἀτμίζων
So-that if-indeed there-too because-of coldness is-condensed the evaporating
ἀὴρ εἰς ὕδωρ, καὶ ὑπὸ τῆς ἐν τῇ γῇ ψυχρότητος τὸ
air into water also by the in the earth coldness the
αὐτὸ τοῦτο δεῖ νομίζειν συμβαίνειν, καὶ γίγνεσθαι μὴ
same this one-must to-consider to-happen and to-come-about not
μόνον τὸ ἀποκεκριμένον ὕδωρ ἐν αὐτῇ, καὶ τοῦτο ῥεῖν,
only the separated water in it and this to-flow
ἀλλὰ καὶ γίγνεσθαι συνεχῶς. Ἔτι δὲ τοῦ μὴ γιγνομένου
but also to-come-about continually Further and of-the not coming-about
ἀλλ' ὑπάρχοντος ὕδατος καθ' ἡμέραν μὴ τοιαύτην εἶναι
but existing water by day not such to-be
τὴν ἀρχὴν τῶν ποταμῶν, οἷον ὑπὸ γῆν λίμνας τινὰς
the source of-the rivers as under earth lakes some
ἀποκεκριμένας, καθάπερ ἔνιοι λέγουσιν, ἀλλ' ὁμοίως ὥσπερ
separated just-as some say but likewise just-as

καὶ ἐν τῷ ὑπὲρ γῆς τόπῳ μικραὶ συνιστάμεναι ῥανίδες,
also in the above earth place small forming drops
καὶ πάλιν αὗται ἑτέραις, τέλος μετὰ πλήθους καταβαίνει
and again these with-others finally with amount descends
τὸ ὑόμενον ὕδωρ, οὕτω καὶ ἐν τῇ γῇ ἐκ μικρῶν
the rained water thus also in the earth from small
συλλείβεσθαι τὸ πρῶτον καὶ εἶναι οἷον πιδώσης εἰς ἓν
to-trickle-together — at-first and to-be as-it-were oozing into one
τῆς γῆς τὰς ἀρχὰς τῶν ποταμῶν. Δηλοῖ δ' αὐτὸ τὸ ἔργον·
the earth the sources of-the rivers Shows and itself the work
οἱ γὰρ τὰς ὑδραγωγίας ποιοῦντες ὑπονόμοις καὶ διώρυξι
the for the aqueducts making by-tunnels and by-trenches
συνάγουσιν, ὥσπερ ἂν ἰδιούσης τῆς γῆς ἀπὸ τῶν ὑψηλῶν.
collect as-if — sweating the earth from the high-places
Διὸ καὶ τὰ ῥεύματα τῶν ποταμῶν ἐκ τῶν ὀρῶν
Wherefore also the streams of-the rivers from the mountains
φαίνεται ῥέοντα, καὶ πλεῖστοι καὶ μέγιστοι ποταμοὶ ῥέουσιν
appear flowing and most and greatest rivers flow
ἐκ τῶν μεγίστων ὀρῶν. Ὁμοίως δὲ καὶ αἱ κρῆναι αἱ
from the greatest mountains Likewise and also the springs the
πλεῖσται ὄρεσι καὶ τόποις ὑψηλοῖς γειτνιῶσιν· ἐν δὲ
most to-mountains and to-places high are-neighbors in but
τοῖς πεδίοις ἄνευ ποταμῶν ὀλίγαι γίγνονται πάμπαν.
the plains without rivers few come-about altogether
Οἱ γὰρ ὀρεινοὶ καὶ ὑψηλοὶ τόποι, οἷον σπόγγος πυκνὸς
The for mountainous and high places as sponge dense
ἐπικρεμάμενος, κατὰ μικρὰ μὲν πολλαχῇ δὲ διαπιδῶσι
overhanging in small indeed in-many-places but ooze-through
καὶ συλλείβουσι τὸ ὕδωρ· δέχονταί τε γὰρ τοῦ κατιόντος
and trickle-together the water they-receive both for of-the descending
ὕδατος πολὺ πλῆθος (τί γὰρ διαφέρει κοίλην καὶ ὑπτίαν ἢ
water much amount what for it-matters hollow and upturned or

πρηνῆ τὴν περιφέρειαν εἶναι καὶ κυρτήν; ἀμφοτέρως γὰρ
downturned the circumference to-be and convex in-both-ways for
τὸν ἴσον ὄγκον περιλήψεται σώματος) καὶ τὴν ἀνιοῦσαν
the equal bulk will-enclose of-body and the rising
ἀτμίδα ψύχουσι καὶ συγκρίνουσι πάλιν εἰς ὕδωρ. Διὸ
vapor they-cool and combine again into water Wherefore
καθάπερ εἴπομεν, οἱ μέγιστοι τῶν ποταμῶν ἐκ τῶν
just-as we-said the greatest of-the rivers from the
μεγίστων φαίνονται ῥέοντες ὀρῶν. Δῆλον δ' ἐστὶ τοῦτο
greatest appear flowing mountains Clear and is this
θεωμένοις τὰς τῆς γῆς περιόδους· ταύτας γὰρ ἐκ τοῦ
to-those-viewing the of-the earth maps these for from the
πυνθάνεσθαι παρ' ἑκάστων οὕτως ἀνέγραψαν, ὅσων
to-inquire from each thus they-drew-up of-as-many-as
μὴ συμβέβηκεν αὐτόπτας γενέσθαι τοὺς λέγοντας.
not it-has-happened eyewitnesses to-become the saying
Ἐν μὲν οὖν τῇ Ἀσίᾳ πλεῖστοι μὲν ἐκ τοῦ Παρνασσοῦ
In indeed then the Asia most indeed from the Parnassus
καλουμένου φαίνονται ῥέοντες ὄρους καὶ μέγιστοι ποταμοί,
so-called appear flowing mountain and greatest rivers
τοῦτο δ' ὁμολογεῖται πάντων εἶναι μέγιστον ὄρος τῶν
this and is-agreed of-all to-be greatest mountain of-the
πρὸς τὴν ἕω τὴν χειμερινήν· ὑπερβάντι γὰρ ἤδη τοῦτο
toward the dawn the wintry to-one-having-crossed for already this
φαίνεται ἡ ἔξω θάλαττα, ἧς τὸ πέρας οὐ δῆλον τοῖς
appears the outer sea of-which the limit not clear to-those
ἐντεῦθεν. Ἐκ μὲν οὖν τούτου ῥέουσιν ἄλλοι τε ποταμοὶ
from-here From indeed then this flow other both rivers
καὶ ὁ Βάκτρος καὶ ὁ Χοάσπης καὶ ὁ Ἀράξης· τούτου δ'
and the Bactrus and the Choaspes and the Araxes of-this and
ὁ Τάναϊς ἀποσχίζεται μέρος ὢν εἰς τὴν Μαιῶτιν λίμνην.
the Tanais splits-off part being into the Maeotic lake

Ῥεῖ δὲ καὶ ὁ Ἰνδὸς ἐξ αὐτοῦ, πάντων τῶν ποταμῶν
Flows and also the Indus from it of-all the rivers
ῥεῦμα πλεῖστον. Ἐκ δὲ τοῦ Καυκάσου ἄλλοι τε ῥέουσι
stream greatest From and the Caucasus others both flow
πολλοὶ καὶ κατὰ πλῆθος καὶ κατὰ μέγεθος ὑπερβάλλοντες,
many and in amount and in magnitude exceeding
καὶ ὁ Φᾶσις· ὁ δὲ Καύκασος μέγιστον ὄρος τῶν πρὸς
and the Phasis the and Caucasus greatest mountain of-the toward
τὴν ἕω τὴν θερινήν ἐστι καὶ πλήθει καὶ ὕψει. Σημεῖον
the dawn the summer is both in-amount and in-height Sign
δὲ τοῦ μὲν ὕψους ὅτι ὁρᾶται καὶ ἀπὸ τῶν καλουμένων
and of-the indeed height that it-is-seen even from the so-called
βαθέων καὶ εἰς τὴν λίμνην εἰσπλεόντων, ἔτι δ' ἡλιοῦται
deeps and into the lake sailing-in further and is-lit-by-the-sun
τῆς νυκτὸς αὐτοῦ τὰ ἄκρα μέχρι τοῦ τρίτου μέρους ἀπό
in-the night its the peaks up-to the third part from
τε τῆς ἕω καὶ πάλιν ἀπὸ τῆς ἑσπέρας· τοῦ δὲ πλήθους
both the dawn and again from the evening of-the and amount
ὅτι πολλὰς ἔχον ἕδρας, ἐν αἷς ἔθνη τε κατοικεῖ πολλὰ
that many having seats in which peoples both dwell many
καὶ λίμνας εἶναί φασι μεγάλας, ἀλλ' ὅμως πάσας τὰς
and lakes to-be they-say great but nevertheless all the
ἕδρας εἶναί φασι φανερὰς μέχρι τῆς ἐσχάτης κορυφῆς.
seats to-be they-say visible up-to the last summit
Ἐκ δὲ τῆς Πυρήνης (τοῦτο δ' ἐστὶν ὄρος πρὸς δυσμὴν
From and the Pyrene this and is mountain toward setting
ἰσημερινὴν ἐν τῇ Κελτικῇ) ῥέουσιν ὅ τε Ἴστρος καὶ ὁ
equinoctial in the Celtic-land flow the both Ister and the
Ταρτησσός. Οὗτος μὲν οὖν ἔξω στηλῶν, ὁ δ' Ἴστρος
Tartessus This indeed then outside the-Pillars the and Ister
δι' ὅλης τῆς Εὐρώπης εἰς τὸν Εὔξεινον πόντον. Τῶν δ'
through whole the Europe into the Euxine sea Of-the and

ἄλλων ποταμῶν οἱ πλεῖστοι πρὸς ἄρκτον ἐκ τῶν ὀρῶν
other rivers the most toward north from the mountains
τῶν Ἀρκυνίων· ταῦτα δὲ καὶ ὕψει καὶ πλήθει μέγιστα περὶ
the Arcynian these and both in-height and in-amount greatest about
τὸν τόπον τοῦτόν ἐστιν. Ὑπ' αὐτὴν δὲ τὴν ἄρκτον ὑπὲρ τῆς
the place this are Under itself and the north beyond the
ἐσχάτης Σκυθίας αἱ καλούμεναι Ῥῖπαι, περὶ ὧν τοῦ μεγέθους
farthest Scythia the so-called Rhipae about which of-the magnitude
λίαν εἰσὶν οἱ λεγόμενοι λόγοι μυθώδεις· ῥέουσι δ' οὖν οἱ
too are the being-told stories fabulous flow but then the
πλεῖστοι καὶ μέγιστοι μετὰ τὸν Ἴστρον τῶν ἄλλων ποταμῶν
most and greatest after the Ister of-the other rivers
ἐντεῦθεν, ὥς φασιν. Ὁμοίως δὲ καὶ περὶ τὴν Λιβύην οἱ
from-here as they-say Likewise and also about the Libya the(-ones)
μὲν ἐκ τῶν Αἰθιοπικῶν ὀρῶν, ὅ τε Αἰγὼν καὶ ὁ Νύσις,
indeed from the Ethiopian mountains the both Aegon and the Nysis
οἱ δὲ μέγιστοι τῶν διωνομασμένων, ὅ τε Χρεμέτης
the(-others) and greatest of-the named the both Chremetes
καλούμενος, ὃς εἰς τὴν ἔξω ῥεῖ θάλατταν, καὶ τοῦ Νείλου
so-called which into the outer flows sea and of-the Nile
τὸ ῥεῦμα τὸ πρῶτον, ἐκ τοῦ Ἀργυροῦ καλουμένου ὄρους.
the stream the first from the Silver so-called mountain
Τῶν δὲ περὶ τὸν Ἑλληνικὸν τόπον ὁ μὲν Ἀχελῷος ἐκ
Of-the and about the Greek region the indeed Achelous from
Πίνδου, καὶ ὁ Ἴναχος ἐντεῦθεν, ὁ δὲ Στρυμὼν καὶ Νέστος
Pindus and the Inachus from-there the and Strymon and Nestus
καὶ ὁ Ἕβρος ἅπαντες τρεῖς ὄντες ἐκ τοῦ Σκόμβρου·
and the Hebrus all three being from the Scombrus
πολλὰ δὲ ῥεύματα καὶ ἐκ τῆς Ῥοδόπης ἐστίν. Ὁμοίως
many and streams also from the Rhodope are Likewise
δὲ καὶ τοὺς ἄλλους ποταμοὺς εὕροι τις ἂν ῥέοντας·
and also the other rivers would-find anyone — flowing

ἀλλὰ μαρτυρίου χάριν τούτους εἴπομεν· ἐπεὶ καὶ ὅσοι
but of-evidence for-the-sake these we-mentioned since also as-many-as
αὐτῶν ῥέουσιν ἐξ ἑλῶν, τὰ ἕλη ὑπ᾽ ὄρη κεῖσθαι
of-them flow from marshes the marshes under mountains to-lie
συμβαίνει πάντα σχεδὸν ἢ τόπους ὑψηλοὺς ἐκ προσαγωγῆς.
happens all nearly or places high by gradual-ascent
Ὅτι μὲν οὖν οὐ δεῖ νομίζειν οὕτω γίνεσθαι τὰς ἀρχὰς
That indeed then not one-must to-consider thus to-come-about the sources
τῶν ποταμῶν ὡς ἐξ ἀφωρισμένων κοιλιῶν, φανερόν·
of-the rivers as from separated cavities evident
οὔτε γὰρ ἂν ὁ τόπος ἱκανὸς ἦν ὁ τῆς γῆς ὡς εἰπεῖν,
neither for — the place sufficient would-be the of-the earth so to-say
ὥσπερ οὐδ᾽ ὁ τῶν νεφῶν, εἴπερ τὸ ὂν ἔδει ῥεῖν
just-as not-even the of-the clouds if-indeed the existing it-was-needful to-flow
μόνον, ἀλλὰ μὴ τὸ μὲν ἀπῄει τὸ δ᾽ ἐγίγνετο,
only but not the(-one) indeed went-away the(-other) and came-about
ἀλλ᾽ ἀεὶ δὴ ἀπὸ ὄντος ἐταμιεύετο· τό τε ὑπὸ τοῖς
but always indeed from existing it-was-stored-up the both under the
ὄρεσιν ἔχειν τὰς πηγὰς μαρτυρεῖ διότι τῷ συρρεῖν ἐπ᾽
mountains to-have the sources bears-witness that by-the to-flow-together for
ὀλίγον καὶ κατὰ μικρὸν ἐκ πολλῶν νοτίδων διαδίδωσιν
a-little and by little from many moistures gives-out
ὁ τόπος καὶ γίγνονται οὕτως αἱ πηγαὶ τῶν ποταμῶν.
the place and become thus the springs of-the rivers
Οὐ μὴν ἀλλὰ καὶ τοιούτους εἶναι τόπους ἔχοντας πλῆθος
Not indeed but also such to-be places having amount
ὕδατος, οἷον λίμνας, οὐθὲν ἄτοπον, πλὴν οὐ τηλικαύτας
of-water as lakes nothing strange except not so-great
ὥστε τοῦτο συμβαίνειν, οὐθὲν μᾶλλον ἢ εἴ τις οἴοιτο
so-that this to-happen nothing more than if anyone should-think
τὰς φανερὰς εἶναι πηγὰς τῶν ποταμῶν· σχεδὸν γὰρ ἐκ
the visible to-be sources of-the rivers nearly for from

κρηνῶν οἱ πλεῖστοι ῥέουσιν. Ὅμοιον οὖν τὸ ἐκείνας καὶ
springs the most flow Like then the those and
τὸ ταύτας νομίζειν εἶναι τὸ σῶμα τὸ τοῦ ὕδατος πᾶν.
the these to-consider to-be the body the of-the water whole
Ὅτι δ' εἰσὶ τοιαῦται φάραγγες καὶ διαστάσεις τῆς γῆς,
That and there-are such ravines and gaps of-the earth
δηλοῦσιν οἱ καταπινόμενοι τῶν ποταμῶν. Συμβαίνει δὲ
show the swallowed-up of-the rivers Happens and
τοῦτο πολλαχοῦ τῆς γῆς, οἷον τῆς μὲν Πελοποννήσου
this in-many-places of-the earth as of-the indeed Peloponnese
πλεῖστα τοιαῦτα περὶ τὴν Ἀρκαδίαν ἐστίν. Αἴτιον δὲ διὰ
most such about the Arcadia are Cause and because-of
τὸ ὀρεινὴν οὖσαν μὴ ἔχειν ἐκροὰς ἐκ τῶν κοιλιῶν εἰς
the mountainous being not to-have outlets from the hollows into
θάλατταν· πληρούμενοι γὰρ οἱ τόποι καὶ οὐκ ἔχοντες ἔκρυσιν
sea being-filled for the places and not having outflow
αὐτοὶ εὑρίσκονται τὴν δίοδον εἰς βάθος, ἀποβιαζομένου τοῦ
themselves find the passage into depth forcing-its-way the
ἄνωθεν ἐπιόντος ὕδατος. Περὶ μὲν οὖν τὴν Ἑλλάδα μικρὰ
from-above coming water About indeed then the Greece small
τοιαῦτα παντελῶς ἐστὶ γιγνόμενα· ἀλλ' ἥ γε ὑπὸ τὸν
such altogether are coming-about but the at-least under the
Καύκασον λίμνη, ἣν καλοῦσιν οἱ ἐκεῖ θάλατταν, φανερά.
Caucasus lake which call the there sea evident
Αὕτη γὰρ ποταμῶν πολλῶν καὶ μεγάλων εἰσβαλλόντων
This for rivers many and great flowing-in
οὐκ ἔχουσα ἔκρουν φανερὸν ἐκδίδωσιν ὑπὸ γῆν κατὰ
not having outflow visible gives-out under earth by
Κοραξούς, περὶ τὰ καλούμενα βαθέα τοῦ Πόντου· ταῦτα
Coraxi about the so-called deeps of-the Pontus these
δ' ἐστὶν ἄπειρόν τι τῆς θαλάττης βάθος· οὐθεὶς γοῦν
and are boundless some of-the sea depth no-one at-any-rate

πώποτε καθιεὶς ἐδυνήθη πέρας εὑρεῖν. Ταύτῃ δὴ πόρρω
ever letting-down was-able bottom to-find There indeed far
τῆς γῆς σχεδὸν περὶ τριακόσια στάδια πότιμον ἀναδίδωσι
from-the land nearly about three-hundred stades drinkable sends-up
ὕδωρ ἐπὶ πολὺν τόπον, οὐ συνεχῆ δέ, ἀλλὰ τρισσαχῇ.
water over much place not continuous but rather in-three-places
Καὶ περὶ τὴν Λιγυστικὴν οὐκ ἐλάττων τοῦ Ῥοδανοῦ
And about the Ligurian-land not smaller than-the Rhone
καταπίνεταί τις ποταμός, καὶ πάλιν ἀναδίδωσι κατ' ἄλλον
is-swallowed-up some river and again comes-up in other
τόπον· ὁ δὲ Ῥοδανὸς ποταμὸς ναυσιπέρατός ἐστιν.
place the and Rhone river navigable is

XIV · LAND AND SEA CHANGE PLACES

The same regions are not always land or sea: the earth's parts flourish and age like bodies, and springs and rivers come and go. The changes are so slow that peoples perish or move before they are remembered. Egypt is the Nile's work, and Homer speaks of Thebes as though Memphis did not yet exist; Argos has grown fit to farm and Mycenae barren since the Trojan War. The sea is not drying up: it retreats in some places and advances in others, as great winters like Deucalion's flood come round. The Red Sea canal, the silting Maeotis, and the Bosporus show it, and even the Nile and the Tanais once did not flow.

Οὐκ ἀεὶ δ' οἱ αὐτοὶ τόποι τῆς γῆς οὔτ' ἔνυγροί εἰσιν
Not always and the same places of-the earth either wet are
οὔτε ξηροί, ἀλλὰ μεταβάλλουσι κατὰ τὰς τῶν ποταμῶν
or dry but they-change according-to the of-the rivers
γενέσεις καὶ τὰς ἀπολείψεις. Διὸ καὶ τὰ περὶ τὴν
comings-into-being and the failings Wherefore also the about the
ἤπειρον μεταβάλλει καὶ τὴν θάλατταν, καὶ οὐκ ἀεὶ τὰ
mainland change and the sea and not always the(-ones)

μὲν γῆ τὰ δὲ θάλαττα διατελεῖ πάντα τὸν χρόνον,
indeed land the(-others) and sea continue all the time
ἀλλὰ γίγνεται θάλαττα μὲν ὅπου χέρσος, ἔνθα δὲ νῦν
but becomes sea indeed where dry-land where and now
θάλαττα, πάλιν ἐνταῦθα γῆ. Κατὰ μέντοι τινὰ τάξιν
sea again there land According-to however some order
νομίζειν χρὴ ταῦτα γίγνεσθαι καὶ περίοδον. Ἀρχὴ δὲ
to-consider it-is-needful these-things to-come-about and period Beginning and
τούτων καὶ αἴτιον ὅτι καὶ τῆς γῆς τὰ ἐντός, ὥσπερ τὰ
of-these and cause that also of-the earth the inner-parts just-as the
σώματα τὰ τῶν φυτῶν καὶ ζῴων, ἀκμὴν ἔχει καὶ γῆρας.
bodies the of-the plants and animals prime has and old-age
Πλὴν ἐκείνοις μὲν οὐ κατὰ μέρος ταῦτα συμβαίνει πάσχειν,
Except to-those indeed not by part these-things happens to-undergo
ἀλλ᾽ ἅμα πᾶν ἀκμάζειν καὶ φθίνειν ἀναγκαῖον· τῇ δὲ γῇ
but at-once whole to-flourish and to-decay necessary to-the but earth
τοῦτο γίγνεται κατὰ μέρος διὰ ψύξιν καὶ θερμότητα.
this comes-about by part because-of cooling and heat
Ταῦτα μὲν οὖν αὔξεται καὶ φθίνει διὰ τὸν ἥλιον καὶ
These-things indeed then grow and decay because-of the sun and
τὴν περιφοράν, διὰ δὲ ταῦτα καὶ τὴν δύναμιν τὰ μέρη
the revolution because-of and these also the power the parts
τῆς γῆς λαμβάνει διαφέρουσαν, ὥστε μέχρι τινὸς ἔνυδρα
of-the earth receive differing so-that up-to some-point well-watered
δύναται διαμένειν, εἶτα ξηραίνεται καὶ γηράσκει πάλιν· ἕτεροι
are-able to-remain then are-dried and grow-old again other
δὲ τόποι βιώσκονται καὶ ἔνυδροι γίγνονται κατὰ μέρος.
and places come-alive and well-watered become by part
Ἀνάγκη δὲ τῶν μὲν τόπων γιγνομένων ξηροτέρων
Necessity and of-the indeed places becoming drier
τὰς πηγὰς ἀφανίζεσθαι, τούτων δὲ συμβαινόντων τοὺς
the springs to-vanish these and happening the

ποταμοὺς πρῶτον μὲν ἐκ μεγάλων μικρούς, εἶτα τέλος
rivers first indeed from great small then finally
γίγνεσθαι ξηρούς, τῶν δὲ ποταμῶν μεθισταμένων καὶ ἔνθεν
to-become dry of-the and rivers shifting and from-here
μὲν ἀφανιζομένων ἐν ἄλλοις δ' ἀνάλογον γιγνομένων
indeed vanishing in others but proportionally coming-about
μεταβάλλειν τὴν θάλατταν· ὅπου μὲν γὰρ ἐξωθουμένη ὑπὸ
to-change the sea where indeed for being-pushed-out by
τῶν ποταμῶν ἐπλεόναζεν ἀπιοῦσα, ξηρὰν ποιεῖν ἀναγκαῖον,
the rivers it-was-encroaching going-away dry-land to-make necessary
ὅπου δὲ τοῖς ῥεύμασι πληθύνουσα ἐξηραίνετο προσχουμένη,
where but by-the streams filling it-was-dried-up being-silted
πάλιν ἐνταῦθα λιμνάζειν. Ἀλλὰ διὰ τὸ γίγνεσθαι πᾶσαν
again there to-form-marshes But because-of the to-come-about all
τὴν φυσικὴν τὴν περὶ γῆν γένεσιν ἐκ προσαγωγῆς καὶ ἐν
the natural the about earth generation by gradual-advance and in
χρόνοις παμμήκεσι πρὸς τὴν ἡμετέραν ζωήν, λανθάνει
times very-long in-relation-to the our life escape-notice
ταῦτα γιγνόμενα, καὶ πρότερον ὅλων τῶν ἐθνῶν ἀπώλειαι
these-things coming-about and before whole of-the peoples destructions
γίγνονται καὶ φθοραὶ πρὶν μνημονευθῆναι τὴν τούτων
come-about and ruins before to-be-remembered the of-these
μεταβολὴν ἐξ ἀρχῆς εἰς τέλος. Μέγισται μὲν οὖν φθοραὶ
change from beginning to end Greatest indeed then destructions
γίγνονται καὶ τάχισται ἐν τοῖς πολέμοις, ἄλλαι δὲ νόσοις,
come-about and quickest in the wars others and by-diseases
αἱ δ' ἀφορίαις, καὶ ταύταις αἱ μὲν μεγάλαι
the(-ones) and by-famines and of-these the(-ones) indeed great
αἱ δὲ κατὰ μικρόν, ὥστε λανθάνουσι τῶν γε
the(-others) and by little so-that escape-notice of-the at-least
τοιούτων ἐθνῶν καὶ αἱ μεταναστάσεις διὰ τὸ τοὺς
such peoples also the migrations because-of the the(-ones)

μὲν λείπειν τὰς χώρας, τοὺς δ' ὑπομένειν μέχρι τούτου
indeed to-leave the regions the(-others) and to-remain up-to this
μέχριπερ ἂν μηκέτι δύνηται τρέφειν ἡ χώρα πλῆθος μηθέν.
until — no-longer be-able to-feed the region amount any
Ἀπὸ τῆς πρώτης οὖν ἀπολείψεως εἰς τὴν ἐσχάτην εἰκὸς
From the first then failing to the last likely
γίγνεσθαι χρόνους μακρούς, ὥστε μηθένα μνημονεύειν,
to-come-about times long so-that no-one to-remember
ἀλλὰ σωζομένων ἔτι τῶν ὑπομενόντων ἐπιλελῆσθαι διὰ
but being-preserved still the remaining to-have-forgotten because-of
χρόνου πλῆθος. Τὸν αὐτὸν δὲ τρόπον χρὴ νομίζειν καὶ
of-time length The same and way it-is-needful to-consider also
τοὺς κατοικισμοὺς λανθάνειν πότε πρῶτον ἐγένοντο τοῖς
the settlements to-escape-notice when first they-came-about for-the
ἔθνεσιν ἑκάστοις εἰς τὰ μεταβάλλοντα καὶ γιγνόμενα ξηρὰ
peoples each into the changing and becoming dry
ἐξ ἑλωδῶν καὶ ἐνύδρων· καὶ γὰρ ἐνταῦθα κατὰ μικρὸν ἐν
from marshy and watery also for here by little in
πολλῷ γίγνεται χρόνῳ ἡ ἐπίδοσις, ὥστε μὴ μνημονεύειν
much comes-about time the growth so-that not to-remember
τίνες πρῶτοι καὶ πότε καὶ πῶς ἐχόντων ἦλθον τῶν
who first and when and how being they-came the
τόπων, οἷον συμβέβηκε καὶ περὶ τὴν Αἴγυπτον· καὶ γὰρ
places as has-happened also about the Egypt also for
οὗτος ἀεὶ ξηρότερος ὁ τόπος φαίνεται γιγνόμενος καὶ
this always drier the place appears becoming and
πᾶσα ἡ χώρα τοῦ ποταμοῦ πρόσχωσις οὖσα τοῦ Νείλου,
all the land of-the river deposit being of-the Nile
διὰ δὲ τὸ κατὰ μικρὸν ξηραινομένων τῶν ἑλῶν τοὺς
because-of and the by little being-dried the marshes the
πλησίον εἰσοικίζεσθαι τὸ τοῦ χρόνου μῆκος ἀφῄρηται τὴν
near to-settle the of-the time length has-taken-away the

ἀρχήν. Φαίνεται δ' οὖν καὶ τὰ στόματα πάντα, πλὴν
beginning Appear and then also the mouths all except
ἑνὸς τοῦ Κανωβικοῦ, χειροποίητα καὶ οὐ τοῦ ποταμοῦ
one the Canopic hand-made and not of-the river
ὄντα, καὶ τὸ ἀρχαῖον ἡ Αἴγυπτος Θῆβαι καλούμεναι.
being and the ancient the Egypt Thebes so-called
Δηλοῖ δὲ καὶ Ὅμηρος, οὕτω πρόσφατος ὢν ὡς εἰπεῖν
Shows and also Homer so recent being so to-say
πρὸς τὰς τοιαύτας μεταβολάς· ἐκείνου γὰρ τοῦ τόπου
in-relation-to the such changes of-that for the place
ποιεῖται μνείαν ὡς οὔπω Μέμφιος οὔσης ἢ ὅλως ἢ οὐ
he-makes mention as not-yet Memphis being or wholly or not
τηλικαύτης. Τοῦτο δ' εἰκὸς οὕτω συμβαίνειν· οἱ γὰρ
so-great This and likely so to-happen the for
κάτωθεν τόποι τῶν ἄνωθεν ὕστερον ᾠκίσθησαν· ἑλώδεις
from-below places than-the from-above later were-settled marshy
γὰρ ἐπὶ πλείω χρόνον ἀναγκαῖον εἶναι τοὺς ἐγγύτερον
for for more time necessary to-be the nearer
τῆς προσχώσεως διὰ τὸ λιμνάζειν ἐν τοῖς ἐσχάτοις
the deposit because-of the to-form-marshes in the farthest
ἀεὶ μᾶλλον. Μεταβάλλει δὲ τοῦτο καὶ πάλιν εὐθηνεῖ·
always more Changes and this also again flourishes
ξηραινόμενοι γὰρ οἱ τόποι ἔρχονται εἰς τὸ καλῶς ἔχειν,
being-dried for the places come into the well to-be
οἱ δὲ πρότερον εὐκραεῖς ὑπερξηραινόμεναι τότε γίγνονται
the but earlier well-tempered over-dried then become
χείρους. Ὅπερ συμβέβηκε τῆς Ἑλλάδος καὶ περὶ τὴν
worse Which-very has-happened of-the Greece also about the
Ἀργείων καὶ Μυκηναίων χώραν· ἐπὶ μὲν γὰρ τῶν Τρωϊκῶν
of-Argives and of-Mycenaeans land in indeed for the Trojan
ἡ μὲν Ἀργεία διὰ τὸ ἑλώδης εἶναι ὀλίγους ἐδύνατο
the indeed Argive because-of the marshy to-be few was-able

τρέφειν, ἡ δὲ Μυκηναία καλῶς εἶχεν (διὸ ἐντιμοτέρα
to-feed the but Mycenaean well was wherefore more-honored
ἦν), νῦν δὲ τοὐναντίον διὰ τὴν εἰρημένην αἰτίαν· ἡ
it-was now but the-opposite because-of the said cause the
μὲν γὰρ ἀργὴ γέγονε καὶ ξηρὰ πάμπαν, τῆς δὲ τὰ
indeed for idle has-become and dry altogether of-the and the-things
τότε διὰ τὸ λιμνάζειν ἀργὰ νῦν χρήσιμα γέγονεν.
then because-of the to-form-marshes idle now useful have-become
Ὥσπερ οὖν ἐπὶ τούτου τοῦ τόπου συμβέβηκεν ὄντος μικροῦ,
Just-as then in this the place has-happened being small
ταὐτὸ δεῖ νομίζειν τοῦτο συμβαίνειν καὶ περὶ μεγάλους
the-same one-must to-consider this to-happen also about large
τόπους καὶ χώρας ὅλας. Οἱ μὲν οὖν βλέποντες ἐπὶ μικρὸν
places and regions whole The indeed then looking for little
αἰτίαν οἴονται τῶν τοιούτων εἶναι παθημάτων τὴν τοῦ
cause think of-the such to-be affections the of-the
ὅλου μεταβολὴν ὡς γινομένου τοῦ οὐρανοῦ· διὸ καὶ
whole change as coming-into-being the heaven wherefore also
τὴν θάλατταν ἐλάττω γίγνεσθαί φασιν ὡς ξηραινομένην,
the sea smaller to-become they-say as being-dried
ὅτι πλείους φαίνονται τόποι τοῦτο πεπονθότες νῦν ἢ
because more appear places this having-undergone now than
πρότερον. Ἔστι δὲ τούτων τὸ μὲν ἀληθὲς τὸ δ’
before Is and of-these the(-one) indeed true the(-other) and
οὐκ ἀληθές· πλείους μὲν γάρ εἰσιν οἱ πρότερον ἔνυδροι νῦν
not true more indeed for are the formerly watery now
δὲ χερσεύοντες, οὐ μὴν ἀλλὰ καὶ τοὐναντίον· πολλαχῇ γὰρ
but becoming-dry-land not indeed but also the-opposite in-many-places for
σκοποῦντες εὑρήσουσιν ἐπεληλυθυῖαν τὴν θάλατταν. Ἀλλὰ
looking they-will-find having-encroached the sea But
τούτου τὴν αἰτίαν οὐ τὴν τοῦ κόσμου γένεσιν οἴεσθαι
of-this the cause not the of-the cosmos coming-into-being to-think

χρή· γελοῖον γὰρ διὰ μικρὰς καὶ ἀκαριαίας μεταβολὰς
it-is-needful ridiculous for because-of small and momentary changes
κινεῖν τὸ πᾶν, ὁ δὲ τῆς γῆς ὄγκος καὶ τὸ μέγεθος οὐθέν
to-move the whole the and of-the earth bulk and the magnitude nothing
ἐστι δή που πρὸς τὸν ὅλον οὐρανόν· ἀλλὰ πάντων
is indeed surely in-relation-to the whole heaven but of-all
τούτων αἴτιον ὑποληπτέον ὅτι γίγνεται διὰ χρόνων
these cause one-must-suppose that comes-about through times
εἱμαρμένων, οἷον ἐν ταῖς κατ' ἐνιαυτὸν ὥραις χειμών, οὕτω
fated as in the by year seasons winter so
περιόδου τινὸς μεγάλης μέγας χειμὼν καὶ ὑπερβολὴ ὄμβρων.
of-period some great great winter and excess of-showers
Αὕτη δ' οὐκ ἀεὶ κατὰ τοὺς αὐτοὺς τόπους, ἀλλ' ὥσπερ
This and not always in the same places but just-as
ὁ καλούμενος ἐπὶ Δευκαλίωνος κατακλυσμός· καὶ γὰρ
the so-called in Deucalion's-time flood also for
οὗτος περὶ τὸν Ἑλληνικὸν ἐγένετο μάλιστα τόπον, καὶ
this about the Greek came-about most place and
τούτου περὶ τὴν Ἑλλάδα τὴν ἀρχαίαν. Αὕτη δ' ἐστὶν ἡ
of-this about the Greece the ancient This and is the
περὶ Δωδώνην καὶ τὸν Ἀχελῷον· οὗτος γὰρ πολλαχοῦ τὸ
about Dodona and the Achelous this for in-many-places the
ῥεῦμα μεταβέβληκεν· ᾤκουν γὰρ οἱ Σελλοὶ ἐνταῦθα καὶ οἱ
stream has-changed dwelt for the Selli there and the
καλούμενοι τότε μὲν Γραικοὶ νῦν δ' Ἕλληνες. Ὅταν οὖν
called then indeed Graeci now but Hellenes Whenever then
δὴ γένηται τοιαύτη ὑπερβολὴ ὄμβρων, νομίζειν χρὴ
indeed come-about such excess of-showers to-consider it-is-needful
ἐπὶ πολὺν χρόνον διαρκεῖν, καὶ ὥσπερ νῦν τοῦ τοὺς μὲν
for much time to-last and just-as now of-the the(-ones) indeed
ἀενάους εἶναι τῶν ποταμῶν τοὺς δὲ μὴ οἱ μέν

φασιν αἴτιον εἶναι τὸ μέγεθος τῶν ὑπὸ γῆς χασμάτων,
say cause to-be the magnitude of-the under earth chasms
ἡμεῖς δὲ τὸ μέγεθος τῶν ὑψηλῶν τόπων καὶ τὴν πυκνότητα
we but the magnitude of-the high places and the density
καὶ ψυχρότητα αὐτῶν· οὗτοι γὰρ πλεῖστον καὶ δέχονται
and coldness of-them these for most both receive
ὕδωρ καὶ στέγουσι καὶ ποιοῦσιν. Ὅσοις δὲ μικραὶ αἱ
water and retain and produce For-as-many-as and small the
ἐπικρεμάμεναι συστάσεις τῶν ὀρῶν ἢ σομφαὶ καὶ λιθώδεις
overhanging formations of-the mountains or spongy and stony
καὶ ἀργιλώδεις, τούτους δὲ προαπολείπειν οὕτως οἴεσθαι
and clayey these and to-fail-first so to-think
δεῖν τότε, ἐν οἷς ἂν γένηται ἡ τοιαύτη τοῦ ὑγροῦ φορὰ
it-is-necessary then in which — come-about the such of-the moisture movement
οἷον ἀενάους ποιεῖν τὰς ὑγρότητας τῶν τόπων μᾶλλον.
as ever-flowing to-make the moistures of-the places more
Τῷ χρόνῳ δὲ ταῦτα ξηραίνεται γιγνόμενα μᾶλλον,
In-the time and these-things are-dried becoming more
θάτερα δ' ἐλάττω τὰ ἔφυδρα, ἕως ἂν ἔλθῃ πάλιν ἡ
the-others and smaller the watery until — come again the
καταβολὴ τῆς περιόδου τῆς αὐτῆς. Ἐπεὶ δ' ἀνάγκη
beginning of-the period the same Since and necessity
τοῦ ὅλου γίγνεσθαι μέν τινα μεταβολήν, μὴ μέντοι
of-the whole to-come-about indeed some change not however
γένεσιν καὶ φθοράν, εἴπερ μένει τὸ πᾶν, ἀνάγκη,
coming-into-being and destruction if-indeed remains the all necessity
καθάπερ ἡμεῖς λέγομεν, μὴ τοὺς αὐτοὺς ἀεὶ τόπους
just-as we say not the same always places
ὑγρούς τ' εἶναι θαλάττῃ καὶ ποταμοῖς καὶ ξηρούς. Δηλοῖ
wet both to-be with-sea and with-rivers and dry Shows
δὲ τὸ γιγνόμενον· οὓς γάρ φαμεν ἀρχαιοτάτους εἶναι τῶν
and the coming-about whom for we-say most-ancient to-be of-the

ἀνθρώπων Αἰγυπτίους, τούτων ἡ χώρα πᾶσα γεγονυῖα
men Egyptians of-these the land all having-come-about
φαίνεται καὶ οὖσα τοῦ ποταμοῦ ἔργον. Καὶ τοῦτο κατά
appears and being of-the river work And this from
τε τὴν χώραν αὐτὴν ὁρῶντι δῆλόν ἐστι, καὶ τὰ περὶ
both the land itself to-one-seeing clear is and the about
τὴν ἐρυθρὰν θάλατταν τεκμήριον ἱκανόν· ταύτην γὰρ τῶν
the Red sea evidence sufficient this for of-the
βασιλέων τις ἐπειράθη διορύττειν (οὐ γὰρ μικρὰς εἶχεν
kings one tried to-dig-through not for small had
ἂν αὐτοῖς ὠφελείας πλωτὸς ἅπας ὁ τόπος γενόμενος·
— for-them benefits navigable whole the place having-become
λέγεται δὲ πρῶτος Σέσωστρις ἐπιχειρῆσαι τῶν παλαιῶν),
is-said and first Sesostris to-attempt of-the ancients
ἀλλ᾽ εὗρεν ὑψηλοτέραν οὖσαν τὴν θάλατταν τῆς γῆς.
but found higher being the sea than-the land
Διὸ ἐκεῖνός τε πρότερον καὶ Δαρεῖος ὕστερον ἐπαύσατο
Wherefore that-one both earlier and Darius later stopped
διορύττων, ὅπως μὴ διαφθαρῇ τὸ ῥεῦμα τοῦ ποταμοῦ
digging-through so-that not be-spoiled the stream of-the river
συμμιγείσης τῆς θαλάττης. Φανερὸν οὖν ὅτι θάλαττα
being-mixed-with the sea Evident then that sea
πάντα μία ταῦτα συνεχὴς ἦν. Διὸ καὶ τὰ περὶ τὴν
all one these-things continuous was Wherefore also the about the
Λιβύην τὴν Ἀμμωνίαν χώραν ταπεινότερα φαίνεται καὶ
Libya the Ammonian land lower appears and
κοιλότερα παρὰ λόγον τῆς κάτωθεν χώρας· δῆλον γὰρ
more-hollow beyond proportion of-the below land clear for
ὡς ἐγχώσεως μὲν γενομένης ἐγένοντο λίμναι καὶ χέρσος,
that silting indeed having-come-about came-about lakes and dry-land
χρόνου δὲ γενομένου τὸ ἐναπολειφθὲν καὶ λιμνάσαν ὕδωρ
time and having-passed the left-behind and stagnant water

ξηρανθέν ἐστιν ἤδη φροῦδον. Ἀλλὰ μὴν καὶ τὰ περὶ
having-been-dried is already gone But indeed also the about
τὴν Μαιῶτιν λίμνην ἐπιδέδωκε τῇ προσχώσει τῶν
the Maeotic lake has-advanced by-the silting of-the
ποταμῶν τοσοῦτον, ὥστε πολλῷ ἐλάττω μεγέθει πλοῖα νῦν
rivers so-much so-that much smaller in-size ships now
εἰσπλεῖν πρὸς τὴν ἐργασίαν ἢ ἔτος ἑξηκοστόν· ὥστ' ἐκ
sail-in for the trade than year sixtieth so-that from
τούτου ῥᾴδιον ἀναλογίσασθαι ὅτι καὶ τὸ πρῶτον, ὥσπερ
this easy to-reckon that also — at-first just-as
αἱ πολλαὶ τῶν λιμνῶν, καὶ αὕτη ἔργον ἐστὶ τῶν ποταμῶν,
the many of-the lakes also this work is of-the rivers
καὶ τὸ τελευταῖον πᾶσαν ἀνάγκη γενέσθαι ξηράν. Ἔτι
and — at-last all necessity to-become dry Further
δ' ὁ Βόσπορος ἀεὶ μὲν ῥεῖ διὰ τὸ προσχοῦσθαι,
and the Bosporus always indeed flows because-of the to-be-silted
καὶ ἔστιν ἔτι ταῦτα καὶ τοῖς ὄμμασιν ἰδεῖν ὅν τινα
and it-is-possible still these-things also with-the eyes to-see in what
συμβαίνει τρόπον· ὅτε γὰρ ἀπὸ τῆς Ἀσίας ἠόνα ποιήσειεν
happens way when for from the Asia beach should-make
ὁ ῥοῦς, τὸ ὄπισθεν λίμνη ἐγίγνετο μικρὰ τὸ πρῶτον, εἶτ'
the current the behind lake became small — at-first then
ἐξηράνθη, μετὰ δὲ τοῦτο ἄλλη ἀπὸ ταύτης ἠών, καὶ λίμνη
was-dried after and this other from this beach and lake
ἀπ' αὐτῆς· καὶ τοῦτο ἀεὶ οὕτω συνέβαινεν ὁμοίως· τούτου
from it and this always so happened likewise this
δὲ γινομένου πολλάκις ἀνάγκη προϊόντος τοῦ χρόνου
and happening often necessity going-on the time
ὥσπερ ποταμὸν γενέσθαι, τέλος δὲ καὶ τοῦτον ξηρόν.
just-as river to-become finally and also this dry

Φανερὸν τοίνυν, ἐπεὶ ὅ τε χρόνος οὐχ ὑπολείπει καὶ τὸ
Evident then since the both time not fails and the
ὅλον ἀΐδιον, ὅτι οὔτε ὁ Τάναϊς ποταμὸς οὔτε ὁ Νεῖλος
whole everlasting that neither the Tanais river nor the Nile
ἀεὶ ἔρρει, ἀλλ᾽ ἦν ποτὲ ξηρὸς ὁ τόπος ὅθεν ῥέουσιν·
always flowed but was once dry the place whence they-flow
τὸ γὰρ ἔργον ἔχει αὐτῶν πέρας, ὁ δὲ χρόνος οὐκ
the for work has of-them limit the but time not
ἔχει. Ὁμοίως δὲ τοῦτο καὶ ἐπὶ τῶν ἄλλων ἁρμόσει
has Likewise and this also in-the-case-of the other will-fit
ποταμῶν λέγειν. Ἀλλὰ μὴν εἴπερ οἱ ποταμοὶ γίγνονται
rivers to-say But indeed if-indeed the rivers come-to-be
καὶ φθείρονται καὶ μὴ ἀεὶ οἱ αὐτοὶ τόποι τῆς γῆς ἔνυδροι,
and perish and not always the same places of-the earth watery
καὶ τὴν θάλατταν ἀνάγκη μεταβάλλειν ὁμοίως. Τῆς δὲ
also the sea necessity to-change likewise Of-the and
θαλάττης τὰ μὲν ἀπολειπούσης τὰ δ᾽ ἐπιούσης
sea the(-parts) indeed leaving the(-parts) and advancing
ἀεὶ φανερὸν ὅτι τῆς πάσης γῆς οὐκ ἀεὶ τὰ αὐτὰ τὰ
always evident that of-the whole earth not always the same the(-parts)
μέν ἐστι θάλαττα τὰ δ᾽ ἤπειρος, ἀλλὰ μεταβάλλει
indeed is sea the(-parts) and mainland but changes
τῷ χρόνῳ πάντα. Διότι μὲν οὖν οὐκ ἀεὶ ταὐτὰ οὔτε
in-the time all-things Why indeed then not always the-same neither
χερσεύεται τῆς γῆς οὔτε πλωτά ἐστι, καὶ διὰ τίν᾽
becomes-dry-land of-the earth nor navigable is and because-of what
αἰτίαν ταῦτα συμβαίνει, εἴρηται· ὁμοίως δὲ καὶ διὰ
cause these-things happen it-has-been-said likewise and also because-of
τί οἱ μὲν ἀέναοι οἱ δ᾽ οὔ τῶν ποταμῶν εἰσίν.
what the(-ones) indeed ever-flowing the(-others) and not of-the rivers are

BOOK II

ΜΕΤΕΩΡΟΛΟΓΙΚΩΝ Β.

I · THE SEA AND ITS ORIGIN

The old theologians gave the sea springs; wiser men made it the remnant of the first moisture, which the sun is drying up, or the earth's sweat, or water salted by earth, as water strained through ash. But the sea can have no springs: water from springs either flows away or stands in wells dug by hand, the sea does neither, and no standing water so large rises from springs; nor could springs hide in seas closed all round. It seems to flow only in narrows, and the inner seas run from the higher north, the Maeotis into the Pontus and the Pontus into the Aegean.

Περὶ δὲ θαλάττης, καὶ τίς ἡ φύσις αὐτῆς, καὶ διὰ
About and sea and what the nature of-it and because-of
τίν' αἰτίαν ἁλμυρὸν τοσοῦτόν ἐστιν ὕδατος πλῆθος, ἔτι
what cause salt so-great is of-water amount further
δὲ περὶ τῆς ἐξ ἀρχῆς γενέσεως λέγωμεν. Οἱ μὲν οὖν
and about the from beginning generation let-us-speak The indeed then
ἀρχαῖοι καὶ διατρίβοντες περὶ τὰς θεολογίας ποιοῦσιν
ancient and spending-time about the theologies make
αὐτῆς πηγάς, ἵν' αὐτοῖς ὦσιν ἀρχαὶ καὶ ῥίζαι γῆς
of-it springs so-that for-them may-be beginnings and roots of-earth
καὶ θαλάττης· τραγικώτερον γὰρ οὕτω καὶ σεμνότερον
and of-sea more-tragic for so and more-solemn
ὑπέλαβον ἴσως εἶναι τὸ λεγόμενον, ὡς μέγα τι τοῦ
they-supposed perhaps to-be the being-said as great some of-the
παντὸς τοῦτο μόριον ὄν· καὶ τὸν λοιπὸν οὐρανὸν ὅλον
all this part being and the remaining heaven whole
περὶ τοῦτον συστῆναι τὸν τόπον καὶ τούτου χάριν
about this to-have-been-formed the place and of-this for-the-sake
ὡς ὄντα τιμιώτατον καὶ ἀρχήν. Οἱ δὲ σοφώτεροι τὴν
as being most-honored and beginning The but wiser the

ἀνθρωπίνην σοφίαν ποιοῦσιν αὐτῆς γένεσιν· εἶναι γὰρ τὸ
human wisdom make of-it generation to-be for —
πρῶτον ὑγρὸν ἅπαντα τὸν περὶ τὴν γῆν τόπον, ὑπὸ δὲ τοῦ
at-first moist all the about the earth place by but the
ἡλίου ξηραινόμενον τὸ μὲν διατμίσαν πνεύματα καὶ
sun being-dried the(-part) indeed having-evaporated winds and
τροπὰς ἡλίου καὶ σελήνης φασὶ ποιεῖν, τὸ δὲ λειφθὲν
turnings of-sun and of-moon they-say to-make the(-part) and left
θάλατταν εἶναι· διὸ καὶ ἐλάττω γίνεσθαι ξηραινομένην
sea to-be wherefore also smaller to-become being-dried
οἴονται, καὶ τέλος ἔσεσθαί ποτε πᾶσαν ξηράν.
they-think and finally it-will-be sometime all dry
Ἔνιοι δ' αὐτῶν θερμαινομένης φασὶν ὑπὸ τοῦ ἡλίου τῆς
Some and of-them being-heated they-say by the sun the
γῆς οἷον ἱδρῶτα γίγνεσθαι, διὸ καὶ ἁλμυρὰν εἶναι·
earth as-it-were sweat to-come-about wherefore also salt to-be
καὶ γὰρ ὁ ἱδρὼς ἁλμυρός. Οἱ δὲ τῆς ἁλμυρότητος αἰτίαν
also for the sweat salt The and of-the saltness cause
τὴν γῆν εἶναί φασιν· καθάπερ γὰρ τὸ διὰ τῆς τέφρας
the earth to-be say just-as for the through the ash
ἠθούμενον ἁλμυρὸν γίνεται, τὸν αὐτὸν τρόπον καὶ ταύτην
strained salt becomes the same way also this
ἁλμυρὰν εἶναι μιχθείσης αὐτῇ τοιαύτης γῆς. Ὅτι μὲν οὖν
salt to-be being-mixed with-it such earth That indeed then
πηγὰς θαλάττης ἀδύνατον εἶναι, διὰ τῶν ὑπαρχόντων ἤδη
springs of-sea impossible to-be through the existing-things already
θεωρεῖν δεῖ. Τῶν γὰρ περὶ τὴν γῆν ὑδάτων τὰ μὲν
to-study one-must Of-the for about the earth waters the(-ones) indeed
ῥυτὰ τυγχάνει ὄντα τὰ δὲ στάσιμα. Τὰ μὲν οὖν ῥυτὰ
flowing happen being the(-others) and standing The indeed then flowing
πάντα πηγαῖα· περὶ δὲ τῶν πηγῶν εἰρήκαμεν πρότερον,
all from-springs about and the springs we-have-told before

ὅτι δεῖ νοεῖν οὐχ ὥσπερ ἐξ ἀγγείου ταμιευόμενον τὴν
that one-must to-conceive not just-as from vessel being-stored the
ἀρχὴν εἶναι πηγήν, ἀλλ᾽ εἰς ἓν ἀεὶ γινόμενον καὶ συρρέον
source to-be spring but into one always coming-about and flowing-together
ἀπαντᾶν πρώτην. Τῶν δὲ στασίμων τὰ μὲν συλλογιμαῖα
meeting first Of-the and standing the(-ones) indeed collected
καὶ ὑποστάσεις, οἷον τὰ τελματιαῖα καὶ ὅσα λιμνώδη,
and settlings as the marsh-waters and as-many-as lake-like
πλήθει καὶ ὀλιγότητι διαφέροντα, τὰ δὲ πηγαῖα.
by-amount and by-fewness differing the(-others) and from-springs
Ταῦτα δὲ πάντα χειρόκμητα, λέγω δ᾽ οἷον τὰ φρεατιαῖα
These and all hand-made I-mean and as the well-waters
καλούμενα· πάντων γὰρ ἀνωτέρω δεῖ τὴν πηγὴν εἶναι
so-called of-all for higher it-is-necessary the spring to-be
τῆς ῥύσεως. Διὸ τὰ μὲν αὐτόματα ῥεῖ τὰ κρηναῖα
than-the flow Wherefore the(-ones) indeed of-themselves flow the spring-waters
καὶ ποταμιαῖα, ταῦτα δὲ τέχνης προσδεῖται τῆς ἐργασομένης.
and river-waters these and art need the going-to-work
Αἱ μὲν οὖν διαφοραὶ τοιαῦται καὶ τοσαῦται τῶν ὑδάτων
The indeed then differences such and so-many of-the waters
εἰσίν· τούτων δ᾽ οὕτω διωρισμένων ἀδύνατον πηγὰς εἶναι
are these and thus having-been-distinguished impossible springs to-be
τῆς θαλάττης· ἐν οὐδετέρῳ γὰρ τούτων οἷόν τ᾽ εἶναι τῶν
of-the sea in neither for of-these possible — to-be of-the
γενῶν αὐτήν· οὔτε γὰρ ἀπόρρυτός ἐστιν οὔτε χειροποίητος,
kinds it neither for flowing-away is nor hand-made
τὰ δὲ πηγαῖα πάντα τούτων θάτερον πέπονθεν· αὐτόματον
the and from-springs all of-these one has-undergone of-itself
δὲ στάσιμον τοσοῦτον πλῆθος οὐθὲν ὁρῶμεν πηγαῖον
and standing so-great amount nothing we-see from-springs
γιγνόμενον. Ἔτι δ᾽ ἐπεὶ πλείους εἰσὶ θάλατται πρὸς ἀλλήλας
coming-about Further and since more are seas toward one-another

οὐ συμμιγνύουσαι κατ᾽ οὐθένα τόπον, ὧν ἡ μὲν ἐρυθρὰ
not mingling in any place of-which the indeed Red
φαίνεται κατὰ μικρὸν κοινωνοῦσα πρὸς τὴν ἔξω στηλῶν
appears by little communicating toward the outside the-Pillars
θάλατταν, ἡ δ᾽ Ὑρκανία καὶ Κασπία κεχωρισμέναι
sea the and Hyrcanian and Caspian separated
τε ταύτης καὶ περιοικούμεναι κύκλῳ, ὥστ᾽ οὐκ ἂν
both from-this and inhabited-around in-a-circle so-that not —
ἐλάνθανον αἱ πηγαί, εἰ κατά τινα τόπον αὐτῶν ἦσαν.
would-have-escaped-notice the springs if in some place of-them they-were
Ῥέουσα δ᾽ ἡ θάλαττα φαίνεται κατὰ τὰς στενότητας, εἴ
Flowing and the sea appears in the narrows if
που διὰ τὴν περιέχουσαν γῆν εἰς μικρὸν ἐκ μεγάλου
anywhere because-of the surrounding land into small from great
συνάγεται πελάγους, διὰ τὸ ταλαντεύεσθαι δεῦρο
is-drawn-together open-sea because-of the to-swing hither
κἀκεῖσε πολλάκις. Τοῦτο δ᾽ ἐν μὲν πολλῷ πλήθει θαλάττης
and-thither often This and in indeed much amount of-sea
ἄδηλον· ᾗ δὲ διὰ τὴν στενότητα τῆς γῆς ὀλίγον ἐπέχει
unclear where but because-of the narrowness of-the land little occupies
τόπον, ἀναγκαῖον τὴν ἐν τῷ πελάγει μικρὰν ταλάντωσιν
place necessary the in the open-sea small swinging
ἐκεῖ φαίνεσθαι μεγάλην. Ἡ δ᾽ ἐντὸς Ἡρακλείων στηλῶν
there to-appear great The and within of-Heracles Pillars
ἅπασα κατὰ τὴν τῆς γῆς κοιλότητα ῥεῖ, καὶ τῶν
whole according-to the of-the earth hollowness flows and of-the
ποταμῶν τὸ πλῆθος· ἡ μὲν γὰρ Μαιῶτις εἰς τὸν Πόντον
rivers the amount the indeed for Maeotis into the Pontus
ῥεῖ, οὗτος δ᾽ εἰς τὸν Αἰγαῖον. Πάντα δ᾽ ἤδη τὰ τούτων
flows this and into the Aegean All and now the of-these
ἔξω πελάγη ἧττον ποιεῖ τοῦτ᾽ ἐπιδήλως. Ἐκείνοις δὲ διά
outside seas less do this manifestly To-those and because-of

τε τὸ τῶν ποταμῶν πλῆθος συμβαίνει τοῦτο (πλείους
both the of-the rivers amount happens this more
γὰρ εἰς τὸν Εὔξεινον ῥέουσι ποταμοὶ καὶ τὴν Μαιῶτιν
for into the Euxine flow rivers and the Maeotis
ἢ τὴν πολλαπλασίαν χώραν αὐτῆς) καὶ διὰ τὴν
than the many-times-larger land of-it and because-of the
βραχύτητα τοῦ βάθους· ἀεὶ γὰρ ἐκεῖ βαθυτέρα φαίνεται
shortness of-the depth always for there deeper appears
οὖσα ἡ θάλαττα, καὶ τῆς μὲν Μαιώτιδος ὁ Πόντος,
being the sea and than-the indeed Maeotis the Pontus
τούτου δ' ὁ Αἰγαῖος, τοῦ δ' Αἰγαίου ὁ Σικελικός·
than-this and the Aegean than-the and Aegean the Sicilian
ὁ δὲ Σαρδονικὸς καὶ ὁ Τυρρηνικὸς βαθύτατοι πάντων.
the and Sardinian and the Tyrrhenian deepest of-all
Τὰ δ' ἔξω στηλῶν βραχέα μὲν διὰ τὸν πηλόν, ἄπνοα δ'
The and outside the-Pillars shallow indeed because-of the mud windless and
ἐστὶν ὡς ἐν κοίλῳ τῆς θαλάττης οὔσης. Ὥσπερ οὖν καὶ κατὰ
are as in hollow the sea being Just-as then also in
μέρος ἐκ τῶν ὑψηλῶν οἱ ποταμοὶ φαίνονται ῥέοντες, οὕτω
part from the high-places the rivers appear flowing so
καὶ τῆς ὅλης γῆς ἐκ τῶν ὑψηλοτέρων τῶν πρὸς ἄρκτον τὸ
also of-the whole earth from the higher the toward north the
ῥεῦμα γίνεται τὸ πλεῖστον. Ὥστε τὰ μὲν διὰ τὴν
stream comes-about the most So-that the(-ones) indeed because-of the
ἔκχυσιν οὐ βαθέα, τὰ δ' ἔξω πελάγη βαθέα μᾶλλον.
outflow not deep the(-others) and outside seas deep rather
Περὶ δὲ τοῦ τὰ πρὸς ἄρκτον εἶναι τῆς γῆς ὑψηλὰ σημεῖόν τι
About and the the toward north to-be of-the earth high sign some
καὶ τὸ πολλοὺς πεισθῆναι τῶν ἀρχαίων μετεωρολόγων
also the many to-have-been-persuaded of-the ancient meteorologists
τὸν ἥλιον μὴ φέρεσθαι ὑπὸ γῆν ἀλλὰ περὶ τὴν γῆν καὶ τὸν
the sun not to-be-carried under earth but about the earth and the

τόπον τοῦτον, ἀφανίζεσθαι δὲ καὶ ποιεῖν νύκτα διὰ τὸ
place this to-vanish and and to-make night because-of the
ὑψηλὴν εἶναι πρὸς ἄρκτον τὴν γῆν. Ὅτι μὲν οὖν οὔτε πηγὰς
high to-be toward north the earth That indeed then neither springs
οἷόν τ' εἶναι τῆς θαλάττης, καὶ διὰ τίν' αἰτίαν οὕτω
possible — to-be of-the sea and because-of what cause thus
φαίνεται ῥέουσα, τοιαῦτα καὶ τοσαῦθ' ἡμῖν εἰρήσθω.
it-appears flowing such and so-much by-us let-it-have-been-said

II · WHY THE SEA KEEPS ITS PLACE

The sun draws up the sweet, light part and leaves the salt, so the sea keeps its level; it is wrong to call it the source of all water, or to think the sun is fed by the moisture, for then it would be new not only each day, as Heraclitus says, but continually. The account in the Phaedo, with Tartarus feeding the rivers and the sea, is impossible, for rivers would flow uphill. The place the sea fills is the natural place of water, not of sea, as the belly is the place of food and not of the residue.

Περὶ δὲ τῆς γενέσεως αὐτῆς, εἰ γέγονε, καὶ τοῦ χυμοῦ
About and the generation of-it if it-has-come-to-be and of-the taste
τίς ἡ αἰτία τῆς ἁλμυρότητος καὶ πικρότητος, λεκτέον.
what the cause of-the saltness and bitterness one-must-say
Ἡ μὲν οὖν αἰτία ἡ ποιήσασα τοὺς πρότερον οἴεσθαι τὴν
The indeed then cause the having-made the earlier to-think the
θάλατταν ἀρχὴν εἶναι καὶ σῶμα τοῦ παντὸς ὕδατος ἥδ'
sea beginning to-be and body of-the all water this-here
ἐστίν. Δόξειε γὰρ ἂν εὔλογον εἶναι, καθάπερ καὶ τῶν
is It-would-seem for — reasonable to-be just-as also of-the
ἄλλων στοιχείων ἐστὶν ἠθροισμένος ὄγκος καὶ ἀρχὴ διὰ
other elements is gathered bulk and beginning because-of
τὸ πλῆθος, ὅθεν μεταβάλλει τε μεριζόμενον καὶ μίγνυται
the amount whence it-changes both being-divided and is-mixed

τοῖς ἄλλοις, οἷον πυρὸς μὲν ἐν τοῖς ἄνω τόποις, ἀέρος
with-the others as of-fire indeed in the upper places of-air
δὲ πλῆθος τὸ μετὰ τὸν τοῦ πυρὸς τόπον, γῆς δὲ σῶμα
and amount the after the of-the fire place of-earth and body
περὶ ὃ ταῦτα πάντα κεῖται φανερῶς. Ὥστε δῆλον
about which these-things all lie evidently So-that clear
ὅτι κατὰ τὸν αὐτὸν λόγον καὶ περὶ ὕδατος ἀνάγκη
that according-to the same reason also about water necessity
ζητεῖν. Τοιοῦτον δ' οὐθὲν ἄλλο φαίνεται σῶμα κείμενον
to-seek Such but nothing other appears body lying
ἀθρόον, ὥσπερ καὶ τῶν ἄλλων στοιχείων, πλὴν τὸ τῆς
massed just-as also of-the other elements except the of-the
θαλάττης μέγεθος· τὸ γὰρ τῶν ποταμῶν οὔτ' ἀθρόον οὔτε
sea magnitude the for of-the rivers neither massed nor
στάσιμον, ἀλλ' ὡς γιγνόμενον ἀεὶ φαίνεται καθ' ἡμέραν.
standing but as coming-to-be always appears by day
Ἐκ ταύτης δὴ τῆς ἀπορίας καὶ ἀρχὴ τῶν ὑγρῶν ἔδοξεν
From this indeed the difficulty also beginning of-the liquids it-seemed
εἶναι καὶ τοῦ παντὸς ὕδατος ἡ θάλαττα. Διὸ καὶ τοὺς
to-be and of-the all water the sea Wherefore also the
ποταμοὺς οὐ μόνον εἰς ταύτην ἀλλὰ καὶ ἐκ ταύτης φασί
rivers not only into this but also from this say
τινες ῥεῖν· διηθούμενον γὰρ γίνεσθαι τὸ ἁλμυρὸν πότιμον.
some to-flow being-strained for to-become the salt drinkable
Ἀντίκειται δ' ἑτέρα πρὸς ταύτην τὴν δόξαν ἀπορία, τί δή
Is-opposed and another to this the opinion difficulty why indeed
ποτ' οὐκ ἔστι τὸ συνεστὸς ὕδωρ τοῦτο πότιμον, εἴπερ ἀρχὴ
ever not is the standing water this drinkable if-indeed beginning
τοῦ παντός ἐστιν ὕδατος, ἀλλ' ἁλμυρόν. Τὸ δ' αἴτιον ἅμα
of-the all it-is water but salt The and cause at-once
ταύτης τε τῆς ἀπορίας λύσις ἔσται, καὶ περὶ θαλάττης τὴν
of-this both the difficulty solution will-be and about sea the

πρώτην λαβεῖν ὑπόληψιν ἀναγκαῖον ὀρθῶς. Τοῦ γὰρ ὕδατος
first to-take supposition necessary rightly Of-the for water
περὶ τὴν γῆν περιτεταμένου, καθάπερ περὶ τοῦτο ἡ τοῦ
about the earth spread-around just-as about this the of-the
ἀέρος σφαῖρα καὶ περὶ ταύτην ἡ λεγομένη πυρός (τοῦτο
air sphere and about this the so-called of-fire this
γάρ ἐστι πάντων ἔσχατον, εἴθ' ὡς οἱ πλεῖστοι λέγουσιν
for is of-all outermost whether as the most say
εἴθ' ὡς ἡμεῖς), φερομένου δὲ τοῦ ἡλίου τοῦτον τὸν τρόπον,
or as we being-carried and the sun this the way
καὶ διὰ ταῦτα τῆς μεταβολῆς καὶ γενέσεώς τε καὶ
and because-of these-things of-the change and of-generation both and
φθορᾶς οὔσης, τὸ μὲν λεπτότατόν τε καὶ γλυκύτατον
of-destruction being the(-part) indeed finest both and sweetest
ἀνάγεται καθ' ἑκάστην ἡμέραν καὶ φέρεται διακρινόμενον
is-raised by each day and is-carried being-separated
καὶ ἀτμίζον εἰς τὸν ἄνω τόπον, ἐκεῖ δὲ πάλιν συστὰν
and evaporating into the upper place there and again having-formed
διὰ τὴν ψύξιν κάτω φέρεται πάλιν πρὸς τὴν γῆν.
because-of the cooling downward is-carried again toward the earth
Καὶ τοῦτ' ἀεὶ βούλεται ποιεῖν ἡ φύσις οὕτω, καθάπερ
And this always wishes to-do the nature thus just-as
εἴρηται πρότερον. Διὸ καὶ γελοῖοι πάντες ὅσοι
has-been-said before Wherefore also ridiculous all as-many-as
τῶν πρότερον ὑπέλαβον τὸν ἥλιον τρέφεσθαι τῷ ὑγρῷ.
of-the earlier supposed the sun to-be-nourished by-the moisture
Καὶ διὰ τοῦτ' ἔνιοί γέ φασι καὶ ποιεῖσθαι τὰς
And because-of this some at-least say also to-make the
τροπὰς αὐτόν· οὐ γὰρ ἀεὶ τοὺς αὐτοὺς δύνασθαι τόπους
turnings it not for always the same to-be-able places
παρασκευάζειν αὐτῷ τὴν τροφήν. Ἀναγκαῖον δ' εἶναι τοῦτο
to-provide for-it the food Necessary and to-be this

συμβαίνειν περὶ αὐτὸν ἢ φθείρεσθαι· καὶ γὰρ τὸ φανερὸν
to-happen about it or to-perish also for the visible
πῦρ, ἕως ἂν ἔχῃ τροφήν, μέχρι τούτου ζῆν, τὸ δ'
fire as-long-as — it-have food up-to this to-live the and
ὑγρὸν τῷ πυρὶ τροφὴν εἶναι μόνον, ὥσπερ ἀφικνούμενον
moisture for-the fire food to-be alone just-as reaching
μέχρι πρὸς τὸν ἥλιον τὸ ἀναγόμενον τοῦ ὑγροῦ, ἢ τὴν
up-to to the sun the raised of-the moisture or the
ἄνοδον τοιαύτην οὖσαν οἵανπερ τῇ γιγνομένῃ φλογί,
ascent such being as-very to-the arising flame
δι' ἧς τὸ εἰκὸς λαβόντες οὕτω καὶ περὶ τοῦ ἡλίου
through which the likely having-taken thus also about the sun
ὑπέλαβον· Τὸ δ' οὐκ ἔστιν ὅμοιον· ἡ μὲν γὰρ φλὸξ διὰ
they-supposed It and not is like the indeed for flame through
συνεχοῦς ὑγροῦ καὶ ξηροῦ μεταβαλλόντων γίγνεται καὶ οὐ
continuous moist and dry changing comes-about and not
τρέφεται (οὐ γὰρ ἡ αὐτὴ οὖσα διαμένει οὐθένα χρόνον ὡς
is-nourished not for the same being lasts any time so
εἰπεῖν), περὶ δὲ τὸν ἥλιον ἀδύνατον τοῦτο συμβαίνειν, ἐπεὶ
to-say about but the sun impossible this to-happen since
τρεφομένου γε τὸν αὐτὸν τρόπον, ὥσπερ ἐκεῖνοί φασι,
being-nourished at-least the same way just-as those say
δῆλον ὅτι καὶ ὁ ἥλιος οὐ μόνον καθάπερ ὁ Ἡράκλειτός
clear that also the sun not only just-as the Heraclitus
φησι, νέος ἐφ' ἡμέρῃ ἐστίν, ἀλλ' ἀεὶ νέος συνεχῶς.
says new on day is but always new continually
Ἔτι δ' ἡ ὑπὸ τοῦ ἡλίου ἀναγωγὴ τοῦ ὑγροῦ ὁμοία
Further and the by the sun raising of-the moisture like
τοῖς θερμαινομένοις ὕδασίν ἐστιν ὑπὸ πυρός· εἰ οὖν μηδὲ
to-the being-heated waters is by fire if then not-even
τὸ ὑποκαόμενον τρέφεται πῦρ, οὐδὲ τὸν ἥλιον εἰκὸς
the heated-from-beneath is-nourished fire not-even the sun likely

ἦν ὑπολαβεῖν, οὐδ' εἰ πᾶν θερμαίνων ἐξατμίσειε τὸ
it-was to-suppose not-even if all heating it-should-evaporate the
ὕδωρ. Ἄτοπον δὲ καὶ τὸ μόνον φροντίσαι τοῦ ἡλίου,
water Strange and also the only to-have-taken-thought of-the sun
τῶν δ' ἄλλων ἄστρων παριδεῖν αὐτοὺς τὴν σωτηρίαν,
of-the but other stars to-have-overlooked them the preservation
τοσούτων καὶ τὸ πλῆθος καὶ τὸ μέγεθος ὄντων. Τὸ δ'
so-many both the amount and the magnitude being The and
αὐτὸ συμβαίνει καὶ τούτοις ἄλογον καὶ τοῖς φάσκουσι τὸ
same happens also to-these unreasonable and to-the claiming —
πρῶτον ὑγρᾶς οὔσης καὶ τῆς γῆς, καὶ τοῦ κόσμου τοῦ περὶ
at-first moist being both the earth and the cosmos the about
τὴν γῆν ὑπὸ τοῦ ἡλίου θερμαινομένου, ἀέρα γενέσθαι
the earth by the sun being-heated air to-have-come-about
καὶ τὸν ὅλον οὐρανὸν αὐξηθῆναι, καὶ τοῦτον πνεύματά τε
and the whole heaven to-have-grown and this winds both
παρέχεσθαι καὶ τὰς τροπὰς αὐτοῦ ποιεῖν· φανερῶς γὰρ
to-provide and the turnings of-it to-make evidently for
ἀεὶ τὸ ἀναχθὲν ὁρῶμεν καταβαῖνον πάλιν ὕδωρ· κἂν μὴ
always the raised we-see descending again water even-if not
κατ' ἐνιαυτὸν ἀποδιδῷ καὶ καθ' ἑκάστην ὁμοίως χώραν,
by year it-render-back and by each likewise region
ἀλλ' ἔν γέ τισι τεταγμένοις χρόνοις ἀποδίδωσι πᾶν τὸ
but in at-least some appointed times it-renders-back all the
ληφθέν, ὡς οὔτε τρεφομένων τῶν ἄνωθεν, οὔτε τοῦ
taken so-that neither being-nourished the upper-things nor the(-part)
μὲν μένοντος ἀέρος ἤδη μετὰ τὴν γένεσιν, τοῦ δὲ
indeed remaining air already after the generation the(-part) and
γιγνομένου καὶ φθειρομένου πάλιν εἰς ὕδωρ, ἀλλ' ὁμοίως
coming-to-be and perishing again into water but likewise
ἅπαντος διαλυομένου καὶ συνισταμένου πάλιν εἰς ὕδωρ.
all being-dissolved and being-condensed again into water

Τὸ μὲν οὖν πότιμον καὶ γλυκὺ διὰ κουφότητα πᾶν
The indeed then drinkable and sweet because-of lightness all
ἀνάγεται, τὸ δ᾽ ἁλμυρὸν ὑπομένει διὰ βάρος οὐκ ἐν τῷ
is-raised the and salt remains because-of weight not in the
αὐτοῦ οἰκείῳ τόπῳ· τοῦτο γὰρ οἰητέον ἀπορηθῆναί
its-own proper place this for one-must-think to-have-been-questioned
τε προσηκόντως (ἄλογον γὰρ εἰ μή τίς ἐστι τόπος ὕδατος
both fittingly unreasonable for if not some is place of-water
ὥσπερ τῶν ἄλλων στοιχείων) καὶ ταύτην εἶναι λύσιν· ὃν
just-as of-the other elements and this to-be solution which
γὰρ ὁρῶμεν κατέχουσαν τόπον τὴν θάλατταν, οὗτος οὐκ
for we-see occupying place the sea this not
ἔστι θαλάττης ἀλλὰ μᾶλλον ὕδατος. Φαίνεται δὲ θαλάττης,
is of-sea but rather of-water It-appears and of-sea
ὅτι τὸ μὲν ἁλμυρὸν ὑπομένει διὰ τὸ βάρος, τὸ δὲ
because the indeed salt remains because-of the weight the and
γλυκὺ καὶ πότιμον ἀνάγεται διὰ τὴν κουφότητα, καθάπερ
sweet and drinkable is-raised because-of the lightness just-as
ἐν τοῖς τῶν ζῴων σώμασιν. Καὶ γὰρ ἐν τούτοις τῆς τροφῆς
in the of-the animals bodies And for in these the food
εἰσελθούσης γλυκείας ἡ τῆς ὑγρᾶς τροφῆς ὑπόστασις καὶ
having-entered sweet the of-the liquid food sediment and
τὸ περίττωμα φαίνεται πικρὸν ὂν καὶ ἁλμυρόν· τὸ γὰρ
the residue appears bitter being and salt the for
γλυκὺ καὶ πότιμον ὑπὸ τῆς ἐμφύτου θερμότητος ἑλκυσθὲν
sweet and drinkable by the innate heat drawn
εἰς τὰς σάρκας καὶ τὴν ἄλλην σύνταξιν ἦλθε τῶν μερῶν, ὡς
into the flesh and the other structure went of-the parts as
ἕκαστον πέφυκεν. Ὥσπερ οὖν κἀκεῖ, εἴ τις τῆς ποτίμου
each is-by-nature Just-as then also-there if anyone of-the drinkable
τροφῆς μὴ νομίζοι τόπον εἶναι τὴν κοιλίαν, ὅτι ταχέως
food not should-consider place to-be the belly because quickly

ἀφανίζεται, ἀλλὰ τοῦ περιττώματος, ὅτι τοῦθ' ὁρᾷ
it-vanishes but of-the residue because this he-sees
ὑπομένον, οὐκ ἂν ὑπολαμβάνοι καλῶς, ὁμοίως δὲ καὶ ἐν
remaining not — would-suppose rightly likewise and also in
τούτοις· ἔστι γάρ, ὥσπερ λέγομεν, οὗτος ὁ τόπος ὕδατος.
these is for just-as we-say this the place of-water
Διὸ καὶ οἱ ποταμοὶ ῥέουσιν εἰς αὐτὸν ἅπαντες καὶ πᾶν
Wherefore also the rivers flow into it all and all
τὸ γινόμενον ὕδωρ· εἴς τε γὰρ τὸ κοιλότατον ἡ ῥύσις,
the coming-to-be water into both for the hollowest the flow
καὶ ἡ θάλαττα τὸν τοιοῦτον ἐπέχει τῆς γῆς τόπον. Ἀλλὰ
and the sea the such occupies of-the earth place But
τὸ μὲν ἀναφέρεται ταχὺ διὰ τὸν ἥλιον ἅπαν, τὸ
the(-part) indeed is-carried-up quickly because-of the sun all the(-part)
δ' ὑπολείπεται διὰ τὴν εἰρημένην αἰτίαν. Τὸ δὲ ζητεῖν
and is-left-behind because-of the said cause The and to-seek
τὴν ἀρχαίαν ἀπορίαν, διὰ τί τοσοῦτον πλῆθος ὕδατος
the ancient difficulty because-of what so-great amount of-water
οὐδαμοῦ φαίνεται (καθ' ἑκάστην γὰρ ἡμέραν ποταμῶν
nowhere appears by each for day rivers
ῥεόντων ἀναριθμήτων καὶ τὸ μέγεθος ἀπλέτων οὐθὲν
flowing countless and in-the magnitude immense nothing
ἡ θάλαττα γίνεται πλείων), τοῦτο οὐθὲν μὲν ἄτοπον
the sea becomes greater this nothing indeed strange
ἀπορῆσαί τινας, οὐ μὴν ἐπιβλέψαντί γε χαλεπὸν ἰδεῖν.
to-raise-difficulty some not indeed to-one-having-looked at-least hard to-see
Τὸ γὰρ αὐτὸ πλῆθος ὕδατος εἰς πλάτος τε διαταθὲν καὶ
The for same amount of-water into breadth both spread-out and
ἀθρόον οὐκ ἐν ἴσῳ χρόνῳ ἀναξηραίνεται, ἀλλὰ διαφέρει
massed not in equal time dries-up but differs
τοσοῦτον ὥστε τὸ μὲν διαμεῖναι ἂν ὅλην τὴν ἡμέραν,
so-much so-that the(-one) indeed would-last — whole the day

τὸ δ' ὥσπερ εἴ τις ἐπὶ τράπεζαν μεγάλην περιτείνειεν
the(-other) and just-as if anyone on table large should-spread
ὕδατος κύαθον, ἅμα διανοουμένοις ἂν ἀφανισθείη πᾶν.
of-water ladle at-once to-those-thinking — would-vanish all
Ὃ δὴ καὶ περὶ τοὺς ποταμοὺς συμβαίνει· συνεχῶς
Which indeed also about the rivers happens continually
γὰρ ῥεόντων ἀθρόων ἀεὶ τὸ ἀφικνούμενον εἰς ἀχανῆ καὶ
for flowing massed always the arriving into vast and
πλατὺν τόπον ἀναξηραίνεται ταχὺ καὶ ἀδήλως.
broad place dries-up quickly and imperceptibly
Τὸ δ' ἐν τῷ Φαίδωνι γεγραμμένον περί τε τῶν ποταμῶν
The and in the Phaedo written about both the rivers
καὶ τῆς θαλάττης ἀδύνατόν ἐστιν. Λέγεται γὰρ ὡς ἅπαντα
and the sea impossible is It-is-said for that all
μὲν εἰς ἄλληλα συντέτρηται ὑπὸ γῆν, ἀρχὴ δὲ πάντων
indeed into one-another are-bored-through under earth beginning and of-all
εἴη καὶ πηγὴ τῶν ὑδάτων ὁ καλούμενος Τάρταρος, περὶ
would-be and spring of-the waters the so-called Tartarus about
τὸ μέσον ὕδατός τι πλῆθος, ἐξ οὗ καὶ τὰ ῥέοντα καὶ τὰ
the middle of-water some amount from which also the flowing and the
μὴ ῥέοντα ἀναδίδωσι πάντα· τὴν δ' ἐπίρρυσιν ποιεῖν ἐφ'
not flowing sends-up all the and inflow to-make toward
ἕκαστα τῶν ῥευμάτων διὰ τὸ σαλεύειν ἀεὶ τὸ πρῶτον
each of-the streams because-of the to-surge always the first(-water)
καὶ τὴν ἀρχήν· οὐκ ἔχειν γὰρ ἕδραν, ἀλλ' ἀεὶ περὶ τὸ μέσον
and the beginning not to-have for seat but always about the middle
εἱλεῖσθαι· κινούμενον δ' ἄνω καὶ κάτω ποιεῖν τὴν ἐπίχυσιν
to-roll moving and upward and downward to-make the outpouring
τοῖς ῥεύμασιν. Τὰ δὲ πολλαχοῦ μὲν λιμνάζειν, οἵαν καὶ τὴν
to-the streams The and in-many-places indeed to-form-lakes such-as also the
παρ' ἡμῖν εἶναι θάλασσαν, πάντα δὲ πάλιν κύκλῳ περιάγειν
among us to-be sea all and again in-a-circle to-come-round

εἰς τὴν ἀρχήν, ὅθεν ἤρξαντο ῥεῖν, πολλὰ μὲν καὶ κατὰ
into the beginning whence they-began to-flow many indeed also at
τὸν αὐτὸν τόπον, τὰ δὲ καὶ καταντικρὺ τῇ θέσει τῆς
the same place the(-others) and also opposite to-the position of-the
ἐκροῆς, οἷον εἰ ῥεῖν ἤρξαντο κάτωθεν, ἄνωθεν εἰσβάλλειν.
outflow as if to-flow they-began from-below from-above to-flow-in
Εἶναι δὲ μέχρι τοῦ μέσου τὴν κάθεσιν· τὸ γὰρ λοιπὸν πρὸς
To-be and up-to the middle the descent the for remaining toward
ἄνω ἤδη πᾶσιν εἶναι τὴν φοράν. Τοὺς δὲ χυμοὺς καὶ
uphill already for-all to-be the movement The and flavors and
τὰς χρόας ἴσχειν τὸ ὕδωρ δι' οἵας ἂν τύχωσι ῥέοντα
the colors to-hold the water through what-sort-of — they-happen flowing
γῆς. Συμβαίνει δὲ τοὺς ποταμοὺς ῥεῖν οὐκ ἐπὶ ταὐτὸν
earth It-happens and the rivers to-flow not toward the-same
ἀεὶ κατὰ τὸν λόγον τοῦτον· ἐπεὶ γὰρ εἰς τὸ μέσον
always according-to the account this since for into the middle
εἰσρέουσιν ἀφ' οὗπερ ἐκρέουσιν, οὐθὲν μᾶλλον ῥευσοῦνται
they-flow-in from which-very they-flow-out nothing more they-will-flow
κάτωθεν ἢ ἄνωθεν, ἀλλ' ἐφ' ὁπότερ' ἂν ῥέψῃ κυμαίνων
from-below than from-above but toward whichever — it-incline surging
ὁ Τάρταρος. Καίτοι τούτου συμβαίνοντος γένοιτ' ἂν
the Tartarus And-yet this happening would-come-about —
τὸ λεγόμενον ἄνω ποταμῶν· ὅπερ ἀδύνατον. Ἔτι τὸ
the being-said upward of-rivers which-very impossible Further the
γιγνόμενον ὕδωρ καὶ τὸ πάλιν ἀναγόμενον πόθεν ἔσται;
coming-to-be water and the again raised whence will-it-be
τοῦτο γὰρ ἐξαίρειν ὅλον ἀναγκαῖον, εἴπερ ἀεὶ σώζεται
this for to-remove whole necessary if-indeed always is-preserved
τὸ ἴσον· ὅσον γὰρ ἔξω ῥεῖ, πάλιν ῥεῖ πρὸς τὴν ἀρχήν.
the equal as-much-as for out flows again flows toward the beginning
Καίτοι πάντες οἱ ποταμοὶ φαίνονται τελευτῶντες εἰς τὴν
And-yet all the rivers appear ending into the

θάλατταν, ὅσοι μὴ εἰς ἀλλήλους· εἰς δὲ τὴν γῆν οὐθείς,
sea as-many-as not into one-another into but the earth none
ἀλλὰ κἂν ἀφανισθῇ, πάλιν ἀναδύνουσιν.
but even-if it-vanish again they-come-up
Μεγάλοι δὲ γίγνονται τῶν ποταμῶν οἱ μακρὰν ῥέοντες
Great and become of-the rivers the far flowing
διὰ κοίλης· πολλῶν γὰρ δέχονται ῥεύματα ποταμῶν,
through hollow of-many for they-receive streams of-rivers
ὑποτεμνόμενοι τῷ τόπῳ καὶ τῷ μήκει τὰς ὁδούς. Διόπερ
cutting-off by-the place and by-the length the ways Wherefore
ὅ τ' Ἴστρος καὶ ὁ Νεῖλος μέγιστοι τῶν ποταμῶν εἰσὶ
the both Ister and the Nile greatest of-the rivers are
τῶν εἰς τήνδε τὴν θάλατταν ἐξιόντων. Καὶ περὶ τῶν πηγῶν
of-the into this the sea going-out And about the sources
ἄλλοι λέγουσιν ἑκάστου τῶν ποταμῶν ἄλλας αἰτίας διὰ
others tell of-each of-the rivers other causes because-of
τὸ πολλοὺς εἰς τὸν αὐτὸν ἐμβάλλειν. Ταῦτα δὴ πάντα
the many into the same to-flow-in These-things indeed all
φανερὸν ὡς ἀδύνατόν ἐστι συμβαίνειν ἄλλως τε καὶ τῆς
evident that impossible is to-happen otherwise both and of-the
θαλάττης ἐκεῖθεν τὴν ἀρχὴν ἐχούσης. Ὅτι μὲν οὖν ὕδατός τε
sea from-there the beginning having That indeed then of-water both
ὁ τόπος ἐστὶν οὗτος καὶ οὐ θαλάττης, καὶ διὰ τίν' αἰτίαν
the place is this and not of-sea and because-of what cause
τὸ μὲν πότιμον ἄδηλον πλὴν ῥέον, τὸ δ' ὑπομένον,
the(-one) indeed drinkable unseen except flowing the(-other) and remaining
καὶ διότι τελευτὴ μᾶλλον ὕδατος ἢ ἀρχή ἐστιν ἡ θάλαττα,
and why end rather of-water than beginning is the sea
καθάπερ τὸ ἐν τοῖς σώμασι περίττωμα τῆς τροφῆς πάσης,
just-as the in the bodies residue of-the food all
καὶ μάλιστα τὸ τῆς ὑγρᾶς, εἰρήσθω τοσαῦθ' ἡμῖν.
and most the of-the liquid let-it-have-been-said so-much by-us

III · WHY THE SEA IS SALT

If the whole is everlasting, so is the sea, and it will not dry up, as Democritus thinks. To call it the earth's sweat, as Empedocles does, is poetry, not physics. Its saltness comes from the dry exhalation, earthy like ash, which the rain carries down into it, as water strained through ash turns bitter. The salt stays below by its weight while the fresh rises as vapor; condensed again, it is fresh, as evaporated wine becomes water. A wax vessel sunk in the sea fills with fresh water, salt water bears heavier cargoes and floats eggs, and salt and bitter springs come from earth once burned.

Περὶ δὲ τῆς ἁλμυρότητος αὐτῆς λεκτέον, καὶ πότερον
About and the saltness of-it one-must-speak and whether
ἀεί ἐστιν ἡ αὐτή, ἢ οὔτ' ἦν οὔτ' ἔσται ἀλλ' ὑπολείψει·
always is the same or neither was nor will-be but will-give-out
καὶ γὰρ οὕτως οἴονταί τινες. Τοῦτο μὲν οὖν ἐοίκασι
also for so think some This indeed then they-seem
πάντες ὁμολογεῖν, ὅτι γέγονεν, εἴπερ καὶ πᾶς ὁ
all to-agree that it-has-come-to-be if-indeed also all the
κόσμος· ἅμα γὰρ αὐτῆς ποιοῦσι τὴν γένεσιν. Ὥστε δῆλον
cosmos at-once for of-it they-make the generation So-that clear
ὡς εἴπερ ἀΐδιον τὸ πᾶν, καὶ περὶ τῆς θαλάττης οὕτως
that if-indeed everlasting the all also about the sea so
ὑπολεπτέον. Τὸ δὲ νομίζειν ἐλάττω τε γίγνεσθαι τὸ
one-must-suppose The and to-think smaller both to-become the
πλῆθος, ὥσπερ φησὶ Δημόκριτος, καὶ τέλος ὑπολείψειν,
amount just-as says Democritus and finally to-give-out
τῶν Αἰσώπου μύθων οὐθὲν διαφέρειν ἔοικεν ὁ πεπεισμένος
than-the of-Aesop fables nothing to-differ seems the persuaded
οὕτως· καὶ γὰρ ἐκεῖνος ἐμυθολόγησεν ὡς δὶς μὲν ἡ
thus also for he told-the-fable that twice indeed the
Χάρυβδις ἀναρροφήσασα τὸ μὲν πρῶτον τὰ ὄρη
Charybdis having-sucked-down — indeed first(-time) the mountains

ἐποίησε φανερά, τὸ δὲ δεύτερον τὰς νήσους, τὸ δὲ
made visible — and second(-time) the islands — and
τελευταῖον ῥοφήσασα ξηρὰν ποιήσει πάμπαν. Ἐκείνῳ μὲν
last(-time) having-sucked dry will-make altogether For-him indeed
οὖν ἥρμοττεν ὀργιζομένῳ πρὸς τὸν πορθμέα τοιοῦτον εἰπεῖν
then it-befitted being-angry at the ferryman such to-tell
μῦθον, τοῖς δὲ τὴν ἀλήθειαν ζητοῦσιν ἧττον· δι' ἣν
fable for-those but the truth seeking less because-of which
γὰρ αἰτίαν ἔμεινε τὸ πρῶτον, εἴτε διὰ βάρος, ὥσπερ
for cause it-remained — at-first whether because-of weight just-as
τινὲς καὶ τούτων φασίν (ἐν προχείρῳ γὰρ τούτου τὴν
some also of-these say at hand for of-this the
αἰτίαν ἰδεῖν), εἴτε καὶ δι' ἄλλο τι, δῆλον ὅτι διὰ
cause to-see or also because-of other something clear that because-of
τοῦτο διαμένειν ἀναγκαῖον καὶ τὸν λοιπὸν χρόνον αὐτήν.
this to-remain necessary also the remaining time it
Ἢ γὰρ λεκτέον αὐτοῖς ὅτι οὐδὲ τὸ ἀναχθὲν ὕδωρ ὑπὸ
Either for one-must-say for-them that not-even the raised water by
τοῦ ἡλίου ἥξει πάλιν, ἢ εἴπερ τοῦτ' ἔσται, ἀναγκαῖον
the sun will-come again or if-indeed this will-be necessary
ἤτοι ἀεὶ ἢ μέχρι οὗπερ ἂν ᾖ τοῦτο ὑπολείπεσθαι τὴν
either always or until which-very — be this to-give-out the
θάλατταν, καὶ πάλιν ἀναχθῆναι ἐκεῖνο πρότερον δεήσει
sea and again to-be-raised that first will-be-necessary
τὸ πότιμον. Ὥστε οὐδέ ποτε ξηρανεῖται· πάλιν γὰρ ἐκεῖνο
the drinkable So-that not ever it-will-dry-up again for that
φθήσεται καταβὰν εἰς τὴν αὐτὴν τὸ προανελθόν·
will-anticipate having-come-down into the same the having-gone-up-before
διαφέρει γὰρ οὐθὲν ἅπαξ τοῦτ' εἰπεῖν ἢ πολλάκις. Εἰ
it-matters for nothing once this to-say or often If
μὲν οὖν τὸν ἥλιον παύσει τις τῆς φορᾶς, τί ἔσται
indeed then the sun will-stop anyone from-the movement what will-be

τὸ ξηραῖνον; Εἰ δ' ἐάσει εἶναι τὴν περιφοράν, ἀεὶ
the drying If but he-will-allow to-be the revolution always
πλησιάζων τὸ πότιμον, καθάπερ εἴπομεν, ἀνάξει, ἀφήσει
approaching the drinkable just-as we-said it-will-raise will-let-go
δὲ πάλιν ἀποχωρῶν. Ἔλαβον δὲ ταύτην τὴν διάνοιαν
and again withdrawing They-took and this the thought
κατὰ τῆς θαλάττης ἐκ τοῦ πολλοὺς τόπους φαίνεσθαι
about the sea from the many places to-appear
ξηροτέρους νῦν ἢ πρότερον· περὶ οὗ τὴν αἰτίαν εἴπομεν,
drier now than before about which the cause we-told
ὅτι τῶν κατά τινα χρόνον ὑπερβολῶν γιγνομένων ὕδατος
that of-the at some time excesses coming-about of-water
τοῦτ' ἐστὶ τὸ πάθος, ἀλλ' οὐ διὰ τὴν τοῦ παντὸς
this is the affection but not because-of the of-the all
γένεσιν καὶ τῶν μορίων· καὶ πάλιν γ' ἔσται τοὐναντίον·
generation and of-the parts and again at-least will-be the-opposite
καὶ ὅταν γένηται, ξηρανεῖται πάλιν· καὶ τοῦθ' οὕτω κατὰ
and whenever it-come-about it-will-dry again and this so in
κύκλον ἀναγκαῖον ἀεὶ βαδίζειν· μᾶλλον γὰρ οὕτως εὔλογον
circle necessary always to-proceed more for so reasonable
ὑπολαβεῖν ἢ διὰ ταῦτα τὸν οὐρανὸν ὅλον μεταβάλλειν.
to-suppose than because-of these-things the heaven whole to-change
Ἀλλὰ περὶ μὲν τούτων πλείω τῆς ἀξίας ἐνδιατέτριφεν ὁ
But about indeed these more than-the worth has-lingered the
λόγος· περὶ δὲ τῆς ἁλμυρότητος, τοῖς μὲν ἅπαξ γεννήσασι
argument about and the saltness for-those indeed once having-generated
καὶ ὅλως αὐτὴν γεννῶσιν ἀδύνατόν ἐστιν ἁλμυρὰν ποιεῖν.
and wholly it generating impossible is salt to-make
Εἴτε γὰρ ἅπαντος τοῦ ὑγροῦ τοῦ περὶ τὴν γῆν ὄντος καὶ
Whether for of-all the moisture the about the earth being and
ἀναχθέντος ὑπὸ τοῦ ἡλίου τὸ ὑπολειφθὲν γέγονε θάλαττα,
raised by the sun the left has-become sea

εἴτ᾽ ἐνυπῆρχε τοσοῦτος χυμὸς ἐν τῷ πολλῷ ὕδατι καὶ γλυκεῖ
or was-present so-great flavor in the much water and sweet
διὰ τὸ συμμιχθῆναί τινα γῆν τοιαύτην, οὐθὲν ἧττον
because-of the to-have-been-mixed-in some earth such nothing less
ἐλθόντος πάλιν τοῦ διατμίσαντος ὕδατος ἀνάγκη, ἴσου γ᾽
having-come again the evaporated water necessity equal at-least
ὄντος τοῦ πλήθους, καὶ τὸ πρῶτον· ἢ εἰ μηδὲ τὸ πρῶτον,
being the amount and — at-first or if not-even — at-first
μηδ᾽ ὕστερον ἁλμυρὰν αὐτὴν εἶναι. Εἰ δὲ καὶ τὸ πρῶτον
nor later salt it to-be If and also — at-first
εὐθὺς ἦν, λεκτέον τίς ἡ αἰτία, καὶ ἅμα διὰ τί οὐκ
at-once it-was one-must-say what the cause and at-once because-of what not
εἰ καὶ τότε ἀνήχθη καὶ νῦν πάσχει ταὐτό. Ἀλλὰ μὴν καὶ
if also then it-was-raised also now suffers the-same But indeed also
ὅσοι τὴν γῆν αἰτιῶνται τῆς ἁλμυρότητος ἐμμιγνυμένην
as-many-as the earth blame for-the saltness being-mixed-in
(ἔχειν γάρ φασι πολλοὺς χυμοὺς αὐτήν, ὥσθ᾽ ὑπὸ
to-have for they-say many flavors it so-that by
τῶν ποταμῶν συγκαταφερομένην διὰ τὴν μίξιν ποιεῖν
the rivers being-carried-down-with because-of the mixture to-make
ἁλμυράν), ἄτοπον τὸ μὴ καὶ τοὺς ποταμοὺς ἁλμυροὺς εἶναι·
salt strange the not also the rivers salt to-be
πῶς γὰρ δυνατὸν ἐν πολλῷ μὲν πλήθει ὕδατος ἐπίδηλον
how for possible in much indeed amount of-water noticeable
οὕτω ποιεῖν τὴν μίξιν τῆς τοιαύτης γῆς, ἐν ἑκάστῳ δὲ μή;
so to-make the mixture of-the such earth in each but not
Δῆλον γὰρ ὅτι ἡ θάλαττά ἐστιν ἅπαν τὸ ποτάμιον ὕδωρ·
Clear for that the sea is all the river water
οὐθενὶ γὰρ διέφερεν ἀλλ᾽ ἢ τῷ ἁλμυρὰ εἶναι τῶν
in-nothing for it-differed but than in-the salt to-be than-the
ποταμῶν· τοῦτο δ᾽ ἐν ἐκείνοις ἔρχεται εἰς τὸν τόπον εἰς
rivers this and in those goes into the place into

ὃν ἀθρόοι ῥέουσιν. Ὁμοίως δὲ γελοῖον καὶ εἴ τις εἰπὼν
which massed they-flow Likewise and ridiculous also if anyone having-said
ἱδρῶτα τῆς γῆς εἶναι τὴν θάλατταν οἴεταί τι σαφὲς
sweat of-the earth to-be the sea thinks something clear
εἰρηκέναι, καθάπερ Ἐμπεδοκλῆς· πρὸς ποίησιν μὲν γὰρ
to-have-said just-as Empedocles for poetry indeed for
οὕτως εἰπὼν ἴσως εἴρηκεν ἱκανῶς (ἡ γὰρ μεταφορὰ
thus having-spoken perhaps he-has-spoken sufficiently the for metaphor
ποιητικόν), πρὸς δὲ τὸ γνῶναι τὴν φύσιν οὐχ ἱκανῶς·
poetic for but the to-know the nature not sufficiently
οὐδὲ γὰρ ἐνταῦθα δῆλον πῶς ἐκ γλυκέος τοῦ πόματος
not-even for here clear how from sweet the drink
ἁλμυρὸς γίνεται ὁ ἱδρώς, πότερον ἀπελθόντος τινὸς μόνον
salt becomes the sweat whether having-gone-away something only
οἷον τοῦ γλυκυτάτου, ἢ συμμιχθέντος τινός, καθάπερ
as the sweetest or having-been-mixed-in something just-as
ἐν τοῖς διὰ τῆς τέφρας ἠθουμένοις ὕδασιν. Φαίνεται δὲ
in the through the ash strained waters Appears and
τὸ αἴτιον ταὐτὸ καὶ περὶ τὸ εἰς τὴν κύστιν περίττωμα
the cause the-same also about the into the bladder residue
συλλεγόμενον· καὶ γὰρ ἐκεῖνο πικρὸν καὶ ἁλμυρὸν γίνεται
being-collected also for that bitter and salt becomes
τοῦ πινομένου καὶ τοῦ ἐν τῇ τροφῇ ὑγροῦ γλυκέος ὄντος.
the drunk and the in the food moisture sweet being
Εἰ δὴ ὥσπερ τὸ διὰ τῆς κονίας ἠθούμενον ὕδωρ γίνεται
If indeed just-as the through the lye strained water becomes
πικρόν, καὶ ταῦτα, τῷ μὲν οὔρῳ συγκαταφερομένης
bitter also these-things in-the indeed urine being-carried-down-with
τοιαύτης τινὸς δυνάμεως οἵα καὶ φαίνεται ὑφισταμένη ἐν
such some power as also appears settling in
τοῖς ἀγγείοις ἁλμυρίς, τῷ δ' ἱδρῶτι συνεκκρινομένης ἐκ
the vessels salt in-the and sweat being-secreted-with from

τῶν σαρκῶν, οἷον καταπλύνοντος τὸ τοιοῦτον ἐκ τοῦ
the flesh as washing-out the such from the
σώματος τοῦ ἐξιόντος ὑγροῦ, δῆλον ὅτι κἂν τῇ θαλάττῃ
body the going-out moisture clear that also in-the sea
τὸ ἐκ τῆς γῆς συγκαταμιγνύμενον τῷ ὑγρῷ αἴτιον
the from the earth being-mixed-in with-the moisture cause
τῆς ἁλμυρότητος. Ἐν μὲν οὖν τῷ σώματι γίγνεται τὸ
of-the saltness In indeed then the body comes-about the
τοιοῦτον ἡ τῆς τροφῆς ὑπόστασις διὰ τὴν ἀπεψίαν·
such the of-the food sediment because-of the inconcoction
ἐν δὲ τῇ γῇ τίνα τρόπον ὑπῆρχε, λεκτέον. Ὅλως δὲ
in but the earth what way it-was-present one-must-say Wholly and
πῶς οἷόν τε τοσοῦτον ὕδατος πλῆθος ξηραινομένης καὶ
how possible — so-great of-water amount being-dried and
θερμαινομένης ἐκκριθῆναι; Πολλοστὸν γὰρ δεῖ μέρος αὐτὸ
being-heated to-be-secreted Very-small for must part it
τοῦ λειφθέντος εἶναι ἐν τῇ γῇ. Ἔτι δὲ διὰ τί οὐ
of-the left to-be in the earth Further and because-of what not
καὶ νῦν ὅταν ξηραινομένη τύχῃ ἡ γῆ, εἴτε πλείων
also now whenever drying happen the earth whether more
εἴτε ἐλάττων, ἰδίει; Ἡ γὰρ ὑγρότης καὶ ὁ ἱδρὼς γίνεται
or less it-sweats The for moisture and the sweat becomes
πικρός· εἴπερ γὰρ καὶ τότε, καὶ νῦν ἐχρῆν.
bitter if-indeed for also then also now it-would-have-been-necessary
Οὐ φαίνεται δὲ τοῦτο συμβαῖνον, ἀλλὰ ξηρὰ μὲν οὖσα
Not appears but this happening but dry indeed being
ὑγραίνεται, ὑγρὰ δ' οὖσα οὐθὲν πάσχει τοιοῦτον. Πῶς δ'
it-is-moistened moist but being nothing suffers such How and
οὖν οἷόν τε περὶ τὴν πρώτην γένεσιν, ὑγρᾶς οὔσης τῆς γῆς,
then possible — about the first generation moist being the earth
ἰδίειν ξηραινομένην; Ἀλλὰ μᾶλλον εἰκός, ὥσπερ φασί τινες,
to-sweat being-dried But rather likely just-as say some

ἀπελθόντος τοῦ πλείστου καὶ μετεωρισθέντος τοῦ ὑγροῦ
having-gone-away the most and having-been-raised the moisture
διὰ τὸν ἥλιον τὸ λειφθὲν εἶναι θάλατταν· ὑγρὰν δ' οὖσαν
because-of the sun the left to-be sea moist but being
ἰδίειν ἀδύνατον. Τὰ μὲν οὖν λεγόμενα τῆς ἁλμυρότητος
to-sweat impossible The indeed then being-said of-the saltness
αἴτια διαφεύγειν φαίνεται τὸν λόγον· ἡμεῖς δὲ λέγωμεν ἀρχὴν
causes to-escape appear the argument we but let-us-speak beginning
λαβόντες τὴν αὐτὴν ἣν καὶ πρότερον. Ἐπεὶ γὰρ κεῖται
having-taken the same which also before Since for it-is-laid-down
διπλῆν εἶναι τὴν ἀναθυμίασιν, τὴν μὲν ὑγρὰν τὴν δὲ
twofold to-be the exhalation the(-one) indeed moist the(-other) and
ξηράν, δῆλον ὅτι ταύτην οἰητέον ἀρχὴν εἶναι τῶν τοιούτων.
dry clear that this one-must-think beginning to-be of-the such
Καὶ δὴ καὶ περὶ οὗ ἀπορῆσαι πρότερον ἀναγκαῖον,
And indeed also about which to-raise-difficulty before necessary
πότερον καὶ ἡ θάλαττα ἀεὶ διαμένει τῶν αὐτῶν οὖσα
whether also the sea always remains of-the same being
μορίων ἀριθμῷ ἢ τῷ εἴδει καὶ τῷ ποσῷ μεταβαλλόντων
parts in-number or in-the form and in-the quantity changing
ἀεὶ τῶν μερῶν, καθάπερ ἀὴρ καὶ τὸ πότιμον ὕδωρ καὶ πῦρ.
always the parts just-as air and the drinkable water and fire
Ἀεὶ γὰρ ἄλλο καὶ ἄλλο γίνεται τούτων ἕκαστον, τὸ δ'
Always for other and other becomes of-these each the but
εἶδος τοῦ πλήθους ἑκάστου τούτων μένει, καθάπερ τὸ
form of-the amount of-each of-these remains just-as the
τῶν ῥεόντων ὑδάτων καὶ τὸ τῆς φλογὸς ῥεῦμα. Φανερὸν
of-the flowing waters and the of-the flame stream Evident
δὴ τοῦτο καὶ πιθανόν, ὡς ἀδύνατον μὴ τὸν αὐτὸν εἶναι
indeed this and persuasive that impossible not the same to-be
περὶ πάντων τούτων λόγον, καὶ διαφέρειν ταχυτῆτι καὶ
about all these account and to-differ in-speed and

βραδυτῆτι τῆς μεταβολῆς ἐπὶ πάντων τε, καὶ φθορὰν
in-slowness of-the change in-the-case-of all both and destruction
εἶναι καὶ γένεσιν, ταύτην μέντοι τεταγμένως συμβαίνειν
to-be and generation this however in-order to-happen
πᾶσιν αὐτοῖς. Τούτων δ' οὕτως ἐχόντων, πειρατέον
to-all them Of-these and thus being one-must-try
ἀποδοῦναι τὴν αἰτίαν καὶ περὶ τῆς ἁλμυρότητος. Φανερὸν
to-give the cause also about the saltness Evident
δὴ διὰ πολλῶν σημείων ὅτι γίνεται τοιοῦτος ὁ χυμὸς
indeed through many signs that becomes such the flavor
διὰ σύμμιξίν τινος. Ἔν τε γὰρ τοῖς σώμασι τὸ
because-of admixture of-something In both for the bodies the
ἀπεπτότατον ἁλμυρὸν καὶ πικρόν, ὥσπερ καὶ πρότερον
least-concocted salt and bitter just-as also before
εἴπομεν· ἀπεπτότατον γὰρ τὸ περίττωμα τῆς ὑγρᾶς
we-said least-concocted for the residue of-the liquid
τροφῆς· τοιαύτη δὲ πᾶσα μὲν ἡ ὑπόστασις, μάλιστα
food such and all indeed the sediment most
δὲ ἡ εἰς τὴν κύστιν. Σημεῖον δ' ὅτι λεπτοτάτη ἐστίν·
and the into the bladder Sign and that finest it-is
τὰ δὲ πεττόμενα πάντα συνίστασθαι πέφυκεν.
the and concocted-things all to-be-formed are-by-nature
Ἔπειτα ἱδρὼς ἐν οἷς τὸ αὐτὸ σῶμα συνεκκρίνεται, ὃ
Then sweat in which the same body is-secreted-with which
ποιεῖ τὸν χυμὸν τοῦτον. Ὁμοίως δὲ καὶ ἐν τοῖς καομένοις·
makes the flavor this Likewise and also in the burning-things
οὗ γὰρ ἂν μὴ κρατήσῃ τὸ θερμόν, ἐν μὲν τοῖς σώμασι
where for — not prevail the hot in indeed the bodies
γίγνεται περίττωσις, ἐν δὲ τοῖς καομένοις τέφρα. Διὸ καὶ
comes-about residue in and the burning-things ash Wherefore also
τὴν θάλαττάν τινες ἐκ κατακεκαυμένης φασὶ γενέσθαι
the sea some from burnt-up say to-have-come-about

γῆς. Τὸ δ' οὕτω μὲν εἰπεῖν ἄτοπον, τὸ μέντοι ἐκ τοιαύτης
earth The and thus indeed to-say strange the however from such
ἀληθές· ὥσπερ γὰρ καὶ ἐν τοῖς εἰρημένοις, οὕτω καὶ ἐν
true just-as for also in the said-things thus also in
τῷ ὅλῳ ἔκ τε τῶν φυομένων καὶ γιγνομένων κατὰ
the whole from both the growing and coming-to-be according-to
φύσιν ἀεὶ δεῖ νοεῖν, ὥσπερ ἐκ πεπυρωμένων τὸ
nature always one-must to-conceive just-as from burnt-things the
λειπόμενον τοιαύτην εἶναι γῆν, καὶ δὴ καὶ τὴν ἐν τῇ ξηρᾷ
remaining such to-be earth and indeed also the in the dry
ἀναθυμίασιν πᾶσαν· αὕτη γὰρ καὶ παρέχεται τὸ πολὺ τοῦτο
exhalation all this for also provides the great this
πλῆθος. Μεμιγμένης δ' οὔσης, ὥσπερ εἴπομεν, τῆς τε
amount Mixed and being just-as we-said the both
ἀτμιδώδους ἀναθυμιάσεως καὶ τῆς ξηρᾶς, ὅταν συνιστῆται
vaporous exhalation and the dry whenever it-is-formed
εἰς νέφη καὶ ὕδωρ, ἀναγκαῖον ἐμπεριλαμβάνεσθαί τι
into clouds and water necessary to-be-included-in some
πλῆθος ἀεὶ ταύτης τῆς δυνάμεως, καὶ συγκαταφέρεσθαι
amount always of-this the power and to-be-carried-down-with
πάλιν ἐν τοῖς ὑετοῖς, καὶ τοῦτ' ἀεὶ γίνεσθαι κατά
again in the rains and this always to-come-about according-to
τινα τάξιν, ὡς ἐνδέχεται μετέχειν τὰ ἐνταῦθα τάξεως.
some order as it-is-possible to-share the here-things in-order
Ὅθεν μὲν οὖν ἡ γένεσις ἔνεστι τοῦ ἁλμυροῦ ἐν τῷ ὕδατι,
Whence indeed then the generation is-in of-the salt in the water
εἴρηται. Καὶ διὰ τοῦτο τά τε νότια ὕδατα πλατύτερα
it-has-been-said And because-of this the both southern rains more-brackish
καὶ τὰ πρῶτα τῶν μετοπωρινῶν· ὅ τε γὰρ νότος καὶ
and the first of-the autumnal the both for south-wind both
τῷ μεγέθει καὶ τῷ πνεύματι ἀλεεινότατος ἄνεμός ἐστι,
in-the magnitude and in-the blowing warmest wind is

καὶ πνεῖ ἀπὸ τόπων ξηρῶν καὶ θερμῶν, ὥστε μετ᾽ ὀλίγης
and blows from places dry and hot so-that with little
ἀτμίδος. Διὸ καὶ θερμός ἐστιν· εἰ γὰρ καὶ μὴ τοιοῦτος,
vapor Wherefore also hot it-is if for even not such
ἀλλ᾽ ὅθεν ἄρχεται πνεῖν ψυχρός, οὐδὲν ἧττον προϊὼν
but whence it-begins to-blow cold nothing less going-forward
διὰ τὸ συμπεριλαμβάνειν πολλὴν ἀναθυμίασιν ξηρὰν
because-of the to-include much exhalation dry
ἐκ τῶν σύνεγγυς τόπων θερμός ἐστιν· ὁ δὲ βορέας
from the near places hot it-is the but north-wind
ἅτε ἀφ᾽ ὑγρῶν τόπων ἀτμιδώδης, διὸ ψυχρός·
inasmuch-as from moist places vaporous wherefore cold
τῷ δ᾽ ἀπωθεῖν αἴθριος ἐνταῦθα, ἐν δὲ τοῖς ἐναντίοις
by-the and to-push-away clear-sky here in but the opposite
ὑδατώδης. Ὁμοίως δὲ καὶ ὁ νότος αἴθριος τοῖς περὶ τὴν
rainy Likewise and also the south-wind clear-sky to-those about the
Λιβύην. Πολὺ οὖν ἐν τῷ καταφερομένῳ ὕδατι συμβάλλεται
Libya Much then in the being-carried-down water contributes
τοιοῦτον, καὶ τοῦ μετοπώρου πλατέα τὰ ὕδατα· ἀνάγκη
such also of-the autumn brackish the rains necessary
γὰρ τὰ βαρύτατα πρῶτα φέρεσθαι. Ὥστ᾽ ἐν ὅσοις ἔνεστι
for the heaviest first to-be-carried So-that in as-many-as is-in
τῆς τοιαύτης γῆς πλῆθος, ῥέπει τάχιστα κάτω ταῦτα.
of-the such earth amount incline quickest downward these
Καὶ θερμή γε ἡ θάλαττα διὰ τοῦτό ἐστιν· πάντα
And hot at-least the sea because-of this is all
γὰρ ὅσα πεπύρωται, ἔχει δυνάμει θερμότητα ἐν αὑτοῖς.
for as-many-as have-been-burnt have potentially heat in themselves
Ὁρᾶν δ᾽ ἔξεστι καὶ τὴν κονίαν καὶ τὴν τέφραν καὶ τὴν
To-see and it-is-possible also the lye and the ash and the
ὑπόστασιν τῶν ζῴων καὶ τὴν ξηρὰν καὶ τὴν ὑγράν· καὶ
sediment of-the animals both the dry and the liquid and

τῶν θερμοτάτων γε κατὰ τὴν κοιλίαν ζῴων συμβαίνει
of-the hottest at-least in the belly animals happens
θερμοτάτην εἶναι τὴν ὑπόστασιν. Γίγνεται μὲν οὖν ἀεὶ
hottest to-be the sediment Becomes indeed then always
πλατυτέρα διὰ ταύτην τὴν αἰτίαν, ἀνάγεται δ' ἀεί
more-brackish because-of this the cause is-raised and always
τι μέρος αὐτῆς μετὰ τοῦ γλυκέος· ἀλλ' ἔλαττον τοσούτῳ
some part of-it with the sweet but less by-so-much
ὅσῳ καὶ ἐν τῷ ὑομένῳ τὸ ἁλμυρὸν καὶ πλατὺ τοῦ
by-as-much-as also in the rained the salt and brackish than-the
γλυκέος ἔλαττον. Διόπερ ἰσάζει ὡς ἐπίπαν εἰπεῖν. Ὅτι δὲ
sweet less Wherefore it-balances as on-the-whole to-say That and
γίνεται ἀτμίζουσα πότιμος καὶ οὐκ εἰς θάλατταν συγκρίνεται
becomes evaporating drinkable and not into sea is-condensed
τὸ ἀτμίζον, ὅταν συνιστῆται πάλιν, πεπειραμένοι λέγομεν.
the evaporating whenever it-be-formed again having-tested we-say
Πάσχει δὲ καὶ τἆλλα ταὐτό· καὶ γὰρ οἶνος καὶ
Undergo and also the-other-things the-same also for wine and
πάντες οἱ χυμοί, ὅσοι ἂν ἀτμίσαντες πάλιν εἰς ὑγρὸν
all the juices as-many-as — having-evaporated again into liquid
συστῶσιν, ὕδωρ γίγνονται· πάθη γὰρ τἆλλα διά
be-formed water become affections for the-other-things because-of
τινα σύμμιξιν τοῦ ὕδατός ἐστιν, καὶ οἷον ἄν τι
some admixture of-the water are and of-what-sort — something
ᾖ τὸ συμμιχθέν, τοιοῦτον ποιεῖ τὸν χυμόν.
be the mixed-in such makes the flavor
Ἀλλὰ περὶ μὲν τούτων ἐν ἄλλοις καιροῖς οἰκειοτέροις
But about indeed these in other occasions more-proper
ποιητέον τὴν σκέψιν. Νῦν δὲ τοσοῦτον λέγωμεν, ὅτι τῆς
one-must-make the inquiry Now but so-much let-us-say that the
θαλάττης ὑπαρχούσης ἀεί τι ἀνάγεται καὶ γίνεται πότιμον
sea existing always some is-raised and becomes drinkable

καὶ ἄνωθεν ἐν τῷ ὑομένῳ κατέρχεται ἄλλο γεγενημένον,
and from-above in the rained comes-down other having-come-to-be
οὐ τὸ ἀναχθέν. Καὶ διὰ βάρος ὑφίσταται τῷ ποτίμῳ.
not the raised And because-of weight settles-beneath the drinkable
Καὶ διὰ τοῦτ' οὔτ' ἐπιλείπει, ὥσπερ οἱ ποταμοί, ἀλλ'
And because-of this neither it-gives-out just-as the rivers but
ἢ τοῖς τόποις (τοῦτο δ' ἐπ' ἀμφοτέρων ἀνάγκη
than in-the places this and in-the-case-of both necessity
συμβαίνειν ὁμοίως), οὔτε ἀεὶ τὰ αὐτὰ μέρη διαμένει, οὔτε
to-happen alike neither always the same parts remain neither
γῆς οὔτε θαλάττης, ἀλλὰ μόνον ὁ πᾶς ὄγκος. Καὶ γὰρ
of-earth nor of-sea but only the whole bulk And for
καὶ περὶ γῆς ὁμοίως δεῖ ὑπολαβεῖν· τὸ μὲν γὰρ
also about earth likewise one-must to-suppose the(-part) indeed for
ἀνέρχεται, τὸ δὲ πάλιν συγκαταβαίνει, καὶ τοὺς τόπους
goes-up the(-part) and again comes-down-with and the places
συμμεταβάλλει τά τ' ἐπιπολάζοντα καὶ τὰ κατιόντα
change-with the both floating-on-top and the descending
πάλιν. Ὅτι δ' ἐστὶν ἐν μίξει τινὸς τὸ ἁλμυρόν, δῆλον
again That and is in mixture of-something the salt clear
οὐ μόνον ἐκ τῶν εἰρημένων, ἀλλὰ καὶ ἐάν τις ἀγγεῖον
not only from the said-things but also if anyone vessel
πλάσας θῇ κήρινον εἰς τὴν θάλατταν, περιδήσας τὸ
having-molded place waxen into the sea having-tied-around the
στόμα τοιούτοις ὥστε μὴ παρεγχεῖσθαι τῆς θαλάττης· τὸ
mouth with-such-things so-that not to-be-poured-in of-the sea the
γὰρ εἰσιὸν διὰ τῶν τοίχων τῶν κηρίνων γίνεται πότιμον
for entering through the walls the waxen becomes drinkable
ὕδωρ· ὥσπερ γὰρ δι' ἠθμοῦ τὸ γεῶδες ἀποκρίνεται καὶ
water just-as for through strainer the earthy is-separated and
τὸ ποιοῦν τὴν ἁλμυρότητα διὰ τὴν σύμμιξιν.
the making the saltness because-of the admixture

Τοῦτο γὰρ αἴτιον καὶ τοῦ βάρους (πλεῖον γὰρ ἕλκει
This for cause also of-the weight more for weighs
τὸ ἁλμυρὸν ἢ τὸ πότιμον) καὶ τοῦ πάχους· καὶ γὰρ
the salt than the drinkable and of-the thickness also for
τὸ πάχος διαφέρει τοσοῦτον ὥστε τὰ πλοῖα ἀπὸ τοῦ
the thickness differs so-much that the ships from the
αὐτοῦ τῶν ἀγωγίμων βάρους ἐν μὲν τοῖς ποταμοῖς
same of-the cargo weight in indeed the rivers
ὀλίγου καταδύνειν, ἐν δὲ τῇ θαλάττῃ μετρίως ἔχειν καὶ
almost to-sink in but the sea moderately to-be and
πλευστικῶς, διόπερ ἔνιοι τῶν ἐν τοῖς ποταμοῖς γεμιζόντων
seaworthily wherefore some of-the in the rivers loading
διὰ ταύτην τὴν ἄγνοιαν ἐζημιώθησαν. Τεκμήριον δὲ τοῦ
because-of this the ignorance were-punished Evidence and of-the
μιγνυμένου τινὸς παχύτερον εἶναι τὸν ὄγκον· ἐὰν γάρ τις
being-mixed something thicker to-be the bulk if for anyone
ὕδωρ ἁλμυρὸν ποιήσῃ σφόδρα μίξας ἅλας, ἐπιπλέουσι
water salt make very having-mixed salt float
τὰ ᾠά, κἂν ᾖ πλήρη· σχεδὸν γὰρ ὥσπερ πηλὸς
the eggs even-if they-be full nearly for just-as mud
γίνεται· τοσοῦτον ἔχει σωματῶδες πλῆθος ἡ θάλαττα.
becomes so-much has bodily amount the sea
Ταὐτὸ δὲ τοῦτο δρῶσι καὶ περὶ τὰς ταριχείας. Εἰ δ' ἔστιν
The-same and this they-do also about the pickling If and there-is
ὥσπερ μυθολογοῦσί τινες ἐν Παλαιστίνῃ τοιαύτη λίμνη,
just-as tell-stories some in Palestine such lake
εἰς ἣν ἐάν τις ἐμβάλῃ συνδήσας ἄνθρωπον ἢ ὑποζύγιον
into which if anyone throw having-bound man or beast-of-burden
ἐπιπλεῖν καὶ οὐ καταδύεσθαι κατὰ τοῦ ὕδατος, μαρτύριον
to-float and not to-sink down-into the water evidence
ἂν εἴη τοῖς εἰρημένοις· λέγουσι γὰρ πικρὰν οὕτως εἶναι
— would-be for-the said-things they-say for bitter so to-be

τὴν λίμνην καὶ ἅλμυρὰν ὥστε μηθένα ἰχθὺν ἐγγίνεσθαι,
the lake and salt so-that no fish to-live-in
τὰ δ' ἱμάτια ῥύπτειν, ἐάν τις διασείσῃ βρέξας.
the and garments to-clean if anyone shake-it having-wetted
Ἔστι δὲ καὶ τὰ τοιαῦτα σημεῖα πάντα τῶν εἰρημένων, ὅτι
Are and also the such signs all of-the said-things that
τὸ ἅλμυρὸν ποιεῖ σῶμά τι, καὶ γεῶδές ἐστι τὸ ἐνυπάρχον·
the salt makes body some and earthy is the being-in
ἔν τε γὰρ τῇ Χαονίᾳ κρήνη τίς ἐστιν ὕδατος πλατυτέρου,
in both for the Chaonia spring some is of-water more-brackish
ἀπορρεῖ δ' αὕτη εἰς ποταμὸν πλησίον γλυκὺν μέν, ἰχθῦς
flows-off and this into river near sweet indeed fish
δ' οὐκ ἔχοντα· εἵλοντο γὰρ δή, ὡς οἱ ἐκεῖ μυθολογοῦσιν,
but not having they-chose for indeed as the there tell-stories
ἐξουσίας δοθείσης ὑπὸ τοῦ Ἡρακλέους, ὅτ' ἦλθεν ἄγων
license having-been-given by the Heracles when he-came driving
ἐκ τῆς Ἐρυθείας τὰς βοῦς, ἅλας ἀντὶ τῶν ἰχθύων, οἳ
from the Erytheia the cattle salt instead-of the fish which
γίγνονται αὐτοῖς ἐκ τῆς κρήνης· τούτου γὰρ τοῦ ὕδατος
come-about for-them from the spring of-this for the water
ἀφέψοντές τι μέρος τιθέασι, καὶ γίνεται ψυχθέν, ὅταν
boiling-down some part they-set-it and becomes having-been-cooled whenever
ἀπατμίσῃ τὸ ὑγρὸν ἅμα τῷ θερμῷ, ἅλες, οὐ χονδροὶ
evaporate the moisture with the heat salt not coarse-grained
ἀλλὰ χαῦνοι καὶ λεπτοὶ ὥσπερ χιών. Εἰσὶ δὲ τήν τε
but loose and fine just-as snow Are and the both
δύναμιν ἀσθενέστεροι τῶν ἄλλων καὶ πλείους ἡδύνουσιν
power weaker than-the others and more they-sweeten
ἐμβληθέντες, καὶ τὴν χρόαν οὐχ ὁμοίως λευκοί. Τοιοῦτον δ'
thrown-in and the color not alike white Such and
ἕτερον γίνεται καὶ ἐν Ὀμβρικοῖς· ἔστι γάρ τις τόπος ἐν
other comes-about also among Umbrians is for some place in

ᾧ πεφύκασι κάλαμος καὶ σχοῖνος· τούτων οὖν κατακάουσι,
which grow reed and rush these then they-burn-down
καὶ τὴν τέφραν ἐμβαλόντες εἰς ὕδωρ ἀφέψουσιν· ὅταν δὲ
and the ash having-thrown into water they-boil-down whenever and
λίπωσί τι τοῦ ὕδατος, τοῦτο ψυχθὲν ἁλῶν γίνεται πλῆθος.
they-leave some of-the water this cooled of-salt becomes amount
Ὅσα δ' ἐστὶ ἁλμυρὰ ῥεύματα ποταμῶν ἢ κρηνῶν, τὰ
As-many-as and are salt streams of-rivers or of-springs the
πλεῖστα θερμά ποτε εἶναι δεῖ νομίζειν, εἶτα τὴν μὲν
most hot once to-be one-must to-consider then the indeed
ἀρχὴν ἀπεσβέσθαι τοῦ πυρός, δι' ἧς δὲ διηθοῦνται
source to-have-been-quenched of-the fire through which but they-are-strained
γῆς, ἔτι μένειν οὖσαν οἷον κονίαν καὶ τέφραν. Εἰσὶ δὲ
earth still to-remain being as lye and ash Are and
πολλαχοῦ καὶ κρῆναι καὶ ῥεύματα ποταμῶν παντοδαποὺς
in-many-places both springs and streams of-rivers all-kinds-of
ἔχοντα χυμούς, ὧν πάντων αἰτιατέον τὴν ἐνοῦσαν ἢ
having flavors of-which all one-must-hold-responsible the being-in or
ἐγγινομένην δύναμιν πυρός· καομένη γὰρ ἡ γῆ τῷ μᾶλλον
arising-in power of-fire being-burnt for the earth by-the more
καὶ ἧττον παντοδαπὰς λαμβάνει μορφὰς καὶ χρόας χυμῶν·
and less all-kinds-of takes forms and colors of-flavors
στυπτηρίας γὰρ καὶ κονίας καὶ τῶν ἄλλων τῶν τοιούτων
of-alum for and of-lye and of-the others the such
γίνεται πλήρης δυνάμεων, δι' ὧν τὰ ἠθούμενα ὕδατα ὄντα
becomes full powers through which the strained waters being
γλυκέα μεταβάλλει, καὶ τὰ μὲν ὀξέα γίγνεται, καθάπερ
sweet change and the(-ones) indeed sour become just-as
ἐν τῇ Σικανικῇ τῆς Σικελίας· ἐκεῖ γὰρ ὀξάλμη γίνεται,
in the Sicanian-land of-the Sicily there for vinegar-brine comes-about
καὶ χρῶνται καθάπερ ὄξει πρὸς ἔνια τῶν ἐδεσμάτων αὐτῷ.
and they-use just-as vinegar for some of-the foods it

Ἔστι δὲ καὶ περὶ Λύγκον κρήνη τις ὕδατος ὀξέος, περὶ δὲ
There-is and also about Lyncus spring some of-water sour about and
τὴν Σκυθικὴν πικρά· τὸ δ' ἀπορρέον αὐτῆς τὸν ποταμὸν
the Scythian-land bitter the and flowing-off of-it the river
εἰς ὃν εἰσβάλλει ποιεῖ πικρὸν ὅλον. Αἱ δὲ διαφοραὶ τούτων
into which it-falls makes bitter whole The and differences of-these
ἐκεῖθεν δῆλαι. Ποῖοι δὲ χυμοὶ ἐκ ποίων γίνονται κράσεων,
from-there clear What-sort and flavors from what-sort come-about mixtures
εἴρηται περὶ αὐτῶν χωρὶς ἐν ἄλλοις. Περὶ μὲν οὖν
it-has-been-said about them separately in other-works About indeed then
ὑδάτων καὶ θαλάττης, δι' ἃς αἰτίας ἀεί τε συνεχῶς
waters and sea because-of which causes always both continually
εἰσὶ καὶ πῶς μεταβάλλουσι καὶ τίς ἡ φύσις αὐτῶν, ἔτι
they-are and how they-change and what the nature of-them further
δ' ὁπόσα πάθη κατὰ φύσιν αὐτοῖς συμβαίνει ποιεῖν
and as-many-as affections according-to nature to-them happen to-do
ἢ πάσχειν, εἴρηται σχεδὸν ἡμῖν περὶ τῶν πλείστων.
or to-suffer it-has-been-said nearly by-us about the most

IV · WHAT WIND IS

Wind is not air in motion, as some say, but a mass of dry exhalation moving about the earth, its matter rising from below and its course set from above, since the heavens carry the air round. The two exhalations explain why wet and dry years come, why rain stills the wind and wind follows rain, and why north and south winds blow most. Winds blow sideways because the rising exhalation is swept round.

Περὶ δὲ πνευμάτων λέγωμεν, λαβόντες ἀρχὴν τὴν εἰρημένην
About and winds let-us-speak having-taken beginning the stated
ἡμῖν ἤδη πρότερον. Ἔστι γὰρ δύο εἴδη τῆς ἀναθυμιάσεως,
by-us already before There-are for two kinds of-the exhalation

ὥς φαμεν, ἡ μὲν ὑγρὰ ἡ δὲ ξηρά. Καλεῖται δ'
as we-say the(-one) indeed moist the(-other) and dry Is-called and
ἡ μὲν ἀτμίς, ἡ δὲ τὸ μὲν ὅλον ἀνώνυμος, τῷ
the(-one) indeed vapor the(-other) and the indeed whole nameless with-the
δ' ἐπὶ μέρους ἀνάγκη χρωμένους καθόλου προσαγορεύειν
and in part necessity using generally to-call
αὐτὴν οἷον καπνόν. Ἔστι δ' οὔτε τὸ ὑγρὸν ἄνευ τοῦ ξηροῦ
it as smoke Is and neither the moist without the dry
οὔτε τὸ ξηρὸν ἄνευ τοῦ ὑγροῦ, ἀλλὰ πάντα ταῦτα λέγεται
nor the dry without the moist but all these are-called
κατὰ τὴν ὑπεροχήν. Φερομένου δὴ τοῦ ἡλίου κύκλῳ, καὶ
according-to the excess Moving indeed the sun in-a-circle and
ὅταν μὲν πλησιάζῃ, τῇ θερμότητι ἀνάγοντος τὸ ὑγρόν,
when indeed it-approach by-the heat raising the moisture
πορρωτέρω δὲ γιγνομένου διὰ τὴν ψύξιν συνισταμένης
farther but becoming because-of the cooling condensing
πάλιν τῆς ἀναχθείσης ἀτμίδος εἰς ὕδωρ· διὸ χειμῶνός
again the raised vapor into water wherefore in-winter
τε μᾶλλον γίγνεται τὰ ὕδατα, καὶ νύκτωρ ἢ μεθ' ἡμέραν·
both more come-about the rains and by-night than by day
ἀλλ' οὐ δοκεῖ διὰ τὸ λανθάνειν τὰ νυκτερινὰ τῶν μεθ'
but not it-seems because-of the to-escape-notice the nocturnal than-the by
ἡμέραν μᾶλλον. Τὸ δὴ κατιὸν ὕδωρ διαδίδοται πᾶν εἰς
day more The indeed descending water is-distributed all into
τὴν γῆν· ὑπάρχει δ' ἔν τε τῇ γῇ πολὺ πῦρ καὶ πολλὴ
the earth there-is and in both the earth much fire and much
θερμότης, καὶ ὁ ἥλιος οὐ μόνον τὸ ἐπιπολάζον τῆς γῆς
heat and the sun not only the floating-on-top of-the earth
ὑγρὸν ἕλκει, ἀλλὰ καὶ τὴν γῆν αὐτὴν ξηραίνει θερμαίνων.
moisture draws but also the earth itself dries heating

Τῆς δ' ἀναθυμιάσεως, ὥσπερ εἴρηται, διττῆς οὔσης,
Of-the and exhalation just-as has-been-said twofold being
τῆς μὲν ἀτμιδώδους τῆς δὲ καπνώδους, ἀμφοτέρας
the(-one) indeed vaporous the(-other) and smoky both
ἀναγκαῖον γίγνεσθαι. Τούτων δ' ἡ μὲν ὑγροῦ πλέον
necessary to-come-about Of-these and the(-one) indeed of-moisture more
ἔχουσα πλῆθος ἀναθυμίασις ἀρχὴ τοῦ ὑομένου ὕδατός ἐστιν,
having amount exhalation beginning of-the rained water is
ὥσπερ εἴρηται πρότερον, ἡ δὲ ξηρὰ τῶν πνευμάτων
just-as has-been-said before the(-other) and dry of-the winds
ἀρχὴ καὶ φύσις πάντων. Ταῦτα δ' ὅτι τοῦτον τὸν τρόπον
beginning and nature of-all These-things and that this the way
ἀναγκαῖον συμβαίνειν, καὶ ἐξ αὐτῶν τῶν ἔργων δῆλον·
necessary to-happen also from themselves the works clear
καὶ γὰρ τὴν ἀναθυμίασιν διαφέρειν ἀναγκαῖον, καὶ τὸν
also for the exhalation to-differ necessary and the
ἥλιον καὶ τὴν ἐν τῇ γῇ θερμότητα ταῦτα ποιεῖν οὐ μόνον
sun and the in the earth heat these-things to-make not only
δυνατὸν ἀλλ' ἀναγκαῖόν ἐστιν. Ἐπεὶ δ' ἕτερον ἑκατέρας τὸ
possible but necessary it-is Since and different of-each the
εἶδος, φανερὸν ὅτι διαφέρει, καὶ οὐχ ἡ αὐτή ἐστιν ἥ τε
form evident that differs and not the same is the both
τοῦ ἀνέμου φύσις καὶ ἡ τοῦ ὑομένου ὕδατος, καθάπερ τινὲς
of-the wind nature and the of-the rained water just-as some
λέγουσιν· τὸν γὰρ αὐτὸν ἀέρα κινούμενον μὲν ἄνεμον εἶναι,
say the for same air moving indeed wind to-be
συνιστάμενον δὲ πάλιν ὕδωρ. Ὁ μὲν οὖν ἀήρ, καθάπερ ἐν
being-condensed but again water The indeed then air just-as in
τοῖς πρὸ τούτων λόγοις εἰρήκαμεν, γίνεται ἐκ τούτων· ἡ
the before these discussions we-have-said comes-about from these the
μὲν γὰρ ἀτμὶς ὑγρὸν καὶ ψυχρόν (εὐόριστον μὲν γὰρ ὡς
indeed for vapor moist and cold easily-bounded indeed for as

ὑγρόν, διὰ δὲ τὸ ὕδατος εἶναι ψυχρὸν τῇ οἰκείᾳ φύσει,
moist because-of and the of-water to-be cold by-the own nature
ὥσπερ ὕδωρ μὴ θερμανθέν), ὁ δὲ καπνὸς θερμὸν καὶ ξηρόν.
just-as water not heated the and smoke hot and dry
Ὥστε καθάπερ ἐκ συμβόλων, συνίσταιτο ἂν ὁ ἀὴρ
So-that just-as from complements would-be-composed — the air
ὑγρὸς καὶ θερμός· καὶ γὰρ ἄτοπον εἰ ὁ περὶ ἑκάστους
moist and hot also for strange if the about each
περικεχυμένος ἀὴρ οὗτος γίνεται κινούμενος πνεῦμα, καὶ
poured-around air this becomes moving wind and
ὅθεν ἂν τύχῃ κινηθείς, ἄνεμος ἔσται, ἀλλ' οὐ καθάπερ
whence — it-happen having-been-moved wind will-be but not just-as
τοὺς ποταμοὺς ὑπολαμβάνομεν οὐχ ὁπωσοῦν τοῦ
the rivers we-suppose not in-any-way-whatever the
ὕδατος εἶναι ῥέοντος, οὐδ' ἂν ἔχῃ πλῆθος, ἀλλὰ δεῖ
water to-be flowing not-even if it-have amount but it-must
πηγαῖον εἶναι τὸ ῥέον, οὕτω καὶ περὶ τῶν ἀνέμων ἔχει·
from-a-spring to-be the flowing so also about the winds it-is
κινηθείη γὰρ ἂν πολὺ πλῆθος ἀέρος ὑπό τινος μεγάλης
would-be-moved for — much amount of-air by some great
πτώσεως, οὐκ ἔχον ἀρχὴν οὐδὲ πηγήν. Μαρτυρεῖ δὲ τὰ
fall not having beginning nor spring Bear-witness and the
γινόμενα τοῖς εἰρημένοις· διὰ γὰρ τὸ συνεχῶς μὲν
happening-things to-the said-things because-of for the continually indeed
μᾶλλον δὲ καὶ ἧττον καὶ πλείω καὶ ἐλάττω γίνεσθαι
more but and less and more and less to-come-about
τὴν ἀναθυμίασιν, ἀεὶ νέφη τε καὶ πνεύματα γίνεται
the exhalation always clouds both and winds come-about
κατὰ τὴν ὥραν ἑκάστην ὡς πέφυκεν· διὰ δὲ τὸ
according-to the season each as is-natural because-of and the
ἐνίοτε μὲν τὴν ἀτμιδώδη γίνεσθαι πολλαπλασίαν ὁτὲ
sometimes indeed the vaporous to-become many-times-greater at-times

δὲ τὴν ξηρὰν καὶ καπνώδη, ὁτὲ μὲν ἔπομβρα τὰ ἔτη
and the dry and smoky at-times indeed rainy the years
γίνεται καὶ ὑγρά, ὁτὲ δὲ ἀνεμώδη καὶ αὐχμοί.
become and moist at-times and windy and droughts
Ὁτὲ μὲν οὖν συμβαίνει καὶ τοὺς αὐχμοὺς καὶ τὰς
At-times indeed then it-happens both the droughts and the
ἐπομβρίας πολλοὺς ἅμα καὶ κατὰ συνεχῆ γίνεσθαι χώραν,
rains many at-once and over continuous to-come-about region
ὁτὲ δὲ καὶ κατὰ μέρη· πολλάκις γὰρ ἡ μὲν κύκλῳ
at-times and also by parts often for the indeed around
χώρα λαμβάνει τοὺς ὡραίους ὄμβρους ἢ καὶ πλείους, ἐν
region receives the seasonable showers or even more in
δέ τινι μέρει ταύτης αὐχμός ἐστιν· ὁτὲ δὲ τοὐναντίον
but some part of-it drought is at-times and the-opposite
τῆς κύκλῳ πάσης ἢ μετρίοις χρωμένης ὕδασιν ἢ καὶ
of-the around all either with-moderate using waters or even
μᾶλλον αὐχμώσης, ἕν τι μόριον ὕδατος ἄφθονον λαμβάνει
more being-in-drought one some part of-water abundant receives
πλῆθος. Αἴτιον δ' ὅτι ὡς μὲν τὰ πολλὰ τὸ αὐτὸ πάθος
amount Cause and that as indeed the many-cases the same affection
ἐπὶ πλείω διήκειν εἰκὸς χώραν, διὰ τὸ παραπλησίως
over more to-extend likely region because-of the similarly
κεῖσθαι πρὸς τὸν ἥλιον τὰ σύνεγγυς, ἐὰν μή τι διαφορὰν
to-lie toward the sun the near-places if not some difference
ἔχωσιν ἴδιον· οὐ μὴν ἀλλ' ἐνίοτε κατὰ τοδὶ μὲν τὸ μέρος
they-have peculiar not indeed but sometimes in this indeed the part
ἡ ξηρὰ ἀναθυμίασις ἐγένετο πλείων, κατὰ δὲ τὸ ἄλλο
the dry exhalation came-about more in but the other
ἡ ἀτμιδώδης, ὁτὲ δὲ τοὐναντίον. Καὶ αὐτοῦ δὲ τούτου
the vaporous at-times and the-opposite Also of-very and this
αἴτιον τὸ ἑκατέραν μεταπίπτειν εἰς τὴν τῆς ἐχομένης
cause the each to-pass into the of-the adjoining

χώρας ἀναθυμίασιν, οἷον ἡ μὲν ξηρὰ κατὰ τὴν οἰκείαν
region exhalation as the(-one) indeed dry in the own
ῥεῖ χώραν, ἡ δ' ὑγρὰ πρὸς τὴν γειτνιῶσαν, ἢ καὶ
flows region the(-other) and moist toward the neighboring or also
εἰς τῶν πόρρω τινὰ τόπον ἀπεώσθη ὑπὸ πνευμάτων·
into of-the far some place was-pushed-away by winds
ὁτὲ δ' αὕτη μὲν ἔμεινεν, ἡ δ' ἐναντία ταὐτὸν ἐποίησεν.
at-times and this indeed remained the and opposite the-same did
Καὶ συμβαίνει τοῦτο πολλάκις, ὥσπερ ἐπὶ τοῦ σώματος,
And happens this often just-as in-the-case-of the body
ἐὰν ἡ ἄνω κοιλία ξηρὰ ᾖ, τὴν κάτω ἐναντίως διακεῖσθαι, καὶ
if the upper belly dry be the lower oppositely to-be-disposed and
ταύτης ξηρᾶς οὔσης ὑγρὰν εἶναι τὴν ἄνω καὶ ψυχράν, οὕτω
this dry being moist to-be the upper and cold so
καὶ περὶ τοὺς τόπους ἀντιπεριίστασθαι καὶ μεταβάλλειν τὰς
also about the places to-replace-one-another and to-change the
ἀναθυμιάσεις. Ἔτι δὲ μετά τε τοὺς ὄμβρους ἄνεμος ὡς τὰ
exhalations Further and after both the showers wind as the
πολλὰ γίνεται ἐν ἐκείνοις τοῖς τόποις καθ' οὓς ἂν συμπέσῃ
many-cases comes-about in those the places in which — it-happen
γίνεσθαι τοὺς ὄμβρους, καὶ τὰ πνεύματα παύεται ὕδατος
to-come-about the showers and the winds cease water
γενομένου. Ταῦτα γὰρ ἀνάγκη συμβαίνειν διὰ τὰς
having-come-about These-things for necessity to-happen because-of the
εἰρημένας ἀρχάς· ὕσαντός τε γὰρ ἡ γῆ ξηραινομένη ὑπό
said principles having-rained both for the earth being-dried by
τε τοῦ ἐν αὐτῇ θερμοῦ καὶ ὑπὸ τοῦ ἄνωθεν ἀναθυμᾶται,
both the in it hot and by the from-above exhales
τοῦτο δ' ἦν ἀνέμου σῶμα. Καὶ ὅταν ἡ τοιαύτη ἀπόκρισις
this and was of-wind body And whenever the such secretion
ᾖ καὶ ἄνεμοι κατέχωσι, παυομένων διὰ τὸ ἀποκρίνεσθαι
be and winds prevail ceasing because-of the to-be-secreted

τὸ θερμὸν ἀεὶ καὶ ἀναφέρεσθαι εἰς τὸν ἄνω τόπον
the hot always and to-be-carried-up into the upper place
συνίσταται ἡ ἀτμὶς ψυχομένη καὶ γίνεται ὕδωρ· καὶ ὅταν
is-condensed the vapor being-cooled and becomes water and whenever
εἰς ταὐτὸν συνωσθῶσι τὰ νέφη καὶ ἀντιπεριστῇ εἰς αὐτὰ ἡ
into the-same be-pushed-together the clouds and be-concentrated into them the
ψύξις, ὕδωρ γίνεται καὶ καταψύχει τὴν ξηρὰν ἀναθυμίασιν.
cooling water becomes and cools the dry exhalation
Παύουσί τε οὖν τὰ ὕδατα γιγνόμενα τοὺς ἀνέμους, καὶ
They-stop both then the rains coming-about the winds and
παυομένων αὐτὰ γίνεται διὰ ταύτας τὰς αἰτίας. Ἔτι δὲ
ceasing they come-about because-of these the causes Further and
τοῦ γίνεσθαι μάλιστα πνεύματα ἀπ᾽ αὐτῆς τε τῆς ἄρκτου
of-the to-come-about most winds from itself both the north
καὶ μεσημβρίας τὸ αὐτὸ αἴτιον· πλεῖστοι γὰρ βορέαι καὶ
and south the same cause most for north-winds and
νότοι γίγνονται τῶν ἀνέμων· ὁ γὰρ ἥλιος τούτους μόνους
south-winds come-about of-the winds the for sun these only
οὐκ ἐπέρχεται τοὺς τόπους, ἀλλὰ πρὸς τούτους καὶ ἀπὸ
not goes-over the places but toward these and from
τούτων, ἐπὶ δυσμὰς δὲ καὶ ἐπ᾽ ἀνατολὰς ἀεὶ φέρεται·
these toward setting and and toward rising always is-carried
διὸ τὰ νέφη συνίσταται ἐν τοῖς πλαγίοις, καὶ γίνεται
wherefore the clouds are-formed in the sides and comes-about
προσιόντος μὲν ἡ ἀναθυμίασις τοῦ ὑγροῦ, ἀπιόντος δὲ πρὸς
approaching indeed the exhalation of-the moisture going-away and toward
τὸν ἐναντίον τόπον ὕδατα καὶ χειμῶνες. Διὰ μὲν οὖν τὴν
the opposite place rains and storms Because-of indeed then the
φορὰν τὴν ἐπὶ τροπὰς καὶ ἀπὸ τροπῶν θέρος τε γίνεται
movement the toward solstices and from solstices summer both comes-about
καὶ χειμών, καὶ ἀνάγεταί τε ἄνω τὸ ὕδωρ καὶ γίνεται
and winter and is-raised both up the water and comes-about

πάλιν. Ἐπεὶ δὲ πλεῖστον μὲν καταβαίνει ὕδωρ ἐν τούτοις
again Since and most indeed descends water in these
τοῖς τόποις ἐφ' οὓς τρέπεται καὶ ἀφ' ὧν, οὗτοι δ' εἰσὶν
the places toward which it-turns and from which these and are
ὅ τε πρὸς ἄρκτον καὶ μεσημβρίαν, ὅπου δὲ πλεῖστον ὕδωρ
the both toward north and south where and most water
ἡ γῆ δέχεται, ἐνταῦθα πλείστην ἀναγκαῖον γίνεσθαι τὴν
the earth receives there most necessary to-come-about the
ἀναθυμίασιν παραπλησίως οἷον ἐκ χλωρῶν ξύλων καπνόν, ἡ
exhalation similarly as from green wood smoke the
δ' ἀναθυμίασις αὕτη ἄνεμός ἐστιν, εὐλόγως ἂν οὖν ἐντεῦθεν
and exhalation this wind is reasonably — then from-there
γίγνοιτο τὰ πλεῖστα καὶ κυριώτατα τῶν πνευμάτων.
would-come-about the most and most-sovereign of-the winds
Καλοῦνται δ' οἱ μὲν ἀπὸ τῆς ἄρκτου βορέαι,
Are-called and the(-ones) indeed from the north north-winds
οἱ δ' ἀπὸ τῆς μεσημβρίας νότοι. Ἡ δὲ φορὰ
the(-others) and from the south south-winds The and movement
λοξὴ αὐτῶν ἐστίν· περὶ γὰρ τὴν γῆν πνέουσιν εἰς ὀρθὸν
oblique of-them is about for the earth they-blow into straight
γινομένης τῆς ἀναθυμιάσεως, ὅτι πᾶς ὁ κύκλῳ ἀὴρ
coming-about of-the exhalation because all the in-a-circle air
συνέπεται τῇ φορᾷ. Διὸ καὶ ἀπορήσειεν ἄν τις
follows the movement Wherefore also would-be-at-a-loss — anyone
ποτέρωθεν ἡ ἀρχὴ τῶν πνευμάτων ἐστί, πότερον ἄνωθεν
from-which-side the beginning of-the winds is whether from-above
ἢ κάτωθεν· ἡ μὲν γὰρ κίνησις ἄνωθεν καὶ πρὶν πνεῖν, ὁ
or from-below the indeed for motion from-above and before to-blow the
δ' ἀὴρ ἐπίδηλος, κἂν ᾖ νέφος ἢ ἀχλύς· σημαίνει γὰρ
and air manifest even-if there-be cloud or mist it-signifies for
κινουμένην πνεύματος ἀρχὴν πρὶν φανερῶς ἐληλυθέναι τὸν
moving of-wind beginning before visibly to-have-come the

ἄνεμον, ὡς ἄνωθεν αὐτῶν ἐχόντων τὴν ἀρχήν. Ἐπεὶ δ'
wind as from-above them having the beginning Since and
ἐστὶν ἄνεμος πλῆθός τι τῆς ἐκ γῆς ξηρᾶς ἀναθυμιάσεως
is wind amount some of-the from earth dry exhalation
κινούμενον περὶ τὴν γῆν, δῆλον ὅτι τῆς μὲν κινήσεως ἡ
moving about the earth clear that of-the indeed motion the
ἀρχὴ ἄνωθεν, τῆς δ' ὕλης καὶ τῆς γενέσεως κάτωθεν·
beginning from-above of-the and matter and of-the generation from-below
ᾗ μὲν γὰρ ῥευσεῖται τὸ ἀνιόν, ἐκεῖθεν τὸ αἴτιον· ἡ γὰρ
where indeed for will-flow the rising from-there the cause the for
φορὰ τῶν πορρωτέρω κυρία τῆς γῆς· καὶ ἅμα κάτωθεν
movement of-the farther sovereign of-the earth and at-once from-below
μὲν εἰς ὀρθὸν ἀναφέρεται, καὶ πᾶν ἰσχύει μᾶλλον ἐγγύς,
indeed into straight is-carried-up and all is-strong more near
ἡ δὲ τῆς γενέσεως ἀρχὴ δῆλον ὡς ἐκ τῆς γῆς ἐστίν.
the and of-the generation beginning clear that from the earth is
Ὅτι δ' ἐκ πολλῶν ἀναθυμιάσεων συνιουσῶν κατὰ μικρόν,
That and from many exhalations coming-together by little
ὥσπερ αἱ τῶν ποταμῶν ἀρχαὶ γίγνονται νοτιζούσης τῆς
just-as the of-the rivers sources come-about moistening the
γῆς, δῆλον καὶ ἐπὶ τῶν ἔργων· ὅθεν γὰρ ἑκάστοτε
earth clear also in-the-case-of the works whence for each-time
πνέουσιν, ἐλάχιστοι πάντες εἰσί, προϊόντες δὲ καὶ πόρρω
they-blow least all are going-forward and also far
λαμπροὶ πνέουσιν. Ἔτι δὲ καὶ τὰ περὶ τὴν ἄρκτον ἐν
strong they-blow Further and also the about the north in
τῷ χειμῶνι νήνεμα καὶ ἄπνοα, κατ' αὐτὸν ἐκεῖνον τὸν
the winter windless and calm in itself that the
τόπον· ἀλλὰ τὸ κατὰ μικρὸν ἀποπνέον καὶ λανθάνον
place but the by little blowing-off and escaping-notice
ἔξω προϊὸν ἤδη πνεῦμα γίνεται λαμπρόν. Τίς μὲν
outside going-forward already wind becomes strong What indeed

οὖν ἐστὶν ἡ τοῦ ἀνέμου φύσις καὶ πῶς γίνεται, ἔτι
then is the of-the wind nature and how it-comes-about further
δ' αὐχμῶν τε πέρι καὶ ἐπομβρίας, καὶ διὰ τίν' αἰτίαν
and droughts both about and rains and because-of what cause
καὶ παύονται καὶ γίγνονται μετὰ τοὺς ὄμβρους, διὰ
both they-cease and come-about after the showers because-of
τί τε βορέαι καὶ νότοι πλεῖστοι τῶν ἀνέμων εἰσίν,
what both north-winds and south-winds most of-the winds are
εἴρηται· πρὸς δὲ τούτοις καὶ περὶ τῆς φορᾶς αὐτῶν.
it-has-been-said besides and these also about the movement of-them

V · WHY WINDS ARE NORTHERLY OR SOUTHERLY

The sun both stops and stirs winds: calms come when cold quenches the exhalation or great heat withers it, and most often in the seasons between. The etesians blow after the summer solstice, by day and not by night, as the sun melts the northern snows; the weaker bird-winds follow the winter solstice. The inhabited earth is a band between the frozen and the scorched zones, longer than it is broad; our south wind blows from the hot zone, not from the other pole.

Ὁ δ' ἥλιος καὶ παύει καὶ συνεξορμᾷ τὰ πνεύματα· ἀσθενεῖς
The and sun both stops and joins-in-rousing the winds weak
μὲν γὰρ καὶ ὀλίγας οὔσας τὰς ἀναθυμιάσεις μαραίνει
indeed for and few being the exhalations it-withers
τῷ πλείονι θερμῷ τὸ ἐν τῇ ἀναθυμιάσει ἔλαττον ὄν, καὶ
by-the greater heat the in the exhalation less being and
διακρίνει. Ἔτι δ' αὐτὴν τὴν γῆν φθάνει ξηραίνων πρὶν
disperses Further and itself the earth it-anticipates drying before
γενέσθαι ἔκκρισιν ἀθρόαν, ὥσπερ εἰς πολὺ πῦρ ἐὰν ὀλίγον
to-come-about secretion massed just-as into much fire if little
ἐμπέσῃ ὑπέκκαυμα, φθάνει πολλάκις πρὶν καπνὸν ποιῆσαι
fall-in tinder it-anticipates often before smoke to-make

κατακαυθέν. Διὰ μὲν οὖν ταύτας τὰς αἰτίας καταπαύει
being-burnt-up Because-of indeed then these the causes it-stops
τε τὰ πνεύματα καὶ ἐξ ἀρχῆς γίνεσθαι κωλύει, τῇ
both the winds and from beginning to-come-about prevents by-the
μὲν μαράνσει καταπαύων, τῷ δὲ τάχει τῆς ξηρότητος
indeed withering stopping by-the and speed of-the dryness
γίνεσθαι κωλύων· διὸ περὶ Ὠρίωνος ἀνατολὴν μάλιστα
to-come-about preventing wherefore about Orion's rising most
γίνεται νηνεμία, καὶ μέχρι τῶν ἐτησίων καὶ προδρόμων.
comes-about calm and up-to the etesians and fore-runners
Ὅλως δὲ γίγνονται αἱ νηνεμίαι διὰ δύ' αἰτίας· ἢ
Wholly and come-about the calms because-of two causes either
γὰρ διὰ ψῦχος ἀποσβεννυμένης τῆς ἀναθυμιάσεως, οἷον
for because-of cold being-quenched the exhalation as
ὅταν γένηται πάγος ἰσχυρός, ἢ καταμαραινομένης ὑπὸ
whenever come-about frost strong or being-withered by
τοῦ πνίγους. Αἱ δὲ πλεῖσται καὶ ἐν ταῖς ἀνὰ μέσον ὥραις,
the stifling-heat The and most also in the in-the middle seasons
ἢ τῷ μήπω ἀναθυμιᾶσθαι, ἢ τῷ ἤδη ἐξεληλυθέναι
either by-the not-yet to-be-exhaled or by-the already to-have-gone-out
τὴν ἀναθυμίασιν καὶ ἄλλην μήπω ἐπιρρεῖν.
the exhalation and other not-yet to-flow-in
Ἄκριτος δὲ καὶ χαλεπὸς ὁ Ὠρίων εἶναι δοκεῖ, καὶ δύνων καὶ
Uncertain and also hard the Orion to-be seems both setting and
ἐπιτέλλων, διὰ τὸ ἐν μεταβολῇ ὥρας συμβαίνειν τὴν δύσιν
rising because-of the in change of-season to-happen the setting
καὶ τὴν ἀνατολήν, θέρους ἢ χειμῶνος, καὶ διὰ τὸ μέγεθος
and the rising of-summer or of-winter and because-of the magnitude
τοῦ ἄστρου ἡμερῶν γίνεταί τι πλῆθος· αἱ δὲ μεταβολαὶ
of-the constellation of-days comes-about some amount the and changes
πάντων ταραχώδεις διὰ τὴν ἀοριστίαν εἰσίν. Οἱ δ'
of-all turbulent because-of the indefiniteness are The and

ἐτησίαι πνέουσι μετὰ τροπὰς καὶ κυνὸς ἐπιτολήν, καὶ οὔτε
etesians blow after solstices and Dog's rising and neither
τηνικαῦτα ὅτε πλησιάζει μάλιστα ὁ ἥλιος, οὔτε ὅτε πόρρω·
then when approaches most the sun nor when far
καὶ τὰς μὲν ἡμέρας πνέουσι, τὰς δὲ νύκτας παύονται. Αἴτιον
and the indeed days they-blow the but nights they-cease Cause
δ' ὅτι πλησίον μὲν ὢν φθάνει ξηραίνων πρὶν γενέσθαι
and that near indeed being it-anticipates drying before to-come-about
τὴν ἀναθυμίασιν· ὅταν δ' ἀπέλθῃ μικρόν, σύμμετρος ἤδη
the exhalation whenever but it-go-away a-little proportionate already
γίνεται ἡ ἀναθυμίασις καὶ ἡ θερμότης, ὥστε τὰ πεπηγότα
becomes the exhalation and the heat so-that the frozen
ὕδατα τήκεσθαι, καὶ τῆς γῆς ξηραινομένης ὑπό τε τῆς οἰκείας
waters to-melt and the earth being-dried by both the own
θερμότητος καὶ ὑπὸ τῆς τοῦ ἡλίου οἷον τύφεσθαι καὶ
heat and by the of-the sun as-it-were to-smoke and
θυμιᾶσθαι. Τῆς δὲ νυκτὸς λωφῶσι διὰ τὸ τὰ πεπηγότα
to-steam By-the and night they-abate because-of the the frozen
τηκόμενα παύεσθαι διὰ τὴν ψυχρότητα τῶν νυκτῶν.
melting to-cease because-of the coldness of-the nights
Θυμιᾶται δ' οὔτε τὸ πεπηγὸς οὔτε τὸ μηθὲν ἔχον ξηρόν,
Steams and neither the frozen nor the nothing having dry
ἀλλ' ὅταν ἔχῃ τὸ ξηρὸν ὑγρότητα, τοῦτο θερμαινόμενον
but whenever have the dry moisture this being-heated
θυμιᾶται. Ἀποροῦσι δέ τινες διὰ τί βορέαι μὲν
steams Raise-difficulties and some because-of what north-winds indeed
γίνονται συνεχεῖς, οὓς καλοῦμεν ἐτησίας, μετὰ τὰς θερινὰς
come-about continuous which we-call etesians after the summer
τροπάς, νότοι δ' οὕτως οὐ γίνονται μετὰ τὰς χειμερινάς.
solstices south-winds but so not come-about after the winter
Ἔχει δ' οὐκ ἀλόγως· γίνονται μὲν γὰρ οἱ καλούμενοι
It-is and not unreasonably come-about indeed for the so-called

λευκόνοτοι τὴν ἀντικειμένην ὥραν, οὐχ οὕτως δὲ γίγνονται
white-south-winds the opposite season not so but come-about
συνεχεῖς, διὸ λανθάνοντες ποιοῦσιν ἐπιζητεῖν. Αἴτιον
continuous wherefore escaping-notice they-make to-inquire Cause
δ' ὅτι ὁ μὲν βορέας ἀπὸ τῶν ὑπὸ τὴν ἄρκτον πνεῖ
and that the indeed north-wind from the under the north blows
τόπων, οἳ πλήρεις ὕδατος καὶ χιόνος εἰσὶ πολλῆς, ὧν
places which full of-water and of-snow are much of-which
τηκομένων ὑπὸ τοῦ ἡλίου μετὰ τὰς θερινὰς τροπὰς μᾶλλον
melting by the sun after the summer solstices rather
ἢ ἐπ' αὐταῖς πνέουσιν οἱ ἐτησίαι· οὕτω γὰρ καὶ τὰ πνίγη
than at them blow the etesians thus for also the stifling-heats
γίνεται, οὐχ ὅταν μάλιστα πλησιάζῃ πρὸς ἄρκτον, ἀλλ' ὅταν
come-about not when most it-approaches toward north but when
πλείων μὲν ᾖ χρόνος θερμαίνοντι, ἔτι δ' ἐγγύς. Ὁμοίως δὲ
longer indeed be time to-it-heating still and near Likewise and
καὶ μετὰ τὰς χειμερινὰς τροπὰς πνέουσιν οἱ ὀρνιθίαι· καὶ
also after the winter solstices blow the bird-winds also
γὰρ οὗτοι ἐτησίαι εἰσὶν ἀσθενεῖς· ἐλάττους δὲ καὶ ὀψιαίτεροι
for these etesians are weak lesser and and later
τῶν ἐτησίων πνέουσιν· ἑβδομηκοστῇ γὰρ ἄρχονται πνεῖν
than-the etesians they-blow on-the-seventieth for they-begin to-blow
διὰ τὸ πόρρω ὄντα τὸν ἥλιον ἐνισχύειν ἧττον.
because-of the far being the sun to-prevail less
Οὐ συνεχεῖς δ' ὁμοίως πνέουσι, διότι τὰ μὲν
Not continuous and alike they-blow because the(-things) indeed
ἐπιπολῆς καὶ ἀσθενῆ τότε ἀποκρίνεται, τὰ δὲ μᾶλλον
on-the-surface and weak then are-secreted the(-things) and more
πεπηγότα πλείονος δεῖται θερμότητος. Διὸ διαλείποντες
frozen more need heat Wherefore intermittently
οὗτοι πνέουσιν, ἕως ἂν ἐπὶ τροπαῖς πάλιν ταῖς θεριναῖς
these blow until — at solstices again the summer

πνέωσιν οἱ ἐτησίαι, ἐπεὶ θέλει γ' ὅτι μάλιστα συνεχῶς
blow the etesians since tends at-least as most continually
ἐντεῦθεν ἀεὶ πνεῖν ἄνεμος. Ὁ δὲ νότος ἀπὸ τῆς
from-there always to-blow wind The and south-wind from the
θερινῆς τροπῆς πνεῖ, καὶ οὐκ ἀπὸ τῆς ἑτέρας ἄρκτου.
summer tropic blows and not from the other north
Δύο γὰρ ὄντων τμημάτων τῆς δυνατῆς οἰκεῖσθαι χώρας,
Two for being segments of-the possible to-be-inhabited region
τῆς μὲν πρὸς τὸν ἄνω πόλον τὸν καθ' ἡμᾶς, τῆς
the(-one) indeed toward the upper pole the by us the(-other)
δὲ πρὸς τὸν ἕτερον καὶ πρὸς μεσημβρίαν, καὶ οὔσης οἷον
and toward the other and toward south and being as
τυμπάνου· τοιοῦτον γὰρ σχῆμα τῆς γῆς ἐκτέμνουσιν αἱ
drum such for shape of-the earth cut-out the
ἐκ τοῦ κέντρου αὐτῆς ἀγόμεναι γραμμαί, καὶ ποιοῦσι δύο
from the center of-it drawn lines and make two
κώνους, τὸν μὲν ἔχοντα βάσιν τὸν τροπικόν, τὸν
cones the(-one) indeed having base the tropic the(-other)
δὲ τὸν διὰ παντὸς φανερόν, τὴν δὲ κορυφὴν ἐπὶ τοῦ
and the through all visible the and vertex at the
μέσου τῆς γῆς· τὸν αὐτὸν δὲ τρόπον πρὸς τὸν κάτω
middle of-the earth the same and way toward the lower
πόλον ἕτεροι δύο κῶνοι τῆς γῆς ἐκτμήματα ποιοῦσιν.
pole other two cones of-the earth segments make
Ταῦτα δ' οἰκεῖσθαι μόνα δυνατά, καὶ οὔτ' ἐπέκεινα τῶν
These and to-be-inhabited only possible and neither beyond the
τροπῶν· σκιὰ γὰρ οὐκ ἂν ἦν πρὸς ἄρκτον, νῦν δ'
tropics shadow for not — would-be toward north now but
ἀοίκητοι πρότερον γίγνονται οἱ τόποι πρὶν ἢ ὑπολείπειν ἢ
uninhabitable earlier become the places before — to-fail or
μεταβάλλειν τὴν σκιὰν πρὸς μεσημβρίαν· τά θ' ὑπὸ τὴν
to-change the shadow toward south the(-things) and under the

ἄρκτον ὑπὸ ψύχους ἀοίκητα. Φέρεται δὲ καὶ ὁ στέφανος
north by cold uninhabitable Is-carried and also the Crown
κατὰ τοῦτον τὸν τόπον· φαίνεται γὰρ ὑπὲρ κεφαλῆς
along this the place it-appears for above head
γινόμενος ἡμῖν, ὅταν ᾖ κατὰ τὸν μεσημβρινόν. Διὸ
becoming to-us whenever it-be on the meridian Wherefore
καὶ γελοίως γράφουσι νῦν τὰς περιόδους τῆς γῆς· γράφουσι
also ridiculously they-draw now the maps of-the earth they-draw
γὰρ κυκλοτερῆ τὴν οἰκουμένην, τοῦτο δ' ἐστὶν ἀδύνατον
for circular the inhabited this and is impossible
κατά τε τὰ φαινόμενα καὶ κατὰ τὸν λόγον. Ὅ τε γὰρ
according-to both the appearances and according-to the reason The both for
λόγος δείκνυσιν ὅτι ἐπὶ πλάτος μὲν ὥρισται, τὸ δὲ κύκλῳ
reason shows that in breadth indeed it-is-bounded the and in-a-circle
συνάπτειν ἐνδέχεται διὰ τὴν κρᾶσιν (οὐ γὰρ ὑπερβάλλει
to-join is-possible because-of the temperature not for exceed
τὰ καύματα καὶ τὸ ψῦχος κατὰ μῆκος, ἀλλ' ἐπὶ πλάτος,
the heats and the cold in length but in breadth
ὥστ' εἰ μή που κωλύει θαλάττης πλῆθος, ἅπαν εἶναι
so-that if not somewhere prevents of-sea amount all to-be
πορεύσιμον) καὶ κατὰ τὰ φαινόμενα περί τε τοὺς πλοῦς
traversable and according-to the appearances about both the voyages
καὶ τὰς πορείας· πολὺ γὰρ τὸ μῆκος διαφέρει τοῦ πλάτους.
and the journeys much for the length differs from-the breadth
Τὸ γὰρ ἀπὸ Ἡρακλείων στηλῶν μέχρι τῆς Ἰνδικῆς τοῦ
The for from of-Heracles Pillars up-to the India to-the
ἐξ Αἰθιοπίας πρὸς τὴν Μαιῶτιν καὶ τοὺς ἐσχατεύοντας
from Ethiopia toward the Maeotis and the farthest
τῆς Σκυθίας τόπους πλέον ἢ πέντε πρὸς τρία τὸ μέγεθός
of-the Scythia places more than five to three the magnitude
ἐστιν, ἐάν τις τούς τε πλοῦς λογίζηται καὶ τὰς ὁδούς, ὡς
is if anyone the both voyages reckon and the roads as

ἐνδέχεται λαμβάνειν τῶν τοιούτων τὰς ἀκριβείας. Καίτοι
it-is-possible to-take of-the such-things the exactnesses And-yet
ἐπὶ πλάτους μὲν μέχρι τῶν ἀοικήτων ἴσμεν τὴν οἰκουμένην·
in breadth indeed up-to the uninhabited we-know the inhabited
ἔνθα μὲν γὰρ διὰ ψῦχος οὐκέτι κατοικοῦσιν, ἔνθα δὲ
where indeed for because-of cold no-longer they-dwell where and
διὰ τὴν ἀλέαν. Τὰ δὲ τῆς Ἰνδικῆς ἔξω καὶ τῶν στηλῶν
because-of the heat The and of-the India outside and of-the Pillars
τῶν Ἡρακλείων διὰ τὴν θάλατταν οὐ φαίνεται συνείρειν,
the of-Heracles because-of the sea not appears to-join
τῷ συνεχῶς εἶναι πᾶσαν οἰκουμένην. Ἐπεὶ δ' ὁμοίως ἔχειν
to-the continuously to-be all inhabited Since and alike to-be
ἀνάγκη τόπον τινὰ πρὸς τὸν ἕτερον πόλον ὥσπερ ὃν ἡμεῖς
necessity place some toward the other pole just-as which we
οἰκοῦμεν πρὸς τὸν ὑπὲρ ἡμῶν, δῆλον ὡς ἀνάλογον ἕξει
inhabit toward the above us clear that analogous it-will-have
τά τ' ἄλλα καὶ τῶν πνευμάτων ἡ στάσις· ὥστε καθάπερ
the both other-things and of-the winds the position so-that just-as
ἐνταῦθα βορέας ἐστί, κἀκείνοις ἀπὸ τῆς ἐκεῖ ἄρκτου τις
here north-wind is to-those-too from the there north some
ἄνεμος οὕτως ὤν, ὃν οὐθὲν δυνατὸν διήκειν δεῦρο, ἐπεὶ
wind thus being which nothing possible to-reach hither since
οὐδ' ὁ βορέας οὗτος εἰς τὴν ἐνταῦθα οἰκουμένην πᾶσάν
not-even the north-wind this into the here inhabited all
ἐστιν· ἔστι γὰρ ὥσπερ ἀπόγειον τὸ πνεῦμα τὸ βόρειον,
is it-is for just-as land-breeze the wind the north
ἕως ὁ βορέας οὗτος εἰς τὴν ἐνταῦθα οἰκουμένην πνεῖ.
until the north-wind this into the here inhabited blows
Ἀλλὰ διὰ τὸ τὴν οἴκησιν κεῖσθαι ταύτην πρὸς ἄρκτον,
But because-of the the habitation to-lie this toward north
πλεῖστοι βορέαι πνέουσιν. Ὅμως δὲ καὶ ἐνταῦθα ἐλλείπει
most north-winds blow Nevertheless and also here it-fails

καὶ οὐ δύναται πόρρω διήκειν, ἐπεὶ περὶ τὴν ἔξω Λιβύης
and not is-able far to-reach since about the outside of-Libya
θάλατταν τὴν νοτίαν, ὥσπερ ἐνταῦθα οἱ βορέαι καὶ
sea the southern just-as here the north-winds and
οἱ νότοι πνέουσιν, οὕτως ἐκεῖ εὖροι καὶ ζέφυροι
the south-winds blow so there east-winds and west-winds
διαδεχόμενοι συνεχεῖς ἀεὶ πνέουσιν. Ὅτι μὲν οὖν νότος
succeeding continuous always blow That indeed then south-wind
οὐκ ἔστιν ὁ ἀπὸ τοῦ ἑτέρου πόλου πνέων ἄνεμος, δῆλον.
not is the from the other pole blowing wind clear
Ἐπεὶ δ' οὔτ' ἐκεῖνος οὔθ' ὁ ἀπὸ χειμερινῆς τροπῆς·
Since and neither that nor the from winter tropic
δέοι γὰρ ἂν ἄλλον ἀπὸ θερινῆς εἶναι τροπῆς· οὕτω
it-would-be-necessary for — other from summer to-be tropic so
γὰρ τὸ ἀνάλογον ἀποδώσει. Νῦν δ' οὐκ ἔστιν· εἷς γὰρ
for the analogy it-will-render Now but not there-is one for
μόνος φαίνεται πνέων ἐκ τῶν ἐκεῖθεν τόπων. Ὥστ' ἀνάγκη
alone appears blowing from the from-there places So-that necessity
τὸν ἀπὸ τοῦ κατακεκαυμένου τόπου πνέοντα ἄνεμον εἶναι
the from the burnt-up place blowing wind to-be
νότον. Ἐκεῖνος δ' ὁ τόπος διὰ τὴν τοῦ ἡλίου γειτνίασιν
south-wind That and the place because-of the of-the sun proximity
οὐκ ἔχει ὕδατα καὶ νομάς, αἳ διὰ τὴν πῆξιν ποιήσουσιν
not has waters and pastures which because-of the freezing will-make
ἐτησίας. Ἀλλὰ διὰ τὸ τὸν τόπον εἶναι πολὺ πλείω
etesians But because-of the the place to-be much greater
ἐκεῖνον καὶ ἀναπεπταμένον, μείζων καὶ πλείων καὶ μᾶλλον
that and spread-out greater and more and more
ἀλεεινὸς ἄνεμος ὁ νότος ἐστὶ τοῦ βορέου, καὶ διήκει
warm wind the south-wind is than-the north-wind and reaches

μᾶλλον δεῦρο ἢ οὗτος ἐκεῖ. Τίς μὲν οὖν αἰτία τούτων
more hither than this there What indeed then cause of-these
ἐστὶ τῶν ἀνέμων, καὶ πῶς ἔχουσι πρὸς ἀλλήλους, εἴρηται.
is of-the winds and how they-are toward one-another it-has-been-said

VI · THE PLACES OF THE WINDS

Winds are set on the circle of the horizon, and those at the ends of a diameter are opposites: aparktias against notos, zephyros against apēliōtēs, kaikias against lips, and euros against argestēs. Thraskias and mesēs have no opposite. Opposite winds cannot blow together, and each blows most in its own season. More winds come from the north, where the inhabited world lies; some bring clear skies, others cloud, rain, snow, or hail, and kaikias draws cloud to itself, as the proverb says. Winds give way to their neighbors in the sun's direction.

Περὶ δὲ θέσεως αὐτῶν, καὶ τίνες ἐναντίοι τίσι, καὶ
About and position of-them and which opposite to-which and
ποίους ἅμα πνεῖν ἐνδέχεται καὶ ποίους οὔ, ἔτι δὲ
which-ones at-once to-blow it-is-possible and which-ones not further and
τίνες καὶ πόσοι τυγχάνουσιν ὄντες, καὶ πρὸς τούτοις
which and how-many happen being and besides these
περὶ τῶν ἄλλων παθημάτων ὅσα μὴ συμβέβηκεν
about the other affections as-many-as not it-has-happened
ἐν τοῖς προβλήμασιν εἰρῆσθαι τοῖς κατὰ μέρος, νῦν
in the problems to-have-been-told the in part now
λέγωμεν. Δεῖ δὲ περὶ τῆς θέσεως ἅμα τοὺς λόγους
let-us-speak One-must and about the position at-once the arguments
ἐκ τῆς ὑπογραφῆς θεωρεῖν. Γέγραπται μὲν οὖν, τοῦ
from the diagram to-view Has-been-drawn indeed then for-the
μᾶλλον εὐσήμως ἔχειν, ὁ τοῦ ὁρίζοντος κύκλος· διὸ καὶ
more clearly to-be the of-the horizon circle wherefore also

στρογγύλος. Δεῖ δὲ νοεῖν αὐτοῦ τὸ ἕτερον ἔκτμημα τὸ
round One-must and to-conceive of-it the one segment the
ὑφ᾽ ἡμῶν οἰκούμενον· ἔσται γὰρ κἀκεῖνο διελεῖν τὸν αὐτὸν
by us inhabited it-will-be for that-too to-divide the same
τρόπον. Ὑποκείσθω δὲ πρῶτον ἐναντία κατὰ τόπον εἶναι
way Let-it-be-laid-down and first opposite in place to-be
τὰ πλεῖστον ἀπέχοντα κατὰ τόπον, ὥσπερ κατ᾽ εἶδος
the farthest distant in place just-as in form
ἐναντία τὰ πλεῖστον ἀπέχοντα κατὰ τὸ εἶδος. Πλεῖστον
opposite the farthest distant in the form Farthest
δ᾽ ἀπέχει κατὰ τόπον τὰ κείμενα πρὸς ἄλληλα κατὰ
and are-distant in place the lying to one-another along
διάμετρον. Ἔστω οὖν τὸ μὲν ἐφ᾽ ᾧ Α δυσμὴ ἰσημερινή,
diameter Let-be then the indeed at which A setting equinoctial
ἐναντίος δὲ τούτῳ τόπος, ἐφ᾽ οὗ τὸ Β, ἀνατολὴ ἰσημερινή.
opposite and to-this place at which the B rising equinoctial
Ἄλλη δὲ διάμετρος ταύτην πρὸς ὀρθὴν τέμνουσα, ἧς τὸ
Other and diameter this at right cutting of-which the
ἐφ᾽ οὗ Η, ἔστω ἄρκτος· τούτῳ δ᾽ ἐναντίον ἐξ ἐναντίας,
at which G let-be north to-this and opposite from opposite-side
τὸ ἐφ᾽ οὗ Θ, μεσημβρία· τὸ δ᾽ ἐφ᾽ οὗ Ζ ἀνατολὴ θερινή,
the at which H south the and at which F rising summer
τὸ δ᾽ ἐφ᾽ οὗ Ε δυσμὴ θερινή, τὸ δ᾽ ἐφ᾽ οὗ Δ ἀνατολὴ
the and at which E setting summer the and at which D rising
χειμερινή, τὸ δ᾽ ἐφ᾽ οὗ Γ δυσμὴ χειμερινή. Ἀπὸ δὲ τοῦ Ζ
winter the and at which C setting winter From and the F
ἤχθω διάμετρος ἐπὶ τὸ Γ καὶ ἀπὸ τοῦ Δ ἐπὶ τὸ Ε. Ἐπεὶ
let-be-drawn diameter to the C and from the D to the E Since
οὖν τὰ μὲν πλεῖστον ἀπέχοντα κατὰ τόπον ἐναντία κατὰ
then the indeed farthest distant in place opposite in
τόπον, πλεῖστον δ᾽ ἀπέχει τὰ κατὰ διάμετρον, ἀναγκαῖον
place farthest and are-distant the along diameter necessary

καὶ τῶν πνευμάτων ταῦτα ἀλλήλοις ἐναντία εἶναι, ὅσα
also of-the winds these to-one-another opposite to-be as-many-as
κατὰ διάμετρόν ἐστιν. Καλεῖται δὲ κατὰ τὴν θέσιν τῶν
along diameter are Are-called and according-to the position of-the
τόπων τὰ πνεύματα ὧδε, ζέφυρος μὲν τὸ ἀπὸ τοῦ Α·
places the winds thus zephyros indeed the from the A
τοῦτο γὰρ δυσμὴ ἰσημερινή. Ἐναντίος δὲ τούτῳ ἀπηλιώτης
this for setting equinoctial Opposite and to-this apēliōtēs
ἀπὸ τοῦ Β· τοῦτο γὰρ ἀνατολὴ ἰσημερινή. Βορέας δὲ
from the B this for rising equinoctial Boreas and
καὶ ἀπαρκτίας ἀπὸ τοῦ Η· ἐνταῦθα γὰρ ἡ ἄρκτος.
also aparktias from the G here for the north
Ἐναντίος δὲ τούτῳ νότος ἀπὸ τοῦ Θ· μεσημβρία τε
Opposite and to-this notos from the H south both
γὰρ αὕτη ἀφ᾽ ἧς πνεῖ, καὶ τὸ Θ τῷ Η ἐναντίον· κατὰ
for this from which it-blows and the H to-the G opposite along
διάμετρον γάρ. Ἀπὸ δὲ τοῦ Ζ καικίας· αὕτη γὰρ ἀνατολὴ
diameter for From and the F kaikias this for rising
θερινή. Ἐναντίος δ᾽ οὐχ ὁ ἀπὸ τοῦ Ε πνέων, ἀλλ᾽ ὁ ἀπὸ
summer Opposite and not the from the E blowing but the from
τοῦ Γ λίψ· οὗτος γὰρ ἀπὸ δυσμῆς χειμερινῆς πνεῖ, ἐναντίος
the C lips this for from setting winter blows opposite
δὲ τούτῳ· κατὰ διάμετρον γὰρ κεῖται. Ὁ δὲ ἀπὸ τοῦ Δ
and to-this along diameter for it-lies The and from the D
εὖρος· οὗτος γὰρ ἀπ᾽ ἀνατολῆς χειμερινῆς πνεῖ, γειτνιῶν
euros this for from rising winter blows neighboring
τῷ νότῳ, διὸ καὶ πολλάκις εὐρόνοτοι λέγονται πνεῖν.
to-the notos wherefore also often euronotoi are-said to-blow
Ἐναντίος δὲ τούτῳ οὐχ ὁ ἀπὸ τοῦ Γ λίψ, ἀλλ᾽ ὁ ἀπὸ τοῦ
Opposite and to-this not the from the C lips but the from the
Ε, ὃν καλοῦσιν οἱ μὲν ἀργέστην, οἱ δ᾽ ὀλυμπίαν,
E which call the(-ones) indeed argestēs the(-others) and olympias

οἱ δὲ σκίρωνα· οὗτος γὰρ ἀπὸ δυσμῆς θερινῆς πνεῖ,
the(-others) and skirōn this for from setting summer blows
καὶ κατὰ διάμετρον αὐτῷ κεῖται μόνος. Οὗτοι μὲν οὖν οἱ
and along diameter to-it lies alone These indeed then the
κατὰ διάμετρόν τε κείμενοι ἄνεμοι, καὶ οἷς εἰσὶν ἐναντίοι·
along diameter both lying winds and to-which are opposite
ἕτεροι δ' εἰσὶ καθ' οὓς οὐκ ἔστιν ἐναντία πνεύματα.
others and are along which not there-are opposite winds
Ἀπὸ μὲν γὰρ τοῦ Ι ὃν καλοῦσι θρασκίαν· οὗτος γὰρ
From indeed for the I which they-call thraskias this for
μέσος ἀργέστου καὶ ἀπαρκτίου· ἀπὸ δὲ τοῦ Κ ὃν καλοῦσι
between argestēs and aparktias from and the K which they-call
μέσην· οὗτος γὰρ μέσος καικίου καὶ ἀπαρκτίου. Ἡ δὲ
mesēs this for between kaikias and aparktias The and
τοῦ ΙΚ διάμετρος βούλεται μὲν κατὰ τὸν διὰ παντὸς
of-the IK diameter tends indeed along the through all
εἶναι φαινόμενον, οὐκ ἀκριβοῖ δέ. Ἐναντία δὲ τούτοις οὐκ
to-be visible not is-exact but Opposite and to-these not
ἔστι τοῖς πνεύμασιν, οὔτε τῷ θρασκίᾳ, οὔτε τῷ μέσῃ
are to-the winds neither to-the thraskias nor to-the mesēs
(ἔπνει γὰρ ἄν τις ἐφ' οὗ τὸ Μ· τοῦτο γὰρ κατὰ
it-would-blow for — some at which the M this for along
διάμετρον), οὔτε τῷ Ι, τῷ θρασκίᾳ· ἔπνει γὰρ ἂν ἀπὸ
diameter nor to-the I the thraskias it-would-blow for — from
τοῦ Ν· τοῦτο γὰρ κατὰ διάμετρον τὸ σημεῖον, εἰ μὴ ἀπ'
the N this for along diameter the point if not from
αὐτοῦ καὶ ἐπ' ὀλίγον πνεῖ τις ἄνεμος, ὃν καλοῦσιν οἱ
itself and for little blows some wind which call the
περὶ τὸν τόπον ἐκεῖνον φοινικίαν. Τὰ μὲν οὖν κυριώτατα
about the place that phoinikias The indeed then most-sovereign
καὶ διωρισμένα πνεύματα ταῦτ' ἐστὶ καὶ τοῦτον τέτακται
and defined winds these are and this are-arranged

τὸν τρόπον· τοῦ δ' εἶναι πλείους ἀνέμους ἀπὸ τῶν πρὸς
the way of-the and to-be more winds from the toward
ἄρκτον τόπων ἢ τῶν πρὸς μεσημβρίαν αἴτιον τό τε
north places than of-the toward south cause the both
τὴν οἰκουμένην ὑποκεῖσθαι πρὸς τοῦτον τὸν τόπον, καὶ
the inhabited to-lie-under toward this the place and
ὅτι πολλῷ πλεῖον ὕδωρ καὶ χιὼν ἀπωθεῖται εἰς τοῦτο τὸ
that much more water and snow is-pushed into this the
μέρος διὰ τὸ ἐκεῖ' ὑπὸ τὸν ἥλιον εἶναι καὶ τὴν ἐκείνου
part because-of the that under the sun to-be and the of-that
φοράν, ὧν τηκομένων εἰς τὴν γῆν καὶ θερμαινομένων ὑπὸ
movement which melting into the earth and being-heated by
τοῦ ἡλίου καὶ τῆς γῆς ἀναγκαῖον πλείω καὶ ἐπὶ πλείω
the sun and the earth necessary more and over more
τόπον γίγνεσθαι τὴν ἀναθυμίασιν διὰ ταύτην τὴν αἰτίαν.
place to-come-about the exhalation because-of this the cause
Ἔστι δὲ τῶν εἰρημένων πνευμάτων βορέας μὲν ὅ τ'
Is and of-the said winds boreas indeed the both
ἀπαρκτίας κυριώτατα, καὶ θρασκίας κοινὸς ἀργέστου καὶ
aparktias most-properly and thraskias common of-argestēs and
μέσου· ὁ δὲ καικίας κοινὸς ἀπηλιώτου καὶ βορέου· νότος
of-mesēs the and kaikias common of-apēliōtēs and of-boreas notos
δ' ὅ τε ἰθαγενὴς ὁ ἀπὸ μεσημβρίας καὶ λίψ· ἀπηλιώτης
and the both straight-blowing the from south and lips apēliōtēs
δὲ ὅ τε ἀπ' ἀνατολῆς ἰσημερινῆς καὶ ὁ εὖρος· ὁ δὲ
and the both from rising equinoctial and the euros the and
φοινικίας κοινός· ζέφυρος δ' ὅ τε ἰθαγενὴς καὶ ὁ
phoinikias common zephyros and the both straight-blowing and the
ἀργέστης καλούμενος. Ὅλως δὲ τὰ μὲν βόρεια τούτων
argestēs called Wholly and the(-ones) indeed northern of-these
καλεῖται, τὰ δὲ νότια. Προστίθεται δὲ τὰ μὲν ζεφυρικὰ
are-called the(-others) and southern Are-added and the indeed zephyrian

τῷ βορέᾳ (ψυχρότερα γὰρ διὰ τὸ ἀπὸ δυσμῶν πνεῖν),
to-the boreas colder for because-of the from settings to-blow
νότῳ δὲ τὰ ἀπηλιωτικά (θερμότερα γὰρ τῷ ἀπ᾽ ἀνατολῆς
to-notos and the apēliōtic hotter for by-the from rising
πνεῖν). Διωρισμένων οὖν τῷ ψυχρῷ καὶ τῷ θερμῷ καὶ
to-blow Being-distinguished then by-the cold and the hot and
ἀλεεινῷ τῶν πνευμάτων οὕτως ἐκάλεσαν. Θερμότερα δὲ
warm the winds thus they-named Hotter and
τὰ ἀπὸ τῆς ἕω τῶν ἀπὸ δυσμῆς, ὅτι πλείω χρόνον
the from the dawn than-the from setting because longer time
ὑπὸ τὸν ἥλιόν ἐστι τὰ ἀπ᾽ ἀνατολῆς· τὰ δ᾽ ἀπὸ δυσμῆς
under the sun are the from rising the and from setting
ἀπολείπει τε θᾶττον καὶ πλησιάζει τῷ τόπῳ ὀψιαίτερον.
leave both sooner and approach the place later
Οὕτω δὲ τεταγμένων τῶν ἀνέμων, δῆλον ὅτι ἅμα πνεῖν τοὺς
Thus and arranged the winds clear that at-once to-blow the
μὲν ἐναντίους οὐχ οἷόν τε (κατὰ διάμετρον γάρ· ἄτερος
indeed opposite not possible — along diameter for the-one
οὖν παύσεται ἀποβιασθείς), τοὺς δὲ μὴ οὕτω κειμένους
then will-stop being-overpowered the and not thus lying
πρὸς ἀλλήλους οὐθὲν κωλύει, οἷον τὸ Ζ καὶ Δ. Διὰ
toward one-another nothing prevents as the F and D Because-of
τοῦτο ἅμα πνέουσιν ἐνίοτε ἀμφότεροι οὔριοι, ἐπὶ τὸ αὐτὸ
this at-once blow sometimes both favorable to the same
σημεῖον, οὐκ ἐκ τοῦ αὐτοῦ οὐδὲ τῷ αὐτῷ πνεύματι. Κατὰ
point not from the same nor with-the same wind In
δὲ τὰς ὥρας τὰς ἐναντίας οἱ ἐναντίοι μάλιστα πνέουσιν,
and the seasons the opposite the opposite most blow
οἷον περὶ ἰσημερίαν τὴν μὲν ἐαρινὴν καικίας καὶ ὅλως τὰ
as about equinox the indeed vernal kaikias and wholly the
ἐπέκεινα τροπῆς θερινῆς, περὶ δὲ τὴν μετοπωρινὴν λίβες,
beyond tropic summer about and the autumnal libes

περὶ δὲ τροπὰς θερινὰς μὲν ζέφυρος, χειμερινὰς δ' εὖρος.
about and solstices summer indeed zephyros winter and euros
Ἐπιπίπτουσι δὲ τοῖς ἄλλοις μάλιστα καὶ παύουσιν ἀπαρκτίαι
Fall-upon and the others most and stop aparktiai
καὶ θρασκίαι καὶ ἀργέσται· διὰ τὸ ἐγγυτάτω γὰρ τὴν
and thraskiai and argestai because-of the nearest for the
ὁρμὴν αὐτῶν εἶναι πολλοί τε καὶ ἰσχυροὶ πνέουσι μάλιστα
onset of-them to-be many both and strong blow most
οὗτοι. Διὸ καὶ αἰθριώτατοί εἰσι τῶν ἀνέμων· πνέοντες γὰρ
these Wherefore also clearest are of-the winds blowing for
ἐγγύθεν μάλιστα ἀποβιαζόμενοί τε τἆλλα πνεύματα παύουσι,
from-near most overpowering both the-other winds they-stop
καὶ ἀποφυσῶντες τὰ συνιστάμενα νέφη ποιοῦσιν αἰθρίαν,
and blowing-away the forming clouds make clear-sky
ἂν μὴ ψυχροὶ σφόδρα τύχωσιν ἅμα ὄντες. Τότε δ' οὐκ
if not cold very they-happen at-once being Then and not
αἴθριοι· ἂν γὰρ ὦσι μᾶλλον ψυχροὶ ἢ μεγάλοι, φθάνουσι
clear if for they-be more cold than great they-anticipate
πηγνύντες ἢ προωθοῦντες. Ὁ δὲ καικίας οὐκ αἴθριος,
freezing than pushing-forward The and kaikias not clear
ὅτι ἀνακάμπτει εἰς αὑτόν· ὅθεν καὶ λέγεται ἡ παροιμία
because it-bends-back into itself whence also is-said the proverb

ἕλκων ἐφ' αὑτὸν ὥστε καικίας νέφος.
drawing to itself as kaikias cloud

Αἱ δὲ περιστάσεις γίνονται αὐτῶν καταπαυομένων εἰς
The and shiftings come-about of-them ceasing into
τοὺς ἐχομένους κατὰ τὴν τοῦ ἡλίου μετάστασιν, διὰ
the adjoining according-to the of-the sun change because-of
τὸ κινεῖσθαι μάλιστα τὸ ἐχόμενον τῆς ἀρχῆς. Ἡ δὲ
the to-be-moved most the adjoining the beginning The and

ἀρχὴ οὕτω κινεῖται τῶν πνευμάτων ὡς ὁ ἥλιος. Οἱ
beginning so is-moved of-the winds as the sun The
ἐναντίοι δ' ἢ ταὐτὸ ποιοῦσιν ἢ ἐναντίον, οἷον ὑγροὶ
opposite and either the-same do or opposite as moist
λὶψ καὶ καικίας, ὃν ἑλλησποντίαν ἔνιοι καλοῦσι, καὶ
lips and kaikias which hellespontias some call and
εὖρος, ὃν ἀπηλιώτην. Ξηροὶ δ' ἀργέστης καὶ εὖρος· ἀπ'
euros which apēliōtēs Dry and argestēs and euros at
ἀρχῆς δ' οὗτος ξηρός, τελευτῶν δὲ ὑδατώδης. Νιφετώδης
beginning and this dry ending and rainy Snowy
δὲ μέσης καὶ ἀπαρκτίας μάλιστα· οὗτοι γὰρ ψυχρότατοι.
and mesēs and aparktias most these for coldest
Χαλαζώδης δ' ἀπαρκτίας καὶ θρασκίας καὶ ἀργέστης.
Hail-bringing and aparktias and thraskias and argestēs
Καυματώδης δὲ νότος καὶ ζέφυρος καὶ εὖρος. Νέφεσι
Heat-bringing and notos and zephyros and euros With-clouds
δὲ πυκνοῦσι τὸν οὐρανὸν καικίας μὲν σφόδρα, λὶψ δ'
and thicken the heaven kaikias indeed very lips and
ἀραιοτέροις, καικίας μὲν διά τε τὸ ἀνακάμπτειν πρὸς
with-thinner kaikias indeed because-of both the to-bend-back toward
αὑτὸν καὶ διὰ τὸ κοινὸς εἶναι βορέου καὶ εὔρου, ὥστε
itself and because-of the common to-be of-boreas and of-euros so-that
διὰ μὲν τὸ ψυχρὸς εἶναι πηγνὺς τὸν ἀτμίζοντα ἀέρα
because-of indeed the cold to-be freezing the steaming air
συνίστησι, διὰ δὲ τὸ τῷ τόπῳ ἀπηλιωτικὸς εἶναι ἔχει
it-condenses because-of and the in-the place apēliōtic to-be it-has
πολλὴν ὕλην καὶ ἀτμίδα ἣν προωθεῖ.
much matter and vapor which it-pushes-forward
Αἴθριοι δὲ ἀπαρκτίας, θρασκίας, ἀργέστης· ἡ δ' αἰτία
Clear and aparktias thraskias argestēs the and cause
εἴρηται πρότερον. Ἀστραπαῖοι δὲ μάλιστα οὗτοί τε καὶ ὁ
has-been-told before Lightning-bringing and most these both and the

μέσης· διὰ μὲν γὰρ τὸ ἐγγύθεν πνεῖν ψυχροί εἰσι, διὰ
mesēs because-of indeed for the from-near to-blow cold they-are because-of
δὲ τὸ ψυχρὸν ἀστραπὴ γίνεται· ἐκκρίνεται γὰρ συνιόντων
and the cold lightning comes-about it-is-secreted for coming-together
τῶν νεφῶν. Διὸ καὶ ἔνιοι τῶν αὐτῶν τούτων χαλαζώδεις
the clouds Wherefore also some of-the same these hail-bringing
εἰσίν· ταχὺ γὰρ πηγνύουσιν. Ἐκνεφίαι δὲ γίνονται μετοπώρου
are quickly for they-freeze Hurricanes and come-about in-autumn
μὲν μάλιστα, εἶτ' ἔαρος, καὶ μάλιστα ἀπαρκτίας καὶ
indeed most then in-spring and most aparktias and
θρασκίας καὶ ἀργέστης. Αἴτιον δ' ὅτι οἱ ἐκνεφίαι γίνονται
thraskias and argestēs Cause and that the hurricanes come-about
μάλιστα ὅταν ἄλλων ἐκπνεόντων ἐμπίπτωσιν ἕτεροι, οὗτοι
most whenever others blowing fall-upon others these
δὲ μάλιστα ἐμπίπτουσι τοῖς ἄλλοις πνέουσιν· ἡ δ' αἰτία
and most fall-upon the others blowing the and cause
εἴρηται καὶ τούτου πρότερον. Οἱ δ' ἐτησίαι περιίστανται
has-been-told also of-this before The and etesians shift
τοῖς μὲν περὶ δυσμὰς οἰκοῦσιν ἐκ τῶν ἀπαρκτίων εἰς
for-those indeed about settings dwelling from the of-aparktiai into
θρασκίας καὶ ἀργέστας καὶ ζεφύρους (ὁ γὰρ ἀπαρκτίας
thraskiai and argestai and zephyroi the for aparktias
ζέφυρός ἐστιν), ἀρχόμενοι μὲν ἀπὸ τῆς ἄρκτου, τελευτῶντες
zephyros is beginning indeed from the north ending
δ' εἰς τοὺς πόρρω· τοῖς δὲ πρὸς ἕω περιίστανται μέχρι
and into the far for-those and toward dawn they-shift up-to
τοῦ ἀπηλιώτου. Περὶ μὲν οὖν ἀνέμων, τῆς τε ἐξ ἀρχῆς
the of-apēliōtēs About indeed then winds of-the both from beginning
αὐτῶν γενέσεως καὶ οὐσίας καὶ τῶν συμβαινόντων κοινῇ
of-them generation and substance and of-the happening in-common
τε παθημάτων καὶ περὶ ἕκαστον, τοσαῦθ' ἡμῖν εἰρήσθω.
both affections and about each so-much by-us let-it-have-been-said

Three accounts have come down. Anaxagoras says the aether, carried into the earth's hollows, shakes it; Democritus that the earth, full of water, quakes when more is added or when it dries; Anaximenes that it breaks as it dries and is drenched, and falls in on itself. Anaxagoras is too simple: the earth has no top and bottom, and he explains nothing of where and when earthquakes come. On Anaximenes' view the earth would be sunk in many places, some places would not shake more than others, and earthquakes would dwindle and stop.

Περὶ δὲ σεισμοῦ καὶ κινήσεως γῆς μετὰ ταῦτα λεκτέον·
About and earthquake and motion of-earth after these-things one-must-speak
ἡ γὰρ αἰτία τοῦ πάθους ἐχομένη τούτου τοῦ γένους ἐστίν.
the for cause of-the affection adjoining this the kind is
Ἔστι δὲ τά γε παρειλημμένα μέχρι τοῦ νῦν χρόνου τρία
There-are and the at-least received up-to the now time three
καὶ παρὰ τριῶν. Ἀναξαγόρας τε γὰρ ὁ Κλαζομένιος καὶ
and from three Anaxagoras both for the Clazomenian and
πρότερος Ἀναξιμένης ὁ Μιλήσιος ἀπεφήναντο, καὶ τούτων
earlier Anaximenes the Milesian declared and than-these
ὕστερος Δημόκριτος ὁ Ἀβδηρίτης. Ἀναξαγόρας μὲν οὖν
later Democritus the Abderite Anaxagoras indeed then
φησὶ τὸν αἰθέρα πεφυκότα φέρεσθαι ἄνω, ἐμπίπτοντα δ'
says the aether being-by-nature to-be-carried upward falling-in but
εἰς τὰ κάτω τῆς γῆς καὶ τὰ κοῖλα κινεῖν αὐτήν· τὰ μὲν
into the lower-parts of-the earth and the hollows to-move it the indeed
γὰρ ἄνω συναληλίφθαι διὰ τοὺς ὄμβρους, ἐπεὶ φύσει
for upper-parts to-have-been-clogged because-of the showers since by-nature
γε πᾶσαν ὁμοίως εἶναι σομφήν, ὡς ὄντος τοῦ μὲν ἄνω
at-least all alike to-be spongy as being the indeed upper
τοῦ δὲ κάτω τῆς ὅλης σφαίρας, καὶ ἄνω μὲν τούτου ὄντος
the and lower of-the whole sphere and upper indeed this being

τοῦ μορίου ἐφ' οὗ τυγχάνομεν οἰκοῦντες, κάτω δὲ θατέρου.
the part on which we-happen dwelling lower and the-other
Πρὸς μὲν οὖν ταύτην τὴν αἰτίαν οὐθὲν ἴσως δεῖ λέγειν
Against indeed then this the cause nothing perhaps one-must to-say
ὡς λίαν ἁπλῶς εἰρημένην· τό τε γὰρ ἄνω καὶ κάτω
as too simply said the both for upper and lower
νομίζειν οὕτως ἔχειν ὥστε μὴ πρὸς τὴν γῆν πάντῃ φέρεσθαι
to-consider so to-be so-that not toward the earth everywhere to-be-carried
τὰ βάρος ἔχοντα τῶν σωμάτων, ἄνω δὲ τὰ κοῦφα καὶ
the weight having of-the bodies upward and the light and
τὸ πῦρ, εὔηθες, καὶ ταῦθ' ὁρῶντας τὸν ὁρίζοντα τὴν
the fire simple-minded and these-things seeing the horizon the
οἰκουμένην, ὅσην ἡμεῖς ἴσμεν, ἕτερον ἀεὶ γιγνόμενον
inhabited as-much-as we know other always becoming
μεθισταμένων, ὡς οὔσης κυρτῆς καὶ σφαιροειδοῦς· καὶ τὸ
changing-our-place as being convex and spherical and the
λέγειν μὲν ὡς διὰ τὸ μέγεθος ἐπὶ τοῦ ἀέρος μένει,
to-say indeed that because-of the magnitude on the air it-stays
σείεσθαι δὲ φάσκειν τυπτομένην κάτωθεν ἄνω ὅλης.
to-be-shaken but to-claim struck from-below upward whole
Πρὸς δὲ τούτοις οὐθὲν ἀποδίδωσι τῶν συμβαινόντων περὶ
Besides and these nothing it-accounts-for of-the happening-things about
τοὺς σεισμούς· οὔτε γὰρ χῶραι οὔτε ὧραι αἱ τυχοῦσαι
the earthquakes neither for regions nor seasons the chance
μετέχουσι τούτου τοῦ πάθους. Δημόκριτος δέ φησι πλήρη τὴν
share-in this the affection Democritus and says full the
γῆν ὕδατος οὖσαν, καὶ πολὺ δεχομένην ἕτερον ὄμβριον ὕδωρ,
earth of-water being and much receiving other rain water
ὑπὸ τούτου κινεῖσθαι· πλείονός τε γὰρ γινομένου διὰ τὸ
by this to-be-moved more both for coming-about because-of the
μὴ δύνασθαι δέχεσθαι τὰς κοιλίας ἀποβιαζόμενον ποιεῖν τὸν
not to-be-able to-receive the hollows forcing-its-way to-make the

σεισμόν, καὶ ξηραινομένην καὶ ἕλκουσαν εἰς τοὺς κενοὺς
earthquake and being-dried and drawing into the empty
τόπους ἐκ τῶν πληρεστέρων τὸ μεταβάλλον ἐμπῖπτον κινεῖν.
places from the fuller the changing falling-in to-move
Ἀναξιμένης δέ φησι βρεχομένην τὴν γῆν καὶ ξηραινομένην
Anaximenes and says being-wetted the earth and being-dried
ῥήγνυσθαι, καὶ ὑπὸ τούτων τῶν ἀπορρηγνυμένων κολωνῶν
to-be-broken and by these the breaking-off hillocks
ἐμπιπτόντων σείεσθαι· διὸ καὶ γίγνεσθαι τοὺς σεισμοὺς
falling-in to-be-shaken wherefore also to-come-about the earthquakes
ἔν τε τοῖς αὐχμοῖς καὶ πάλιν ἐν ταῖς ὑπερομβρίαις· ἔν τε
in both the droughts and again in the excessive-rains in both
γὰρ τοῖς αὐχμοῖς, ὥσπερ εἴρηται, ξηραινομένην ῥήγνυσθαι,
for the droughts just-as has-been-said being-dried to-be-broken
καὶ ὑπὸ τῶν ὑδάτων ὑπερυγραινομένην διαπίπτειν. Ἔδει
and by the waters being-over-wetted to-fall-apart It-was-needful
δὲ τούτου συμβαίνοντος ὑπονοστοῦσαν πολλαχοῦ φαίνεσθαι
and this happening sinking in-many-places to-appear
τὴν γῆν. Ἔτι δὲ διὰ τίν' αἰτίαν περὶ τόπους τινὰς
the earth Further and because-of what cause about places some
πολλάκις γίνεται τοῦτο τὸ πάθος οὐδεμιᾷ διαφέροντας
often comes-about this the affection in-no differing
ὑπερβολῇ τοιαύτῃ παρὰ τοὺς ἄλλους; καίτοι ἐχρῆν.
excess such beside the others and-yet it-would-be-needful
Ὅλως δὲ τοῖς οὕτως ὑπολαμβάνουσιν ἀναγκαῖον ἧττον
Wholly and for-the thus supposing necessary less
ἀεὶ τοὺς σεισμοὺς φάναι γίγνεσθαι, καὶ τέλος παύσασθαί
always the earthquakes to-say to-come-about and finally to-cease
ποτε σειομένην· τὸ γὰρ σαττόμενον τοιαύτην ἔχει φύσιν.
sometime being-shaken the for being-packed such has nature

Ὥστ᾽ εἰ τοῦτ᾽ ἀδύνατον, δῆλον ὅτι ἀδύνατον καὶ ταύτην
So-that if this impossible clear that impossible also this
εἶναι τὴν αἰτίαν.
to-be the cause

VIII · THE CAUSE OF EARTHQUAKES

Wind, the exhalation flowing inward, is the most moving of bodies, so it, not water or earth, shakes the earth. The greatest earthquakes come in calm, mostly at night or at noon, in spring and autumn, where the land is spongy and the sea runs through straits; to the earth they are what tremor and throbbing are to the body. Eruptions at Heraclea and the Sacred Island, a dimmed sun, a thin straight cloud, quakes before eclipses, aftershocks, noises, bursting springs, and tidal waves all follow from wind. Most shocks run sideways, the rare ones upward, and islands far out at sea shake less.

Ἀλλ᾽ ἐπειδὴ φανερὸν ὅτι ἀναγκαῖον καὶ ἀπὸ ὑγροῦ καὶ ἀπὸ
But since evident that necessary both from moist and from
ξηροῦ γίγνεσθαι ἀναθυμίασιν, ὥσπερ εἴπομεν ἐν τοῖς
dry to-come-about exhalation just-as we-said in the(-things)
πρότερον, ἀνάγκη τούτων ὑπαρχόντων γίγνεσθαι τοὺς
earlier necessity these being-so to-come-about the
σεισμούς. Ὑπάρχει γὰρ ἡ γῆ καθ᾽ αὑτὴν μὲν ξηρά, διὰ
earthquakes Is for the earth by itself indeed dry because-of
δὲ τοὺς ὄμβρους ἔχουσα ἐν αὑτῇ νοτίδα πολλήν, ὥσθ᾽ ὑπό
but the showers having in itself moisture much so-that by
τε τοῦ ἡλίου καὶ τοῦ ἐν αὐτῇ πυρὸς θερμαινομένης πολὺ
both the sun and the in it fire being-heated much
μὲν ἔξω πολὺ δ᾽ ἐντὸς γίνεσθαι τὸ πνεῦμα· καὶ τοῦτο
indeed outside much and inside to-come-about the wind and this
ὁτὲ μὲν συνεχὲς ἔξω ῥεῖ πᾶν, ὁτὲ δ᾽ εἴσω πᾶν,
at-times indeed continuous outward flows all at-times and inward all

ἐνίοτε δὲ καὶ μερίζεται. Εἰ δὴ τοῦτ' ἀδύνατον ἄλλως
sometimes and also is-divided If indeed this impossible otherwise
ἔχειν, τὸ μετὰ τοῦτο σκεπτέον ἂν εἴη ὁποῖον
to-be the(-thing) after this one-must-consider — would-be what-sort
κινητικώτατον ἂν εἴη τῶν σωμάτων· ἀνάγκη γὰρ τὸ
most-able-to-move — would-be of-the bodies necessity for the(-thing)
ἐπὶ πλεῖστόν τε πεφυκὸς ἰέναι καὶ σφοδρότατον μάλιστα
to farthest both being-by-nature to-go and most-violent most
τοιοῦτον εἶναι. Σφοδρότατον μὲν οὖν ἐξ ἀνάγκης τὸ
such to-be Most-violent indeed then of necessity the(-thing)
τάχιστα φερόμενον· τύπτει γὰρ μάλιστα διὰ τὸ τάχος·
fastest being-carried it-strikes for most because-of the speed
ἐπὶ πλεῖστον δὲ πέφυκε διιέναι τὸ διὰ παντὸς
to farthest and is-by-nature to-pass-through the(-thing) through all
ἰέναι μάλιστα δυνάμενον, τοιοῦτον δὲ τὸ λεπτότατον.
to-go most being-able such and the(-thing) finest
Ὥστ' εἴπερ ἡ τοῦ πνεύματος φύσις τοιαύτη, μάλιστα τῶν
So-that if-indeed the of-the wind nature such most of-the
σωμάτων τὸ πνεῦμα κινητικόν· καὶ γὰρ τὸ πῦρ ὅταν μετὰ
bodies the wind able-to-move also for the fire when with
πνεύματος ᾖ, γίγνεται φλὸξ καὶ φέρεται ταχέως. Οὐκ ἂν
wind it-be becomes flame and is-carried quickly Not —
οὖν ὕδωρ οὐδὲ γῆ αἴτιον εἴη, ἀλλὰ πνεῦμα τῆς κινήσεως,
then water nor earth cause would-be but wind of-the motion
ὅταν ἔσω τύχῃ ῥυὲν τὸ ἔξω ἀναθυμιώμενον.
when inward happen having-flowed the(-thing) outward exhaling
Διὸ γίγνονται νηνεμίᾳ οἱ πλεῖστοι καὶ μέγιστοι τῶν
Wherefore come-about in-calm the most and greatest of-the
σεισμῶν· συνεχὴς γὰρ οὖσα ἡ ἀναθυμίασις ἀκολουθεῖ
earthquakes continuous for being the exhalation follows
ὡς ἐπὶ τὸ πολὺ τῇ ὁρμῇ τῆς ἀρχῆς, ὥστε ἢ ἔσω
as on the most-part the impulse of-the beginning so-that either inward

ἅμα ἢ ἔξω ὁρμᾷ πᾶσα. Τὸ δ' ἐνίους γίνεσθαι καὶ
at-once or outward rushes all The(-fact) and some to-come-about even
πνεύματος ὄντος οὐδὲν ἄλογον· ὁρῶμεν γὰρ ἐνίοτε ἅμα
wind being nothing unreasonable we-see for sometimes at-once
πλείους πνέοντας ἀνέμους, ὧν ὅταν εἰς τὴν γῆν ὁρμήσῃ
more blowing winds of-which when into the earth rushes
θάτερον, ἔσται πνεύματος ὄντος ὁ σεισμός. Ἐλάττους δ'
the-one will-be wind being the earthquake Lesser and
οὗτοι τὸ μέγεθος γίγνονται διὰ τὸ διῃρῆσθαι τὴν
these the size become because-of the to-have-been-divided the
ἀρχὴν καὶ τὴν αἰτίαν αὐτῶν. Καὶ νυκτὸς δ' οἱ πλείους καὶ
beginning and the cause of-them Also by-night and the more and
μείζους γίγνονται τῶν σεισμῶν, οἱ δὲ τῆς ἡμέρας περὶ
greater come-about of-the earthquakes the(-ones) and of-the day about
μεσημβρίαν· νηνεμώτατον γάρ ἐστιν ὡς ἐπὶ τὸ πολὺ τῆς
midday calmest for is as on the most-part of-the
ἡμέρας ἡ μεσημβρία (ὁ γὰρ ἥλιος ὅταν μάλιστα κρατῇ,
day the midday the for sun when most it-prevails
κατακλείει τὴν ἀναθυμίασιν εἰς τὴν γῆν· κρατεῖ δὲ μάλιστα
shuts-in the exhalation into the earth it-prevails and most
περὶ τὴν μεσημβρίαν) καὶ αἱ νύκτες δὲ τῶν ἡμερῶν
about the midday also the nights and than-the days
νηνεμώτεραι διὰ τὴν ἀπουσίαν τὴν τοῦ ἡλίου· ὥστ' εἴσω
calmer because-of the absence the of-the sun so-that inward
γίγνεται πάλιν ἡ ῥύσις, ὥσπερ ἄμπωτις, εἰς τοὐναντίον
becomes again the flow just-as ebb into the-opposite
τῆς ἔξωθεν πλημμυρίδος, καὶ πρὸς ὄρθρον μάλιστα·
of-the outside flood-tide and toward dawn most
τηνικαῦτα γὰρ καὶ τὰ πνεύματα πέφυκεν ἄρχεσθαι πνεῖν.
at-that-time for also the winds are-by-nature to-begin to-blow

Ἐὰν οὖν εἴσω τύχῃ μεταβάλλουσα ἡ ἀρχὴ αὐτῶν ὥσπερ
If then inward happen changing the beginning of-them just-as
Εὔριπος, διὰ τὸ πλῆθος ἰσχυρότερον ποιεῖ τὸν σεισμόν.
Euripus because-of the quantity stronger it-makes the earthquake
Ἔτι δὲ περὶ τόπους τοιούτους οἱ ἰσχυρότατοι γίνονται τῶν
Further and about places such the strongest come-about of-the
σεισμῶν, ὅπου ἡ θάλασσα ῥοώδης ἢ ἡ χώρα σομφὴ καὶ
earthquakes where the sea full-of-currents or the land spongy and
ὕπαντρος. Διὸ καὶ περὶ Ἑλλήσποντον καὶ περὶ Ἀχαΐαν
cavernous Wherefore also about Hellespont and about Achaea
καὶ Σικελίαν, καὶ τῆς Εὐβοίας περὶ τούτους τοὺς τόπους·
and Sicily and of-the Euboea about these the places
δοκεῖ γὰρ διαυλωνίζειν ὑπὸ τὴν γῆν ἡ θάλαττα. Διὸ
seems for to-flow-in-channels under the earth the sea Wherefore
καὶ τὰ θερμὰ τὰ περὶ Αἴδεψον ἀπὸ τοιαύτης αἰτίας
also the hot-springs the(-ones) about Aedepsus from such cause
γέγονεν. Περὶ δὲ τοὺς εἰρημένους τόπους οἱ σεισμοὶ
have-come-about About and the mentioned places the earthquakes
γίνονται μάλιστα διὰ τὴν στενότητα· τὸ γὰρ πνεῦμα
come-about most because-of the narrowness the for wind
γινόμενον σφοδρὸν διὰ τὸ πλῆθος τῆς θαλάττης πολλῆς
becoming violent because-of the quantity of-the sea much
προσφερομένης ἀπωθεῖται πάλιν εἰς τὴν γῆν, τό γε
being-borne-against is-thrust-back again into the earth the(-thing) at-least
πεφυκὸς ἀποπνεῖν ἀπὸ τῆς γῆς. Αἵ τε χῶραι ὅσαι
being-by-nature to-blow-off from the earth The both lands as-many-as
σομφοὺς ἔχουσι τοὺς κάτω τόπους, πολὺ δεχόμεναι πνεῦμα
spongy have the below places much receiving wind
σείονται μᾶλλον. Καὶ ἔαρος δὲ καὶ μετοπώρου μάλιστα
are-shaken more Also in-spring and and in-autumn most
καὶ ἐν ἐπομβρίαις καὶ αὐχμοῖς γίνονται διὰ τὴν
and in rainy-spells and droughts they-come-about because-of the

αὐτὴν αἰτίαν· αἱ γὰρ ὧραι αὗται πνευματωδέσταται· τὸ
same cause the for seasons these windiest the
γὰρ θέρος καὶ ὁ χειμών, τὸ μὲν διὰ τὸν πάγον,
for summer and the winter the(-one) indeed because-of the frost
τὸ δὲ διὰ τὴν ἀλέαν ποιεῖ τὴν ἀκινησίαν· τὸ
the(-other) and because-of the heat make the stillness the(-one)
μὲν γὰρ ἄγαν ψυχρόν, τὸ δ' ἄγαν ξηρόν ἐστιν.
indeed for too cold the(-other) and too dry is
Καὶ ἐν μὲν τοῖς αὐχμοῖς πνευματώδης ὁ ἀήρ· τοῦτο γὰρ
And in indeed the droughts windy the air this for
αὐτό ἐστιν ὁ αὐχμός, ὅταν πλείων ἡ ἀναθυμίασις ἡ ξηρὰ
itself is the drought when more the exhalation the dry
γίγνηται τῆς ὑγρᾶς· ἐν δὲ ταῖς ὑπερομβρίαις πλείω τε
becomes than-the moist in and the excessive-rains more both
ποιεῖ τὴν ἐντὸς ἀναθυμίασιν, καὶ τῷ ἐναπολαμβάνεσθαι
it-makes the inside exhalation and by-the to-be-intercepted
ἐν στενωτέροις τόποις καὶ ἀποβιάζεσθαι εἰς ἐλάττω τόπον
in narrower places and to-be-forced into less place
τὴν τοιαύτην ἀπόκρισιν, πληρουμένων τῶν κοιλιῶν ὕδατος,
the such secretion being-filled the cavities with-water
ὅταν ἄρξηται κρατεῖν διὰ τὸ πολὺ εἰς ὀλίγον πιληθῆναι
when it-begins to-prevail because-of the much into little to-be-compressed
τόπον, ἰσχυρῶς κινεῖ ῥέων ὁ ἄνεμος καὶ προσπίπτων.
place strongly moves flowing the wind and striking
Δεῖ γὰρ νοεῖν ὅτι ὥσπερ ἐν τῷ σώματι ἡμῶν
One-must for to-understand that just-as in the body of-us
καὶ τρόμων καὶ σφυγμῶν αἴτιόν ἐστιν ἡ τοῦ πνεύματος
both of-tremors and of-throbbings cause is the of-the breath
ἐναπολαμβανομένη δύναμις, οὕτω καὶ ἐν τῇ γῇ τὸ πνεῦμα
intercepted power so also in the earth the wind
παραπλήσια ποιεῖν, καὶ τὸν μὲν τῶν σεισμῶν οἷον τρόμον
similar-things to-do and the(-one) indeed of-the earthquakes like tremor

εἶναι τὸν δ' οἷον σφυγμόν, καὶ καθάπερ συμβαίνει
to-be the(-other) and like throbbing and just-as happens
πολλάκις μετὰ τὴν οὔρησιν διὰ τοῦ σώματος (γίνεται
often after the urination through the body comes-about
γὰρ ὥσπερ τρόμος τις ἀντιμεθισταμένου τοῦ πνεύματος
for as-it-were tremor a-kind changing-places the breath
ἔξωθεν ἔσω ἀθρόου), τοιαῦτα γίνεσθαι καὶ περὶ τὴν γῆν.
from-outside inward all-at-once such-things to-come-about also about the earth
Ὅσην δ' ἔχει τὸ πνεῦμα δύναμιν, οὐ μόνον ἐκ τῶν ἐν
How-much and has the wind power not only from the(-things) in
τῷ ἀέρι δεῖ θεωρεῖν γιγνομένων (ἐνταῦθα μὲν γὰρ διὰ
the air one-must to-observe happening there indeed for because-of
τὸ μέγεθος ὑπολάβοι τις ἂν τοιαῦτα δύνασθαι ποιεῖν) ἀλλὰ
the size would-suppose someone — such-things to-be-able to-do but
καὶ ἐν τοῖς σώμασι τοῖς τῶν ζῴων· οἵ τε γὰρ τέτανοι
also in the bodies the(-ones) of-the animals the both for tetanus-cramps
καὶ οἱ σπασμοὶ πνεύματος μέν εἰσι κινήσεις, τοσαύτην δ'
and the spasms of-breath indeed are motions so-great but
ἔχουσιν ἰσχὺν ὥστε πολλοὺς ἅμα πειρωμένους ἀποβιάζεσθαι
they-have strength so-that many at-once trying to-force-back
μὴ δύνασθαι κρατεῖν τῆς κινήσεως τῶν ἀρρωστούντων. Τὸ
not to-be-able to-master the motion of-the sick The
αὐτὸ δεῖ νοεῖν γινόμενον καὶ ἐν τῇ γῇ, ὡς εἰκάσαι
same one-must to-understand happening also in the earth as to-liken
πρὸς μικρὸν μεῖζον. Σημεῖα δὲ τούτων καὶ πρὸς τὴν
with small greater Signs and of-these even to the
ἡμετέραν αἴσθησιν πολλαχοῦ γέγονεν· ἤδη γὰρ σεισμὸς ἐν
our perception in-many-places have-occurred already for earthquake in
τόποις τισὶ γινόμενος οὐ πρότερον ἔληξε, πρὶν ἐκρήξας
places some occurring not before ceased before having-burst-out
εἰς τὸν ὑπὲρ γῆς τόπον φανερῶς ὥσπερ ἐκνεφίας ἐξῆλθεν
into the above earth place visibly like hurricane went-out

ὁ κινήσας ἄνεμος, οἷον καὶ περὶ Ἡράκλειαν ἐγένετο
the having-moved wind such-as also about Heraclea happened
τὴν ἐν τῷ Πόντῳ νεωστί, καὶ πρότερον περὶ τὴν Ἱερὰν
the(-one) in the Pontus recently and earlier about the Sacred
νῆσον· αὕτη δ' ἐστὶ μία τῶν Αἰόλου καλουμένων νήσων.
island this and is one of-the of-Aeolus called islands
Ἐν ταύτῃ γὰρ ἐξανῴδει τι τῆς γῆς, καὶ ἀνήει οἷον
In this for swelled-up some(-part) of-the earth and rose-up like
λοφώδης ὄγκος μετὰ ψόφου· τέλος δὲ ῥαγέντος ἐξῆλθε
crested mass with noise at-last and having-burst went-out
πνεῦμα πολύ, καὶ τὸν φέψαλον καὶ τὴν τέφραν ἀνῆκε,
wind much and the sparks and the ash sent-up
καὶ τήν τε Λιπαραίων πόλιν οὖσαν οὐ πόρρω πᾶσαν
and the both of-Liparaeans city being not far all
κατετέφρωσε, καὶ εἰς ἐνίας τῶν ἐν Ἰταλίᾳ πόλεων ἦλθεν·
covered-with-ash and to some of-the in Italy cities came
καὶ νῦν ἔτι ὅπου τὸ ἀναφύσημα τοῦτο ἐγένετο, δῆλόν ἐστιν.
and now still where the blowing-up this happened evident is
Καὶ γὰρ δὴ τοῦ γιγνομένου πυρὸς ἐν τῇ γῇ ταύτην
And for indeed of-the coming-about fire in the earth this
οἰητέον εἶναι τὴν αἰτίαν, ὅταν κοπτόμενον ἐκπρησθῇ
one-must-think to-be the cause when being-beaten it-be-ignited
πρῶτον εἰς μικρὰ κερματισθέντος τοῦ ἀέρος. Τεκμήριον
first into small-bits having-been-chopped the air Evidence
δ' ἐστὶ τοῦ ῥεῖν ὑπὸ τὴν γῆν τὰ πνεύματα καὶ τὸ
and is of-the to-flow under the earth the winds also the(-thing)
γιγνόμενον περὶ ταύτας τὰς νήσους· ὅταν γὰρ ἄνεμος
happening about these the islands when for wind
μέλλῃ πνευσεῖσθαι νότος, προσημαίνει πρότερον· ἠχοῦσι
is-about to-blow south-wind it-signals-beforehand earlier resound
γὰρ οἱ τόποι ἐξ ὧν γίνεται τὰ ἀναφυσήματα, διὰ
for the places from which come-about the blowings-up because-of

τὸ τὴν θάλατταν μὲν προωθεῖσθαι ἤδη πόρρωθεν, ὑπὸ
the the sea indeed to-be-pushed-forward already from-afar by
δὲ ταύτης τὸ ἐκ τῆς γῆς ἀναφυσώμενον ἀπωθεῖσθαι
and this the(-thing) from the earth blowing-up to-be-thrust-back
πάλιν εἴσω, ᾗπερ ἐπέρχεται ἡ θάλαττα ταύτῃ.
again inward where-very advances the sea there
Ποιεῖ δὲ ψόφον ἄνευ σεισμοῦ διά τε τὴν εὐρυχωρίαν
Makes and noise without earthquake because-of both the spaciousness
τῶν τόπων (ὑπερχεῖται γὰρ εἰς τὸ ἀχανὲς ἔξω) καὶ δι᾽
of-the places it-overflows for into the void outside and because-of
ὀλιγότητα τοῦ ἀπωθουμένου ἀέρος. Ἔτι τὸ γίγνεσθαι
smallness of-the being-thrust-back air Further the to-become
τὸν ἥλιον ἀχλυώδη καὶ ἀμαυρότερον ἄνευ νέφους, καὶ
the sun misty and dimmer without cloud and
πρὸ τῶν ὀρθρίων σεισμῶν ἐνίοτε νηνεμίαν τε καὶ κρύος
before the dawn earthquakes sometimes calm both and frost
ἰσχυρόν, σημεῖον τῆς εἰρημένης αἰτίας ἐστίν. Τόν τε γὰρ
strong sign of-the stated cause is The both for
ἥλιον ἀχλυώδη καὶ ἀμαυρὸν ἀναγκαῖον εἶναι ὑπονοστεῖν
sun misty and dim necessary to-be to-sink-back
ἀρχομένου τοῦ πνεύματος εἰς τὴν γῆν τοῦ διαλύοντος
beginning the wind into the earth the(-one) dissolving
τὸν ἀέρα καὶ διακρίνοντος, καὶ πρὸς τὴν ἕω καὶ περὶ
the air and separating and toward the dawn and about
τοὺς ὄρθρους νηνεμίαν τε καὶ ψῦχος. Τὴν μὲν γὰρ
the daybreaks calm both and cold The indeed for
νηνεμίαν ἀναγκαῖον ὡς ἐπὶ τὸ πολὺ συμβαίνειν, καθάπερ
calm necessary as on the most-part to-happen just-as
εἴρηται καὶ πρότερον, οἷον μεταρροίας εἴσω γινομένης
has-been-said also before as-it-were reflux inward coming-about
τοῦ πνεύματος, καὶ μᾶλλον πρὸ τῶν μειζόνων σεισμῶν·
of-the wind and more before the greater earthquakes

μὴ διασπώμενον γὰρ τὸ μὲν ἔξω τὸ δ' ἐντός,
not being-scattered for the(-part) indeed outside the(-part) and inside
ἀλλ' ἀθρόον φερόμενον ἀναγκαῖον ἰσχύειν μᾶλλον. Τὸ
but all-together being-carried necessary to-be-strong more The
δὲ ψῦχος συμβαίνει διὰ τὸ τὴν ἀναθυμίασιν εἴσω
and cold happens because-of the the exhalation inward
περιτρέπεσθαι, φύσει θερμὴν οὖσαν καθ' αὑτήν.
to-be-turned by-nature hot being by itself
Οὐ δοκοῦσι δ' οἱ ἄνεμοι εἶναι θερμοὶ διὰ τὸ κινεῖν
Not seem and the winds to-be hot because-of the to-move
τὸν ἀέρα πλήρη ψυχρᾶς ὄντα καὶ πολλῆς ἀτμίδος, ὥσπερ
the air full of-cold being and much vapor just-as
τὸ πνεῦμα τὸ διὰ τοῦ στόματος φυσώμενον· καὶ γὰρ
the breath the(-one) through the mouth blown also for
τοῦτο ἐγγύθεν μέν ἐστι θερμόν, ὥσπερ καὶ ὅταν ἀάζωμεν,
this from-near indeed is hot just-as also when we-breathe-out
ἀλλὰ δι' ὀλιγότητα οὐχ ὁμοίως ἐπίδηλον, πόρρωθεν δὲ
but because-of smallness not alike noticeable from-afar but
ψυχρὸν διὰ τὴν αὐτὴν αἰτίαν τοῖς ἀνέμοις. Ἐπιλειπούσης
cold because-of the same cause to-the winds Failing
οὖν εἰς τὴν γῆν τῆς τοιαύτης δυνάμεως, συνιοῦσα δι'
then into the earth the such power coming-together because-of
ὑγρότητα ἡ ἀτμιδώδης ἀπορροὴ ποιεῖ τὸ ψῦχος, ἐν οἷς
moisture the vaporous efflux makes the cold in which
συμβαίνει τόποις γίνεσθαι τοῦτο τὸ πάθος. Τὸ δ' αὐτὸ
it-happens places to-come-about this the affection The and same
αἴτιον καὶ τοῦ εἰωθότος ἐνίοτε γίγνεσθαι σημείου πρὸ τῶν
cause also of-the being-wont sometimes to-come-about sign before the
σεισμῶν· ἢ γὰρ μεθ' ἡμέραν ἢ μικρὸν μετὰ δυσμάς,
earthquakes either for by day or little after sunset
αἰθρίας οὔσης, νεφέλιον λεπτὸν φαίνεται διατεῖνον καὶ
clear-sky being small-cloud thin appears stretching and

μακρόν, οἷον γραμμῆς μῆκος εὐθύτητι διηκριβωμένον, τοῦ
long like of-line length in-straightness made-exact the
πνεύματος ἀπομαραινομένου διὰ τὴν μετάστασιν. Τὸ δ'
wind dying-away because-of the shift The and
ὅμοιον συμβαίνει καὶ ἐν τῇ θαλάττῃ περὶ τοὺς αἰγιαλούς·
like(-thing) happens also in the sea about the beaches
ὅταν μὲν γὰρ κυμαίνουσα ἐκβάλλῃ, σφόδρα παχεῖαι καὶ
when indeed for swelling it-casts-up very thick and
σκολιαὶ γίνονται αἱ ῥηγμῖνες, ὅταν δὲ γαλήνη ᾖ, διὰ
crooked become the surf-lines when but calm it-be because-of
τὸ μικρὰν ποιεῖσθαι τὴν ἔκκρισιν λεπταί εἰσι καὶ εὐθεῖαι.
the small to-make the discharge thin they-are and straight
Ὅπερ οὖν ἡ θάλαττα ποιεῖ περὶ τὴν γῆν, τοῦτο τὸ
What-very then the sea does about the land this the
πνεῦμα περὶ τὴν ἐν τῷ ἀέρι ἀχλύν, ὥσθ' ὅταν γένηται
wind about the in the air mist so-that when comes-about
νηνεμία, πάμπαν εὐθεῖαν καὶ λεπτὴν καταλείπεσθαι ὥσπερ
calm altogether straight and thin to-be-left like
ῥηγμῖνα οὖσαν ἀέρος τὴν νεφέλην. Διὰ ταῦτα δὲ καὶ
surf-line being of-air the cloud Because-of these-things and also
περὶ τὰς ἐκλείψεις, ἐνίοτε τῆς σελήνης συμβαίνει γίγνεσθαι
about the eclipses sometimes of-the moon it-happens to-come-about
σεισμόν· ὅταν γὰρ ἤδη πλησίον ᾖ ἡ ἀντίφραξις, καὶ
earthquake when for already near be the interposition and
μήπω μὲν ᾖ πάμπαν ἀπολελοιπὸς τὸ φῶς καὶ τὸ ἀπὸ
not-yet indeed be altogether having-failed the light and the from
τοῦ ἡλίου θερμὸν ἐκ τοῦ ἀέρος, ἤδη δ' ἀπομαραινόμενον,
the sun heat from the air already but dying-away
νηνεμία γίνεται ἀντιμεθισταμένου τοῦ πνεύματος εἰς τὴν
calm comes-about changing-places the wind into the
γῆν, ὃ ποιεῖ τὸν σεισμὸν πρὸ τῶν ἐκλείψεων. Γίνονται
earth which makes the earthquake before the eclipses Come-about

γὰρ καὶ ἄνεμοι πρὸ τῶν ἐκλείψεων πολλάκις, ἀκρόνυχοι
for also winds before the eclipses often at-nightfall
μὲν πρὸ τῶν μεσονυκτίων ἐκλείψεων, μεσονύκτιοι δὲ πρὸ
indeed before the midnight eclipses at-midnight and before
τῶν ἑῴων. Συμβαίνει δὲ τοῦτο διὰ τὸ ἀμαυροῦσθαι
the dawn(-ones) Happens and this because-of the to-be-dimmed
τὸ θερμὸν τὸ ἀπὸ τῆς σελήνης, ὅταν πλησίον ἤδη
the heat the(-one) from the moon when near already
γίγνηται ἡ φορὰ ἐν ᾧ γενομένων ἔσται ἡ ἔκλειψις.
becomes the course in which having-come-about will-be the eclipse
Ἀνιεμένου οὖν ᾧ κατείχετο ὁ ἀὴρ καὶ ἠρέμει, πάλιν
Being-relaxed then by-which was-held-down the air and was-at-rest again
κινεῖται καὶ γίγνεται πνεῦμα τῆς ἐκλείψεως πρωϊαίτερον.
it-is-moved and comes-about wind than-the eclipse earlier
Ὅταν δ' ἰσχυρὸς γένηται σεισμός, οὐκ εὐθὺς οὐδ' εἰσάπαξ
When and strong comes-about earthquake not at-once nor at-one-time
παύεται σείσας, ἀλλὰ τὸ πρῶτον μὲν μέχρι περὶ
stops having-shaken but — at-first indeed up-to about
τετταράκοντα πρόεισι πολλάκις ἡμέρας, ὕστερον δὲ καὶ ἐφ'
forty goes-on often days later and also for
ἓν καὶ ἐπὶ δύο ἔτη ἐπισημαίνει κατὰ τοὺς αὐτοὺς τόπους.
one and for two years it-gives-signs in the same places
Αἴτιον δὲ τοῦ μὲν μεγέθους τὸ πλῆθος τοῦ πνεύματος
Cause and of-the indeed magnitude the quantity of-the wind
καὶ τῶν τόπων τὰ σχήματα δι' ὧν ἂν ῥυῇ· ᾗ γὰρ
and of-the places the shapes through which — it-flow where for
ἂν ἀντιτυπήσῃ καὶ μὴ ῥᾳδίως διέλθῃ, μάλιστά τε σείει
— it-meets-resistance and not easily pass-through most both it-shakes
καὶ ἐγκαταλείπεσθαι ἀναγκαῖον ἐν ταῖς δυσχωρίαις, οἷον
and to-be-left-behind necessary in the confined-places like
ὕδωρ οὐ δυνάμενον διεξελθεῖν. Διὸ καθάπερ ἐν σώματι
water not being-able to-pass-out Wherefore just-as in body

οἱ σφυγμοὶ οὐκ ἐξαίφνης παύονται οὐδὲ ταχέως, ἀλλ'
the throbbings not suddenly stop nor quickly but
ἐκ προσαγωγῆς ἅμα καταμαραινομένου τοῦ πάθους, καὶ
by degrees at-once dying-away the affection also
ἡ ἀρχὴ ἀφ' ἧς ἡ ἀναθυμίασις ἐγένετο καὶ ἡ ὁρμὴ
the beginning from which the exhalation came-about and the impulse
τοῦ πνεύματος δῆλον ὅτι οὐκ εὐθὺς ἅπασαν ἀνάλωσε τὴν
of-the wind clear that not at-once all used-up the
ὕλην, ἐξ ἧς ἐποίησε τὸν ἄνεμον, ὃν καλοῦμεν σεισμόν.
material out-of which it-made the wind which we-call earthquake
Ἕως ἂν οὖν ἀναλωθῇ τὰ ὑπόλοιπα τούτων, ἀνάγκη σείειν,
Until — then be-used-up the remnants of-these necessity to-shake
ἠρεμαίτερον δὲ καὶ μέχρι τούτου ἕως ἂν ἔλαττον ᾖ τὸ
more-gently but and up-to this until — less be the(-thing)
ἀναθυμιώμενον ἢ ὥστε δύνασθαι κινεῖν ἐπιδήλως. Ποιεῖ
exhaling than so-as to-be-able to-move noticeably Makes
δὲ καὶ τοὺς ψόφους τοὺς ὑπὸ τὴν γῆν γινομένους τὸ
and also the noises the(-ones) under the earth occurring the
πνεῦμα, καὶ τοὺς πρὸ τῶν σεισμῶν· καὶ ἄνευ δὲ σεισμῶν
wind and the(-ones) before the earthquakes and without and earthquakes
ἤδη που γεγόνασιν ὑπὸ γῆν. Ὥσπερ γὰρ ῥαπιζόμενος
already somewhere have-occurred under earth Just-as for being-struck
ὁ ἀὴρ παντοδαποὺς ἀφίησι ψόφους, οὕτως καὶ τύπτων
the air of-all-kinds lets-out noises so also striking
αὐτός· οὐθὲν γὰρ διαφέρει· τὸ γὰρ τύπτον ἅμα καὶ
itself nothing for it-matters the(-thing) for striking at-once also
αὐτὸ τύπτεται πᾶν. Προέρχεται δ' ὁ ψόφος τῆς κινήσεως
itself is-struck all Goes-before and the noise the motion
διὰ τὸ λεπτομερέστερον εἶναι καὶ μᾶλλον διὰ παντὸς
because-of the finer-in-parts to-be and more through all
ἰέναι τοῦ πνεύματος τὸν ψόφον. Ὅταν δ' ἔλαττον ᾖ
to-go than-the wind the noise When and less it-be

ἢ ὥστε κινῆσαι τὴν γῆν διὰ λεπτότητα, διὰ μὲν
than so-as to-move the earth because-of thinness because-of indeed
τὸ ῥᾳδίως διηθεῖσθαι οὐ δύναται κινεῖν, διὰ δὲ τὸ
the easily to-filter-through not it-can to-move because-of but the
προσπίπτειν στερεοῖς ὄγκοις καὶ κοίλοις καὶ παντοδαποῖς
to-strike-against solid masses and hollow and of-all-kinds
σχήμασι παντοδαπὰς ἀφίησι φωνάς, ὥστ᾽ ἐνίοτε δοκεῖν
shapes of-all-kinds lets-out sounds so-that sometimes to-seem
ὅπερ λέγουσιν οἱ τερατολογοῦντες, μυκᾶσθαι τὴν γῆν.
which-very say the(-ones) telling-marvels to-bellow the earth
Ἤδη δὲ καὶ ὕδατα ἀνερράγη γιγνομένων σεισμῶν· ἀλλ᾽ οὐ
Already and also waters burst-forth occurring earthquakes but not
διὰ τοῦτο αἴτιον τὸ ὕδωρ τῆς κινήσεως, ἀλλ᾽ ἂν ᾖ ἐξ
because-of this cause the water of-the motion but if it-be from
ἐπιπολῆς ἢ κάτωθεν βιάζηται τὸ πνεῦμα, ἐκεῖνο τὸ
surface or from-below forces the wind that the(-thing)
κινοῦν ἐστίν, ὥσπερ τῶν κυμάτων οἱ ἄνεμοι ἀλλ᾽ οὐ τὰ
moving is just-as of-the waves the winds but not the
κύματα τῶν ἀνέμων ἐστὶν αἴτια, ἐπεὶ καὶ τὴν γῆν οὕτως
waves of-the winds are causes since also the earth so
ἄν τις αἰτιῷτο τοῦ πάθους· ἀνατρέπεται γὰρ σειομένη,
— someone would-blame for-the affection is-overturned for being-shaken
καθάπερ ὕδωρ (ἡ γὰρ ἔκχυσις ἀνάτρεψίς τίς ἐστιν). Ἀλλ᾽
just-as water the for outpouring overturning a-kind is But
αἴτια ταῦτα μὲν ἄμφω ὡς ὕλη (πάσχει γάρ, ἀλλ᾽ οὐ
causes these indeed both as matter they-are-affected for but not
ποιεῖ), τὸ δὲ πνεῦμα ὡς ἀρχή. Ὅπου δ᾽ ἅμα κῦμα
act the but wind as source Where and together-with wave
σεισμῷ γέγονεν, αἴτιον, ὅταν ἐναντία γίγνηται τὰ πνεύματα.
earthquake has-occurred cause when opposite become the winds
Τοῦτο δὲ γίγνεται, ὅταν τὸ σεῖον τὴν γῆν πνεῦμα
This and happens when the(-thing) shaking the earth wind

φερομένη ὑπ᾽ ἄλλου πνεύματος τὴν θάλασσαν ἀπῶσαι μὲν
being-carried by other wind the sea to-thrust-away indeed
ὅλως μὴ δύνηται, προωθοῦν δὲ καὶ συστέλλον εἰς ταὐτὸν
wholly not be-able pushing-forward but and contracting into the-same
συναθροίσῃ πολλήν· τότε γὰρ ἀναγκαῖον ἡττηθέντος
gathers much then for necessary having-been-defeated
τούτου τοῦ πνεύματος ἀθρόαν ὠθουμένην ὑπὸ τοῦ ἐναντίου
this the wind all-together being-pushed by the opposite
πνεύματος ἐκρήγνυσθαι καὶ ποιεῖν τὸν κατακλυσμόν.
wind to-burst-out and to-make the flood
Ἐγένετο δὲ τοῦτο καὶ περὶ Ἀχαΐαν· ἔξω μὲν γὰρ ἦν νότος,
Happened and this also about Achaea outside indeed for was south-wind
ἐκεῖ δὲ βορέας, νηνεμίας δὲ γενομένης καὶ ῥυέντος
there but north-wind calm and having-come-about and having-flowed
εἴσω τοῦ ἀνέμου ἐγένετο τό τε κῦμα καὶ ὁ σεισμὸς ἅμα,
inward the wind came-about the both wave and the earthquake together
καὶ μᾶλλον διὰ τὸ τὴν θάλατταν μὴ διδόναι διαπνοὴν
and more because-of the the sea not to-give vent
τῷ ὑπὸ τὴν γῆν ὡρμημένῳ πνεύματι, ἀλλ᾽ ἀντιφράττειν·
to-the under the earth having-rushed wind but to-block
ἀποβιαζόμενα γὰρ ἄλληλα τὸ μὲν πνεῦμα τὸν σεισμὸν
forcing-back for one-another the indeed wind the earthquake
ἐποίησεν, ἡ δ᾽ ὑπόστασις τοῦ κύματος τὸν κατακλυσμόν.
made the and settling of-the wave the flood
Κατὰ μέρος δὲ γίγνονται οἱ σεισμοὶ τῆς γῆς, καὶ
In part and come-about the earthquakes of-the earth and
πολλάκις ἐπὶ μικρὸν τόπον, οἱ δ᾽ ἄνεμοι οὐ κατὰ μέρος·
often over small place the but winds not in part
κατὰ μέρος μέν, ὅταν αἱ ἀναθυμιάσεις αἱ κατὰ τὸν
in part indeed when the exhalations the(-ones) in the
τόπον αὐτὸν καὶ τὸν γειτνιῶντα συνέλθωσιν εἰς ἕν, ὥσπερ
place itself and the neighboring come-together into one just-as

καὶ τοὺς αὐχμοὺς ἔφαμεν γίγνεσθαι καὶ τὰς ὑπερομβρίας
also the droughts we-said to-come-about and the excessive-rains
τὰς κατὰ μέρος. Καὶ οἱ μὲν σεισμοὶ γίγνονται διὰ
the(-ones) in part And the indeed earthquakes come-about because-of
τοῦτον τὸν τρόπον, οἱ δ' ἄνεμοι οὔ· τὰ μὲν γὰρ ἐν
this the way the but winds not the(-ones) indeed for in
τῇ γῇ τὴν ἀρχὴν ἔχει, ὥστ' ἐφ' ἓν ἁπάσας ὁρμᾶν· ὁ δ'
the earth the beginning have so-that to one all to-rush the and
ἥλιος οὐχ ὁμοίως δύναται, τὰς δὲ μετεώρους μᾶλλον,
sun not alike is-able the(-ones) but aloft more
ὥστε ῥεῖν, ὅταν ἀρχὴν λάβωσιν ἀπὸ τῆς τοῦ ἡλίου
so-that to-flow when beginning they-take from the of-the sun
φορᾶς ἤδη κατὰ τὰς διαφορὰς τῶν τόπων, ἐφ' ἕν.
course already according-to the differences of-the places to one
Ὅταν μὲν οὖν ᾖ πολὺ τὸ πνεῦμα, κινεῖ τὴν γῆν, ὥσπερ
When indeed then be much the wind it-moves the earth just-as
ἂν ὁ τρόμος, ἐπὶ πλάτος μέν, γίγνεται δ' ὀλιγάκις καὶ
— the tremor in breadth indeed comes-about and seldom and
κατά τινας τόπους, οἷον ὁ σφυγμός, ἄνω καὶ κάτωθεν·
in some places like the throbbing upward and from-below
διὸ καὶ ἐλαττονάκις σείει τοῦτον τὸν τρόπον· οὐ γὰρ
wherefore also less-often it-shakes this the way not for
ῥᾴδιον οὕτω πολλὴν συνελθεῖν ἀρχήν· ἐπὶ μῆκος γὰρ
easy so much to-come-together source in length for
πολλαπλασία τῆς ἀπὸ τοῦ βάθους ἡ διάκρισις. Ὅπου
many-times-greater than-the(-one) from the depth the separation Where
δ' ἂν γένηται τοιοῦτος σεισμός, ἐπιπολάζει πλῆθος λίθων,
and — comes-about such earthquake rises-to-the-surface quantity of-stones
ὥσπερ τῶν ἐν τοῖς λίκνοις ἀναβραττομένων· τοῦτον
just-as of-the(-things) in the winnowing-fans being-tossed-up this
γὰρ τὸν τρόπον γενομένου σεισμοῦ τὰ περὶ Σίπυλον
for the way having-come-about earthquake the(-parts) about Sipylus

ἀνετράπη καὶ τὸ Φλεγραῖον καλούμενον πεδίον καὶ τὰ
were-overturned and the Phlegraean called plain and the(-parts)
περὶ τὴν Λιγυστικὴν χώραν. Ἐν δὲ ταῖς νήσοις ταῖς
about the Ligurian country In and the islands the(-ones)
ποντίαις ἧττον γίγνεται σεισμὸς τῶν προσγείων· τὸ
of-the-open-sea less comes-about earthquake than-the(-ones) near-land the
γὰρ πλῆθος τῆς θαλάττης καταψύχει τὰς ἀναθυμιάσεις
for quantity of-the sea cools the exhalations
καὶ κωλύει τῷ βάρει καὶ ἀποβιάζεται, ἔτι δὲ ῥεῖ καὶ
and hinders by-the weight and forces-back further and it-flows and
οὐ σείεται κρατουμένη ὑπὸ τῶν πνευμάτων· καὶ διὰ τὸ
not is-shaken being-mastered by the winds and because-of the
πολὺν ἐπέχειν τόπον οὐκ εἰς ταύτην ἀλλ' ἐκ ταύτης αἱ
much to-occupy place not into it but out-of it the
ἀναθυμιάσεις γίγνονται, καὶ ταύταις ἀκολουθοῦσιν αἱ
exhalations come-about and these follow the(-ones)
ἐκ τῆς γῆς. Αἱ δ' ἐγγὺς τῆς ἠπείρου μόριόν εἰσι τῆς
from the earth The(-ones) and near the mainland part are of-the
ἠπείρου· τὸ γὰρ μεταξὺ διὰ μικρότητα οὐδεμίαν ἔχει
mainland the(-space) for between because-of smallness no has
δύναμιν· τὰς δὲ ποντίας οὐκ ἔστι κινῆσαι ἄνευ τῆς
power the but open-sea(-ones) not it-is-possible to-move without the
θαλάττης ὅλης, ὑφ' ἧς περιεχόμεναι τυγχάνουσιν. Περὶ μὲν
sea whole by which being-surrounded they-happen About indeed
οὖν σεισμῶν, καὶ τίς ἡ φύσις αὐτῶν, καὶ διὰ τίν' αἰτίαν
then earthquakes and what the nature of-them and because-of what cause
γίγνονται, καὶ περὶ τῶν ἄλλων τῶν συμβαινόντων
they-come-about and about the other(-things) the(-ones) happening
περὶ αὐτούς, εἴρηται σχεδὸν περὶ τῶν μεγίστων.
about them has-been-said nearly about the greatest

The dry exhalation caught in a cloud as it cools is driven out and strikes the clouds around it: the noise is thunder, like the crackle of burning wood, and the wind, burning thinly, is lightning, seen before the thunder is heard, as a trireme's oars show. Empedocles and Anaxagoras put fire in the clouds, and Cleidemus calls lightning a mere appearance, like the sea flashing when struck; both are refuted. Wind, earthquake, and thunder are one nature.

Περὶ δὲ ἀστραπῆς καὶ βροντῆς, ἔτι δὲ περὶ τυφῶνος
About and lightning and thunder further and about whirlwind
καὶ πρηστῆρος καὶ κεραυνῶν λέγωμεν· καὶ γὰρ τούτων
and fire-wind and thunderbolts let-us-speak also for of-these
τὴν αὐτὴν ἀρχὴν ὑπολαμβάνειν δεῖ πάντων. Τῆς γὰρ
the same principle to-suppose one-must all The for
ἀναθυμιάσεως, ὥσπερ εἴπομεν, οὔσης διττῆς, τῆς μὲν
exhalation just-as we-said being twofold the(-one) indeed
ὑγρᾶς τῆς δὲ ξηρᾶς, καὶ τῆς συγκρίσεως ἐχούσης ἄμφω
moist the(-other) and dry and the combination having both
ταῦτα δυνάμει καὶ συνισταμένης εἰς νέφος, ὥσπερ εἴρηται
these in-potency and condensing into cloud just-as has-been-said
πρότερον, ἔτι δὲ πυκνοτέρας τῆς συστάσεως τῶν νεφῶν
earlier further and denser the condensation of-the clouds
γιγνομένης πρὸς τὸ ἔσχατον πέρας· ᾗ γὰρ ἐκλείπει τὸ
becoming toward the farthest limit where for fails the
θερμὸν διακρινόμενον εἰς τὸν ἄνω τόπον, ταύτῃ πυκνοτέραν
heat being-separated into the upper place there denser
καὶ ψυχροτέραν ἀναγκαῖον εἶναι τὴν σύστασιν. Διὸ καὶ
and colder necessary to-be the condensation Wherefore also
οἱ κεραυνοὶ καὶ οἱ ἐκνεφίαι καὶ πάντα τὰ τοιαῦτα φέρεται
the thunderbolts and the hurricanes and all the such-things are-carried
κάτω, καίτοι πεφυκότος ἄνω τοῦ θερμοῦ φέρεσθαι παντός·
downward and-yet being-by-nature upward the heat to-be-carried all

ἀλλ᾽ εἰς τοὐναντίον τῆς πυκνότητος ἀναγκαῖον γίγνεσθαι τὴν
but into the-opposite of-the density necessary to-come-about the
ἔκθλιψιν, οἷον οἱ πυρῆνες οἱ ἐκ τῶν δακτύλων πηδῶντες·
squeezing-out like the pips the(-ones) from the fingers leaping
καὶ γὰρ ταῦτα βάρος ἔχοντα φέρεται πολλάκις ἄνω. Ἡ μὲν
also for these weight having are-carried often upward The indeed
οὖν ἐκκρινομένη θερμότης εἰς τὸν ἄνω διασπείρεται τόπον.
then being-secreted heat into the upper is-dispersed place
Ὅση δ᾽ ἐμπεριλαμβάνεται τῆς ξηρᾶς ἀναθυμιάσεως ἐν
As-much-as but is-enclosed of-the dry exhalation in
τῇ μεταβολῇ ψυχομένου τοῦ ἀέρος, αὕτη συνιόντων τῶν
the change being-cooled the air this coming-together the
νεφῶν ἐκκρίνεται, βίᾳ δὲ φερομένη καὶ προσπίπτουσα
clouds is-secreted by-force and being-carried and striking
τοῖς περιεχομένοις νέφεσι ποιεῖ πληγήν, ἧς ὁ ψόφος
the surrounding clouds makes blow of-which the noise
καλεῖται βροντή. Γίνεται δ᾽ ἡ πληγὴ τὸν αὐτὸν
is-called thunder Comes-about and the blow the same
τρόπον, ὡς παρεικάσαι μείζονι μικρὸν πάθος, τῷ
way so-as to-compare to-greater small affection to-the(-one)
ἐν τῇ φλογὶ γινομένῳ ψόφῳ, ὃν καλοῦσιν οἱ μὲν
in the flame occurring noise which call the(-ones) indeed
τὸν Ἥφαιστον γελᾶν, οἱ δὲ τὴν Ἑστίαν, οἱ
the Hephaestus to-laugh the(-others) and the Hestia the(-others)
δ᾽ ἀπειλὴν τούτων. Γίγνεται δ᾽ ὅταν ἡ ἀναθυμίασις
and threat of-these It-comes-about and when the exhalation
εἰς τὴν φλόγα συνεστραμμένη φέρηται, ῥηγνυμένων καὶ
into the flame compressed is-carried being-broken and
ξηραινομένων τῶν ξύλων· οὕτω γὰρ καὶ ἐν τοῖς νέφεσι
being-dried the timbers so for also in the clouds
γιγνομένη ἡ τοῦ πνεύματος ἔκκρισις πρὸς τὴν πυκνότητα
coming-about the of-the wind secretion against the density

τῶν νεφῶν εἰσπίπτουσα ποιεῖ τὴν βροντήν. Παντοδαποὶ
of-the clouds falling-in makes the thunder Of-all-kinds
δ' οἱ ψόφοι διὰ τὴν ἀνωμαλίαν τε γίνονται τῶν
and the noises because-of the unevenness both come-about of-the
νεφῶν καὶ διὰ τὰς μεταξὺ κοιλιας, ᾗ τὸ συνεχὲς
clouds and because-of the between hollows where the continuous
ἐκλείπει τῆς πυκνότητος. Ἡ μὲν οὖν βροντὴ τοῦτ' ἔστι
fails of-the density The indeed then thunder this is
καὶ γίνεται διὰ ταύτην τὴν αἰτίαν· τὸ δὲ πνεῦμα
and comes-about because-of this the cause the and wind
τὸ ἐκθλιβόμενον τὰ πολλὰ μὲν ἐκπυροῦται λεπτῇ καὶ
the(-one) being-squeezed-out for-the most-part indeed is-ignited by-thin and
ἀσθενεῖ πυρώσει, καὶ τοῦτ' ἔστιν ἣν καλοῦμεν ἀστραπήν,
weak burning and this is which we-call lightning
ᾗ ἂν ὥσπερ ἐκπῖπτον τὸ πνεῦμα χρωματισθὲν ὀφθῇ.
where — as-it-were falling-out the wind colored be-seen
Γίνεται δὲ μετὰ τὴν πληγὴν καὶ ὕστερον τῆς βροντῆς·
It-comes-about and after the blow and later than-the thunder
ἀλλὰ φαίνεται πρότερον διὰ τὸ τὴν ὄψιν προτερεῖν τῆς
but appears earlier because-of the the sight to-be-ahead-of the
ἀκοῆς. Δηλοῖ δ' ἐπὶ τῆς εἰρεσίας τῶν τριήρων· ἤδη
hearing It-shows and in-the-case-of the rowing of-the triremes already
γὰρ ἀναφερόντων πάλιν τὰς κώπας ὁ πρῶτος ἀφικνεῖται
for raising again the oars the first arrives
ψόφος τῆς κωπηλασίας. Καίτοι τινὲς λέγουσιν ὡς ἐν τοῖς
noise of-the oar-stroke And-yet some say that in the
νέφεσιν ἐγγίνεται πῦρ· τοῦτο δ' Ἐμπεδοκλῆς μέν φησιν
clouds comes-to-be-in fire this and Empedocles indeed says
εἶναι τὸ ἐμπεριλαμβανόμενον τῶν τοῦ ἡλίου ἀκτίνων,
to-be the(-part) enclosed of-the of-the sun rays
Ἀναξαγόρας δὲ τοῦ ἄνωθεν αἰθέρος, ὃ δὴ ἐκεῖνος
Anaxagoras and of-the from-above aether which indeed he

καλεῖ πῦρ κατενεχθὲν ἄνωθεν κάτω. Τὴν μὲν οὖν
calls fire having-been-brought-down from-above downward The indeed then
διάλαμψιν ἀστραπὴν εἶναι τούτου τοῦ πυρός, τὸν δὲ ψόφον
flashing lightning to-be of-this the fire the and noise
ἐναποσβεννυμένου καὶ τὴν σίξιν βροντήν, ὡς καθάπερ
being-quenched-in and the hissing thunder as just-as
φαίνεται καὶ γιγνόμενον, οὕτω καὶ πρότερον τὴν ἀστραπὴν
it-appears also coming-about so also earlier the lightning
οὖσαν τῆς βροντῆς. Ἄλογος δὲ καὶ ἡ τοῦ πυρὸς
being than-the thunder Unreasonable and also the of-the fire
ἐμπερίληψις, ἀμφοτέρως μέν, μᾶλλον δ' ἡ κατάσπασις
enclosure both-ways indeed more but the drawing-down
τοῦ ἄνωθεν αἰθέρος. Τοῦ τε γὰρ κάτω φέρεσθαι τὸ
of-the from-above aether Of-the both for downward to-be-carried the(-thing)
πεφυκὸς ἄνω δεῖ λέγεσθαι τὴν αἰτίαν, καὶ διὰ τί
being-by-nature upward must to-be-stated the cause and because-of what
ποτε τοῦτο γίγνεται κατὰ τὸν οὐρανὸν ὅταν ἐπινέφελον ᾖ
ever this comes-about in the heaven when cloudy it-be
μόνον, ἀλλ' οὐ συνεχῶς οὕτως· αἰθρίας δ' οὔσης οὐ γίγνεται.
only but not continuously so clear-sky but being not it-comes-about
Τοῦτο γὰρ παντάπασιν ἔοικεν εἰρῆσθαι προχείρως.
This for altogether seems to-have-been-said offhand
Ὁμοίως δὲ καὶ τὸ τὴν ἀπὸ τῶν ἀκτίνων θερμότητα φάναι
Likewise and also the the from the rays heat to-say
τὴν ἀπολαμβανομένην ἐν τοῖς νέφεσιν εἶναι τούτων αἰτίαν
the(-heat) intercepted in the clouds to-be of-these cause
οὐ πιθανόν· καὶ γὰρ οὗτος ὁ λόγος ἀπραγμόνως εἴρηται
not plausible also for this the account carelessly has-been-said
λίαν· ἀποκεκριμένον τε γὰρ ἀναγκαῖον εἶναι τὸ αἴτιον
too-much separated both for necessary to-be the cause
ἀεὶ καὶ ὡρισμένον, τῆς τε βροντῆς καὶ τῆς ἀστραπῆς
always and determinate of-the both thunder and the lightning

καὶ τῶν ἄλλων τῶν τοιούτων, καὶ οὕτω γίνεσθαι. Τοῦτο
and the others the such and so to-come-about This
δὲ διαφέρει πλεῖστον· ὅμοιον γὰρ κἂν εἴ τις οἴοιτο
and matters most like for even if someone should-think
τὸ ὕδωρ καὶ τὴν χιόνα καὶ τὴν χάλαζαν ἐνυπάρχοντα
the water and the snow and the hail being-present-in
πρότερον ὕστερον ἐκκρίνεσθαι καὶ μὴ γίνεσθαι, οἷον ὑπὸ
earlier later to-be-secreted and not to-come-about as at
χεῖρα ποιούσης ἀεὶ τῆς συγκρίσεως ἕκαστον αὐτῶν.
hand producing always the combination each of-them
Ὡσαύτως γὰρ ἐκεῖνά τε συγκρίσεις καὶ ταῦτα διακρίσεις
Likewise for those both combinations and these separations
ὑποληπτέον εἶναι, ὥστ᾽ εἰ θάτερα τούτων μὴ γίγνεται ἀλλ᾽
one-must-suppose to-be so-that if the-ones of-these not come-about but
ἔστι, περὶ ἀμφοτέρων ὁ αὐτὸς ἁρμόσει λόγος. Τήν τε
are about both the same will-fit account The both
ἐναπόληψιν τί ἂν ἀλλοιότερον λέγοι τις ἢ καθάπερ
interception what — different would-say someone than just-as
ἐν τοῖς πυκνοτέροις; Καὶ γὰρ τὸ ὕδωρ ὑπὸ τοῦ ἡλίου καὶ
in the denser(-bodies) And for the water by the sun and
τοῦ πυρὸς γίνεται θερμόν· ἀλλ᾽ ὅμως ὅταν πάλιν συνίῃ
the fire becomes hot but nevertheless when again it-contracts
καὶ ψύχηται τὸ ὕδωρ πηγνύμενον, οὐδεμίαν συμβαίνει
and is-cooled the water freezing no it-happens
γίνεσθαι τοιαύτην ἔκπτωσιν οἵαν ἐκεῖνοι λέγουσιν.
to-come-about such falling-out as they say
Καίτοι γ᾽ ἐχρῆν κατὰ λόγον τοῦ μεγέθους τὴν ζέσιν
And-yet at-least it-ought in proportion to-the magnitude the boiling
ποιεῖν τὸ ἐγγινόμενον πνεῦμα ὑπὸ τοῦ πυρός, ἣν οὔτε
to-make the coming-to-be-in wind by the fire which neither
δυνατὸν ἐνυπάρχειν πρότερον, οὔτ᾽ ἐκεῖνοι τὸν ψόφον ζέσιν
possible to-be-present-in earlier nor they the noise boiling

ποιοῦσιν ἀλλὰ σίξιν· ἔστι δὲ καὶ ἡ σίξις μικρὰ ζέσις· ᾗ γὰρ
make but hissing is and also the hissing small boiling where for
τὸ προσπῖπτον κρατεῖ σβεννύμενον, ταύτῃ ζέον ποιεῖ
the(-thing) falling-on prevails being-quenched there boiling makes
τὸν ψόφον. Εἰσὶ δέ τινες οἳ τὴν ἀστραπήν, ὥσπερ καὶ
the noise There-are and some who the lightning just-as also
Κλείδημος, οὐκ εἶναί φασιν ἀλλὰ φαίνεσθαι, παρεικάζοντες
Cleidemus not to-be say but to-appear comparing
ὡς τὸ πάθος ὅμοιον ὂν καὶ ὅταν τὴν θάλαττάν τις
as the affection like being also when the sea someone
ῥάβδῳ τύπτῃ· φαίνεται γὰρ τὸ ὕδωρ ἀποστίλβον τῆς
with-rod strikes appears for the water flashing by-the
νυκτός· οὕτως ἐν τῇ νεφέλῃ ῥαπιζομένου τοῦ ὑγροῦ τὴν
night so in the cloud being-struck the liquid the
φαντασίαν τῆς λαμπρότητος εἶναι τὴν ἀστραπήν. Οὗτοι
appearance of-the brightness to-be the lightning These
μὲν οὖν οὔπω συνήθεις ἦσαν ταῖς περὶ τῆς ἀνακλάσεως
indeed then not-yet familiar were with-the about the reflection
δόξαις, ὅπερ αἴτιον δοκεῖ τοῦ τοιούτου πάθους εἶναι·
opinions which-very cause seems of-the such affection to-be
φαίνεται γὰρ τὸ ὕδωρ στίλβειν τυπτόμενον ἀνακλωμένης
appears for the water to-flash being-struck being-reflected
ὑπ᾽ αὐτοῦ τῆς ὄψεως πρός τι τῶν λαμπρῶν. Διὸ καὶ
by it the sight toward some of-the bright(-things) Wherefore also
γίνεται τοῦτο μᾶλλον νύκτωρ· τῆς γὰρ ἡμέρας οὐ φαίνεται
comes-about this more by-night by-the for day not it-appears
διὰ τὸ πλέον ὂν τὸ φέγγος τὸ τῆς ἡμέρας ἀφανίζειν.
because-of the greater being the light the(-one) of-the day to-obscure(-it)
Τὰ μὲν οὖν λεγόμενα περὶ βροντῆς καὶ ἀστραπῆς
The(-things) indeed then said about thunder and lightning
παρὰ τῶν ἄλλων ταῦτ᾽ ἐστί, τῶν μὲν ὅτι ἀνάκλασις
by the others these are of-the(-ones) indeed that reflection

ἡ ἀστραπή, τῶν δ' ὅτι πυρὸς μὲν ἡ ἀστραπὴ
the lightning of-the(-others) and that of-fire indeed the lightning
διάλαμψις, ἡ δὲ βροντὴ σβέσις, οὐκ ἐγγινομένου παρ'
flashing the and thunder quenching not coming-to-be-in at
ἕκαστον πάθος τοῦ πυρὸς ἀλλ' ἐνυπάρχοντος. Ἡμεῖς δέ
each affection the fire but being-present-in We but
φαμεν τὴν αὐτὴν εἶναι φύσιν ἐπὶ μὲν τῆς γῆς ἄνεμον, ἐν δὲ
say the same to-be nature on indeed the earth wind in and
τῇ γῇ σεισμόν, ἐν δὲ τοῖς νέφεσι βροντήν· πάντα γὰρ εἶναι
the earth earthquake in and the clouds thunder all for to-be
ταῦτα τὴν οὐσίαν ταὐτόν, ἀναθυμίασιν ξηράν, ἣ ῥέουσα
these the substance the-same exhalation dry which flowing
μέν πως ἄνεμός ἐστιν, ὠδὶ δὲ ποιεῖ τοὺς σεισμούς,
indeed in-one-way wind is in-this-way and makes the earthquakes
ἐν δὲ τοῖς νέφεσι μεταβάλλουσα ἐκκρινομένη, συνιόντων καὶ
in and the clouds changing being-secreted coming-together and
συγκρινομένων αὐτῶν εἰς ὕδωρ, βροντάς τε καὶ ἀστραπὰς
being-combined them into water thunders both and lightnings
καὶ πρὸς τούτοις τἆλλα τὰ τῆς αὐτῆς φύσεως
and besides these the-other(-things) the(-ones) of-the same nature
τούτοις ὄντα. Καὶ περὶ μὲν βροντῆς εἴρηται καὶ ἀστραπῆς.
with-these being And about indeed thunder has-been-said and lightning

BOOK III

ΜΕΤΕΩΡΟΛΟΓΙΚΩΝ Γ.

I · HURRICANES, WHIRLWINDS, AND THUNDERBOLTS

The same exhalation, given off in small amounts, makes thunder and lightning; massed and dense, a hurricane. A wind that cannot escape its cloud turns in an eddy and comes down as a whirlwind; kindled and finer, as a fire-wind; squeezed out very fine, as a thunderbolt, the bright one passing too fast to burn, the smoky one scorching. A shield's bronze melted while its wood was unharmed, and the burning temple at Ephesus showed flame carried as wind.

Περὶ δὲ τῶν ὑπολοίπων εἴπωμεν ἔργων τῆς ἐκκρίσεως
About and the remaining let-us-speak works of-the secretion
ταύτης, τὸν ὑφηγημένον ἤδη τρόπον λέγοντες. Τὸ
this the having-been-laid-down already way speaking The
γὰρ πνεῦμα τοῦτο ἐκκρινόμενον κατὰ μικρὰ μὲν
for wind this being-secreted in small(-amounts) indeed
καὶ σποράδην διαχεόμενον καὶ πολλάκις γιγνόμενον καὶ
and scattered being-dispersed and often coming-about and
διαπνέον καὶ λεπτομερέστερον ὂν βροντὰς ποιεῖ καὶ
blowing-through and finer-in-parts being thunders makes and
ἀστραπάς· ἂν δ' ἀθρόον καὶ πυκνότερον, ἧττον δ' ἐκκριθῇ
lightnings if but all-together and denser less and be-secreted
λεπτόν, ἐκνεφίας ἄνεμος γίνεται. Διὸ καὶ βίαιος· τὸ
fine hurricane wind comes-about Wherefore also violent the
γὰρ τάχος τῆς ἐκκρίσεως ποιεῖ τὴν ἰσχύν. Ὅταν μὲν οὖν
for speed of-the secretion makes the strength When indeed then
συνακολουθήσῃ πολλὴ καὶ συνεχὴς ἔκκρισις, τὸν αὐτὸν
follows-along much and continuous secretion the same
γίνεται τρόπον ὥσπερ ὅταν πάλιν εἰς τοὐναντίον ὁρμήσῃ·
comes-about way just-as when again into the-opposite it-rushes

τότε γὰρ ὑετὸς καὶ ὕδατος γίνεται πλῆθος. Ὑπάρχει
then for rain and of-water comes-about quantity Are-present
μὲν οὖν ἄμφω δυνάμει ταῦτα κατὰ τὴν ὕλην· ὅταν
indeed then both in-potency these in the matter when
δ' ἀρχὴ γένηται τῆς δυνάμεως ὁποτερασοῦν, ἀκολουθεῖ
and beginning comes-about of-the potency of-either follows
συνεκκρινόμενον ἐκ τῆς ὕλης, ὁποτέρου ἂν πλῆθος
being-secreted-with out-of the matter of-whichever — quantity
ἐνυπάρχῃ πλεῖον, καὶ γίνεται τὸ μὲν ὄμβρος, τὸ
be-present greater and comes-about the(-one) indeed shower the(-other)
δὲ τῆς ἑτέρας ἀναθυμιάσεως ἐκνεφίας. Ὅταν δὲ τὸ
and of-the other exhalation hurricane When and the
ἐκκρινόμενον πνεῦμα τὸ ἐν τῷ νέφει ἑτέρῳ ἀντιτυπήσῃ
being-secreted wind the(-one) in the cloud another meets-resistance
οὕτως, ὥσπερ ὅταν ἐξ εὐρέος εἰς στενὸν βιάζηται ὁ ἄνεμος
so just-as when from broad into narrow is-forced the wind
ἐν πύλαις ἢ ὁδοῖς· συμβαίνει γὰρ πολλάκις ἐν τοῖς τοιούτοις
in gates or roads it-happens for often in the such(-cases)
ἀπωσθέντος τοῦ πρώτου μορίου τοῦ ῥέοντος σώματος
having-been-thrust-back the first part of-the flowing body
διὰ τὸ μὴ ὑπείκειν, ἢ διὰ στενότητα ἢ διὰ
because-of the not to-give-way either because-of narrowness or because-of
τὸ ἀντιπνεῖν, κύκλον καὶ δίνην γίνεσθαι τοῦ πνεύματος·
the to-blow-against circle and eddy to-come-about of-the wind
τὸ μὲν γὰρ εἰς τὸ πρόσθεν κωλύει προϊέναι, τὸ
the(-part) indeed for into the front prevents to-go-forward the(-part)
δ' ὄπισθεν ἐπωθεῖ, ὥστ' ἀναγκάζεται εἰς τὸ πλάγιον, ᾗ
and behind pushes-on so-that it-is-compelled into the side where
οὐ κωλύεται, φέρεσθαι, καὶ οὕτως ἀεὶ τὸ ἐχόμενον,
not it-is-prevented to-be-carried and so always the(-part) next

ἕως ἂν ἓν γένηται, τοῦτο δ' ἐστὶ κύκλος· οὗ γὰρ μία
until — one becomes this and is circle of-which for one
φορὰ σχήματος, τοῦτο καὶ αὐτὸ ἀνάγκη κύκλον εἶναι.
course of-shape this also itself necessity circle to-be
Ἐπί τε τῆς γῆς οὖν διὰ ταῦτα γίγνονται οἱ δῖνοι, καὶ
On both the earth then because-of these-things come-about the eddies and
ἐν τοῖς νέφεσιν ὁμοίως κατὰ τὴν ἀρχήν, πλὴν ὅτι, ὥσπερ
in the clouds alike as-regards the beginning except that just-as
ὅταν ἐκνεφίας γίγνηται, ἀεὶ τὸ νέφος ἐκκρίνεται καὶ
when hurricane comes-about always the cloud is-secreted and
γίνεται συνεχὴς ἄνεμος, οὕτως ἐνταῦθα ἀεὶ τὸ συνεχὲς
becomes continuous wind so here always the continuous(-part)
ἀκολουθεῖ τοῦ νέφους. Διὰ δὲ πυκνότητα οὐ δυνάμενον
follows of-the cloud Because-of and density not being-able
ἐκκριθῆναι τὸ πνεῦμα ἐκ τοῦ νέφους στρέφεται μὲν κύκλῳ
to-be-secreted the wind out-of the cloud is-turned indeed in-a-circle
τὸ πρῶτον διὰ τὴν εἰρημένην αἰτίαν, φέρεται δὲ κάτω
— at-first because-of the stated cause is-carried and downward
διὰ τὸ ἀεὶ τὰ νέφη πυκνοῦσθαι, ᾗ ἐκπίπτει τὸ θερμόν.
because-of the always the clouds to-be-condensed where falls-out the heat
Καλεῖται δ', ἂν ἀχρωμάτιστον ᾖ, τοῦτο τὸ πάθος τυφών,
Is-called and if colorless be this the affection whirlwind
ἄνεμος ὤν, οἷον ἐκνεφίας ἄπεπτος. Βορείοις δ' οὐ γίγνεται
wind being like hurricane unconcocted In-north-winds and not comes-about
τυφών, οὐδὲ νιφετῶν ὄντων ἐκνεφίας, διὰ τὸ πάντα
whirlwind nor snows being hurricane because-of the all
ταῦτ' εἶναι πνεύματα, τὸ δὲ πνεῦμα ξηρὰν εἶναι καὶ θερμὴν
these to-be winds the and wind dry to-be and hot
ἀναθυμίασιν. Ὁ οὖν πάγος καὶ τὸ ψῦχος διὰ τὸ κρατεῖν
exhalation The then frost and the cold because-of the to-prevail
σβέννυσιν εὐθὺς γιγνομένην ἔτι τὴν ἀρχήν. Ὅτι δὲ κρατεῖ,
quenches at-once coming-about still the beginning That and it-prevails

δῆλον· οὐ γὰρ ἂν ἦν νιφετός, οὐδὲ βόρεια τὰ ὑγρά·
clear not for — there-would-be snow nor northerly the wet(-weathers)
ταῦτα γὰρ συμβαίνει κρατούσης εἶναι τῆς ψυχρότητος.
these for it-happens prevailing to-be the coldness
Γίγνεται μὲν οὖν τυφών, ὅταν ἐκνεφίας γιγνόμενος μὴ
Comes-about indeed then whirlwind when hurricane coming-about not
δύνηται ἐκκριθῆναι τοῦ νέφους. Ἔστι δὲ διὰ τὴν
be-able to-be-secreted from-the cloud It-is and because-of the
ἀντίκρουσιν τῆς δίνης, ὅταν ἐπὶ γῆς φέρηται ἡ ἕλιξ
repulsion of-the eddy when onto earth is-carried the spiral
συγκατάγουσα τὸ νέφος, οὐ δυναμένη ἀπολυθῆναι. Ἧ
bringing-down-with the cloud not being-able to-be-released Where
δὲ κατ' εὐθυωρίαν ἐκπνεῖ, ταύτῃ τῷ πνεύματι κινεῖ,
and in straight-line it-blows-out there by-the wind it-moves
καὶ τῇ κύκλῳ κινήσει στρέφει καὶ ἀναφέρει ᾧ ἂν
and by-the circular motion it-turns and carries-up whatever —
προσπέσῃ βιαζόμενον. Ὅταν δὲ κατασπώμενον ἐκπυρωθῇ
it-falls-upon forcing When and being-drawn-down it-be-ignited
(τοῦτο δ' ἐστίν, ἂν λεπτότερον τὸ πνεῦμα γένηται),
this and is if finer the wind becomes
καλεῖται πρηστήρ· συνεκπίμπρησι γὰρ τὸν ἀέρα τῇ
it-is-called fire-wind it-sets-on-fire-with for the air by-the
πυρώσει χρωματίζων. Ἐὰν δ' ἐν αὐτῷ τῷ νέφει πολὺ
burning coloring If and in itself the cloud much
καὶ λεπτὸν ἐκθλιβῇ πνεῦμα, τοῦτο γίνεται κεραυνός, ἐὰν
and fine be-squeezed-out wind this becomes thunderbolt if
μὲν πάνυ λεπτόν, οὐκ ἐπικάων διὰ λεπτότητα, ὃν
indeed very fine not scorching because-of fineness which
οἱ ποιηταὶ ἀργῆτα καλοῦσιν, ἐὰν δ' ἧττον, ἐπικάων, ὃν
the poets bright call if but less scorching which
ψολόεντα καλοῦσιν· ὁ μὲν γὰρ διὰ τὴν λεπτότητα
smoky they-call the(-one) indeed for because-of the fineness

φέρεται, διὰ δὲ τὸ τάχος φθάνει διεξιὼν πρὶν
is-carried because-of and the speed it-gets-ahead passing-through before
ἐκπυρῶσαι καὶ ἐπιδιατρίψας μελâναι· ὁ δὲ βραδύτερος
to-ignite and having-lingered to-blacken the(-one) but slower
ἔχρωσε μέν, ἔκαυσε δ' οὔ, ἀλλ' ἔφθασε διών.
colored indeed burned but not but got-ahead passing-through
Διὸ καὶ τὰ μὲν ἀντιτυπήσαντα πάσχει τι,
Wherefore also the(-things) indeed having-resisted suffer something
τὰ δὲ μὴ οὐθέν, οἷον ἀσπίδος ἤδη τὸ μὲν χάλκωμα
the(-things) and not nothing as of-a-shield once the indeed bronze-work
ἐτάκη, τὸ δὲ ξύλον οὐθὲν ἔπαθεν· διὰ γὰρ μανότητα
was-melted the but wood nothing suffered because-of for looseness
ἔφθασε τὸ πνεῦμα διηθηθὲν καὶ διελθόν· καὶ δι' ἱματίων
got-ahead the wind having-filtered and having-passed also through garments
ὁμοίως οὐ κατέκαυσεν, ἀλλ' οἷον τρύχος ἐποίησεν· ὥστε
likewise not it-burned but as-it-were rag made so-that
ὅτι γε πνεύματα ταῦτα πάντα, δῆλον καὶ ἐκ τῶν
that at-least winds these all clear also from the
τοιούτων. Ἔστι δ' ἐνίοτε καὶ τοῖς ὄμμασι θεωρεῖν,
such-things It-is-possible and sometimes even with-the eyes to-observe
οἷον καὶ νῦν συνέβαινε περὶ τὸν ἐν Ἐφέσῳ ναὸν καόμενον·
as also now happened about the in Ephesus temple burning
πολλαχῇ γὰρ ἡ φλὸξ ἐφέρετο συνεχής, ἀποσπωμένη χωρίς.
in-many-places for the flame was-carried continuous being-torn-away apart
Ὅτι μὲν γὰρ ὅ τε καπνὸς πνεῦμα καὶ κάεται ὁ καπνός,
That indeed for the both smoke wind and burns the smoke
φανερόν, καὶ εἴρηται ἐν ἑτέροις πρότερον· ὅταν δ' ἀθρόον
evident and has-been-said in other(-works) earlier when but all-together
χωρῇ, τότε φανερῶς δοκεῖ πνεῦμα εἶναι. Ὅπερ οὖν ἐν ταῖς
it-goes then evidently it-seems wind to-be What-very then in the
μικραῖς πυρκαϊαῖς φαίνεται, τοῦτο καὶ τότε πολλῆς ὕλης
small fires appears this also then much material

καομένης ἐγίγνετο πολλῷ ἰσχυρότερον. Ῥηγνυμένων οὖν
burning came-about by-much stronger Being-broken then
τῶν ξύλων, ὅθεν ἡ ἀρχὴ τοῦ πνεύματος ἦν, πολὺ ἐχώρει
the timbers whence the beginning of-the wind was much it-went
ἀθρόον, ᾗ ἐξέπνει, καὶ ἐφέρετο ἄνω πεπυρωμένον, ὥστ'
all-together where it-blew-out and was-carried upward ignited so-that
ἐφαίνετο ἡ φλὸξ φέρεσθαι καὶ εἰσπίπτειν εἰς τὰς οἰκίας.
appeared the flame to-be-carried and to-fall-in into the houses
Ἀεὶ γὰρ οἴεσθαι δεῖ συνακολουθεῖν τοῖς κεραυνοῖς πνεῦμα
Always for to-think one-must to-accompany the thunderbolts wind
καὶ προϊέναι· ἀλλ' οὐχ ὁρᾶται διὰ τὸ ἀχρωμάτιστον εἶναι.
and to-go-before but not it-is-seen because-of the colorless to-be
Διὸ καὶ ᾗ μέλλει πατάξειν, κινεῖται πρὶν πληγῆναι,
Wherefore also where it-is-about to-strike is-moved before to-be-struck
ἅτε πρότερον προσπίπτουσης τῆς ἀρχῆς τοῦ πνεύματος.
inasmuch-as earlier falling-upon the beginning of-the wind
Καὶ αἱ βρονταὶ δὲ καὶ ἀστραπαὶ διιστᾶσιν οὐ τῷ ψόφῳ,
Also the thunders and and lightnings split-apart not by-the noise
ἀλλ' ὅτι ἅμα συνεκκρίνεται τὸ τὴν πληγὴν ποιῆσαν
but because at-once is-secreted-with the(-thing) the blow having-made
καὶ τὸν ψόφον πνεῦμα· ὃ ἐὰν πατάξῃ, διέστησεν, ἐπέκαυσε
and the noise wind which if it-strikes splits scorches
δ' οὔ. Περὶ μὲν οὖν βροντῆς καὶ ἀστραπῆς καὶ ἐκνεφίου,
but not About indeed then thunder and lightning and hurricane
ἔτι δὲ πρηστήρων τε καὶ τυφώνων καὶ κεραυνῶν,
further and fire-winds both and whirlwinds and thunderbolts
εἴρηται, καὶ ὅτι ταὐτὸ πάντα, καὶ τίς ἡ διαφορὰ αὐτῶν.
has-been-said and that the-same all and what the difference of-them

The halo appears as a whole circle about the sun, the moon, and bright stars, by night as by day, though less often at dawn and toward sunset. The rainbow is never more than a semicircle, smaller as the sun rises, and never at midday in summer. At most two rainbows appear, each of three colors, the outer fainter and reversed; mock suns and rods appear only at the side. All are reflections; a moon rainbow is rare, seen twice in fifty years. Small mirrors show color but not shape.

Περὶ δὲ ἅλω καὶ ἴριδος, τί θ' ἑκάτερον καὶ διὰ τίν'
About and halo and rainbow what both each and because-of what
αἰτίαν γίγνεται, λέγωμεν, καὶ περὶ παρηλίων καὶ ῥάβδων·
cause it-comes-about let-us-say and about mock-suns and rods
καὶ γὰρ ταῦτα γίγνεται πάντα διὰ τὰς αὐτὰς αἰτίας
also for these come-about all because-of the same causes
ἀλλήλοις. Πρῶτον δὲ δεῖ λαβεῖν τὰ πάθη καὶ τὰ
as-one-another First and one-must to-take the affections and the(-things)
συμβαίνοντα περὶ ἕκαστον αὐτῶν. Τῆς μὲν οὖν ἅλω
happening about each of-them Of-the indeed then halo
φαίνεται πολλάκις κύκλος ὅλος, καὶ γίγνεται περὶ ἥλιον καὶ
appears often circle whole and it-comes-about about sun and
σελήνην καὶ περὶ τὰ λαμπρὰ τῶν ἄστρων, ἔτι δ' οὐθὲν
moon and about the bright of-the stars further and nothing
ἧττον νυκτὸς ἢ ἡμέρας καὶ περὶ μεσημβρίαν ἢ δείλην·
less by-night than by-day and about midday or afternoon
ἕωθεν δ' ἐλαττονάκις καὶ περὶ δύσιν. Τῆς δ' ἴριδος οὐδέποτε
at-dawn but less-often and about setting Of-the and rainbow never
γίνεται κύκλος οὐδὲ μεῖζον ἡμικυκλίου τμῆμα· καὶ δύνοντος
comes-about circle nor greater than-semicircle segment and setting
μὲν καὶ ἀνατέλλοντος ἐλαχίστου μὲν κύκλου, μεγίστη
indeed and rising smallest indeed circle greatest
δ' ἡ ἁψίς, αἰρομένου δὲ μᾶλλον κύκλου μὲν μείζονος,
but the arc rising but more circle indeed greater

ἐλάττων δ᾽ ἡ ἁψίς· καὶ μετὰ μὲν τὴν ὀπωρινὴν ἰσημερίαν,
lesser but the arc and after indeed the autumnal equinox
ἐν ταῖς βραχυτέραις ἡμέραις, πᾶσαν ὥραν γίγνεται τῆς
in the shorter days every hour it-comes-about of-the
ἡμέρας, ἐν δὲ ταῖς θεριναῖς οὐ γίγνεται περὶ μεσημβρίαν.
day in but the summer(-days) not it-comes-about about midday
Οὐδὲ δυοῖν πλείους ἴριδες γίνονται ἅμα. Τούτων δὲ
Nor than-two more rainbows come-about at-once Of-these and
τρίχρως μὲν ἑκατέρα, καὶ τὰ χρώματα ταὐτὰ καὶ ἴσα τὸν
three-colored indeed each and the colors the-same and equal the
ἀριθμὸν ἔχουσιν ἀλλήλαις, ἀμυδρότερα δ᾽ ἐν τῇ ἐκτὸς καὶ
number they-have to-one-another fainter but in the outer and
ἐξ ἐναντίας κείμενα κατὰ τὴν θέσιν. Ἡ μὲν γὰρ ἐντὸς
from opposite lying in the position The indeed for inner
τὴν πρώτην ἔχει περιφέρειαν τὴν μεγίστην φοινικίαν, ἡ
the first has band the greatest red the
δ᾽ ἔξωθεν τὴν ἐλαχίστην μὲν ἐγγύτατα δὲ πρὸς ταύτην,
and outer the smallest indeed nearest and to this
καὶ τὰς ἄλλας ἀνάλογον. Ἔστι δὲ τὰ χρώματα ταῦτα
and the others proportionally Are and the colors these
ἅπερ μόνα σχεδὸν οὐ δύνανται ποιεῖν οἱ γραφῆς·
which-very alone nearly not can make the(-men) of-painting
ἔνια γὰρ αὐτοὶ κεραννύουσι, τὸ δὲ φοινικοῦν καὶ πράσινον
some for they mix the but red and green
καὶ ἁλουργὸν οὐ γίγνεται κεραννύμενον· ἡ δὲ ἶρις ταῦτ᾽
and purple not comes-about being-mixed the but rainbow these
ἔχει τὰ χρώματα. Τὸ δὲ μεταξὺ τοῦ φοινικοῦ καὶ πρασίνου
has the colors The and between the red and green
φαίνεται πολλάκις ξανθόν. Παρήλιοι δὲ καὶ ῥάβδοι γίνονται
appears often yellow Mock-suns and and rods come-about
ἐκ πλαγίας ἀεὶ καὶ οὔτ᾽ ἄνωθεν οὔτε πρὸς τῇ γῇ οὔτ᾽
from side always and neither from-above nor near the earth nor

ἐξ ἐναντίας, οὐδὲ δὴ νύκτωρ, ἀλλ' ἀεὶ περὶ τὸν ἥλιον,
from opposite nor indeed by-night but always about the sun
ἔτι δ' αἰρομένου ἢ καταφερομένου· τὰ πλεῖστα δὲ πρὸς
further and rising or sinking the most-part and toward
δυσμάς· μεσουρανοῦντος δὲ σπάνιόν τι γέγονεν, οἷον
setting in-mid-heaven but rare something has-happened as
ἐν Βοσπόρῳ ποτὲ συνέπεσεν· δι' ὅλης γὰρ τῆς ἡμέρας
in Bosporus once it-befell through whole for the day
συνανασχόντες δύο παρήλιοι διετέλεσαν μέχρι δυσμῶν.
having-risen-with two mock-suns continued until setting
Τὰ μὲν οὖν περὶ ἕκαστον αὐτῶν συμβαίνοντα ταῦτ'
The(-things) indeed then about each of-them happening these
ἐστίν, τὸ δ' αἴτιον τούτων ἁπάντων ταὐτό· πάντα γὰρ
are the and cause of-these all the-same all for
ἀνάκλασις ταῦτ' ἐστίν. Διαφέρουσι δὲ τοῖς τρόποις καὶ
reflection these are They-differ and in-the ways and
ἀφ' ὧν, καὶ ὡς συμβαίνει τὴν ἀνάκλασιν γίγνεσθαι πρὸς
from what and how it-happens the reflection to-come-about toward
τὸν ἥλιον ἢ πρὸς ἄλλο τι τῶν λαμπρῶν. Καὶ μεθ'
the sun or toward other some of-the bright(-ones) And by
ἡμέραν μὲν ἶρις γίγνεται, νύκτωρ δ' ἀπὸ σελήνης, ὡς
day indeed rainbow comes-about by-night but from moon as
μὲν οἱ ἀρχαῖοι ᾠοντο, οὐκ ἐγίγνετο· τοῦτο δ' ἔπαθον
indeed the ancients thought not it-came-about this but they-suffered
διὰ τὸ σπάνιον· ἐλάνθανε γὰρ αὐτούς· γίνεται μὲν
because-of the rare it-escaped for them it-comes-about indeed
γάρ, ὀλιγάκις δὲ γίγνεται. Τὸ δ' αἴτιον ὅτι τ' ἐν τῷ
for seldom but it-comes-about The and cause that both in the
σκότει λανθάνει τὰ χρώματα, καὶ ἄλλα πολλὰ δεῖ
dark escape-notice the colors and other many(-things) must
συμπεσεῖν, καὶ ταῦτα πάντα ἐν ἡμέρᾳ μιᾷ τοῦ μηνός· ἐν
to-coincide and these all in day one of-the month in

τῇ πανσελήνῳ γὰρ γενέσθαι ἀνάγκη τὸ μέλλον ἔσεσθαι,
the full-moon for to-come-about necessity the(-one) about to-be
καὶ τότε ἀνατελλούσης ἢ δυνούσης. Διόπερ ἐν ἔτεσιν ὑπὲρ
and then rising or setting Wherefore in years over
τὰ πεντήκοντα δὶς ἐνετύχομεν μόνον. Ὅτι μὲν οὖν ἡ
the fifty twice we-met-with(-it) only That indeed then the
ὄψις ἀνακλᾶται, ὥσπερ καὶ ἀφ' ὕδατος, οὕτω καὶ ἀπὸ
sight is-reflected just-as also from water so also from
ἀέρος καὶ πάντων τῶν ἐχόντων τὴν ἐπιφάνειαν λείαν,
air and all the(-things) having the surface smooth
ἐκ τῶν περὶ τὴν ὄψιν δεικνυμένων δεῖ λαμβάνειν
from the(-things) about the sight being-demonstrated one-must to-take
τὴν πίστιν, καὶ διότι τῶν ἐνόπτρων ἐν ἐνίοις μὲν καὶ
the proof and why of-the mirrors in some indeed also
τὰ σχήματα ἐμφαίνεται, ἐν ἐνίοις δὲ τὰ χρώματα μόνον.
the shapes appear-in in some but the colors only
Τοιαῦτα δ' ἐστὶν ὅσα μικρὰ τῶν ἐνόπτρων, καὶ
Such and are as-many-as small of-the mirrors and
μηδεμίαν αἰσθητὴν ἔχει διαίρεσιν· ἐν γὰρ τούτοις τὸ μὲν
no perceptible have division in for these the indeed
σχῆμα ἀδύνατον ἐμφαίνεσθαι (δόξει γὰρ εἶναι διαιρετόν·
shape impossible to-appear-in it-will-seem for to-be divisible
πᾶν γὰρ σχῆμα ἅμα δοκεῖ σχῆμά τε εἶναι καὶ διαίρεσιν
every for shape at-once seems shape both to-be and division
ἔχειν), ἐπεὶ δ' ἐμφαίνεσθαί τι ἀναγκαῖον, τοῦτο δ'
to-have since but to-appear-in something necessary this but
ἀδύνατον, λείπεται τὸ χρῶμα μόνον ἐμφαίνεσθαι. Τὸ δὲ
impossible it-remains the color only to-appear-in The and
χρῶμα ὁτὲ μὲν λαμπρὸν φαίνεται τῶν λαμπρῶν, ὁτὲ
color at-times indeed bright appears of-the bright(-things) at-times
δέ, ἢ τῷ μίγνυσθαι τῷ τοῦ ἐνόπτρου ἢ διὰ τὴν
and either by-the to-be-mixed with-the of-the mirror or because-of the

ἀσθένειαν τῆς ὄψεως, ἄλλου χρώματος ἐμποιεῖ φαντασίαν.
weakness of-the sight of-another color it-produces appearance
Ἔστω δὲ περὶ τούτων ἡμῖν τεθεωρημένον ἐν τοῖς περὶ
Let-it-be and about these by-us studied in the(-things) about
τὰς αἰσθήσεις δεικνυμένοις· διὸ τὰ μὲν λέγωμεν,
the senses demonstrated wherefore the(-things) indeed let-us-say
τοῖς δ' ὡς ὑπάρχουσι χρησώμεθα αὐτῶν.
the(-others) but as being-the-case let-us-use of-them

III · THE HALO

A halo forms when an even, fine-grained mist gathers about the sun or moon; if it thickens it foretells rain; if it breaks up, wind; if it fades, fair weather. Since sight is reflected alike from every side, the reflecting points lie on a circle, as the diagram proves. The drops are mirrors too small to see, so the ring looks continuous and white, with a darker band beside it. Halos appear about the moon more often than about the sun, and about the stars they foretell little.

Πρῶτον δὲ περὶ τῆς ἅλω τοῦ σχήματος εἴπωμεν, διότι τε
First and about of-the halo the shape let-us-speak why both
κύκλος γίνεται, καὶ διότι περὶ τὸν ἥλιον ἢ τὴν σελήνην,
circle it-becomes and why about the sun or the moon
ὁμοίως δὲ καὶ περί τι τῶν ἄλλων ἄστρων· ὁ γὰρ
likewise and also about some of-the other stars the for
αὐτὸς ἐπὶ πάντων ἁρμόσει λόγος. Γίγνεται μὲν οὖν
same in-the-case-of all will-fit account Comes-about indeed then
ἡ ἀνάκλασις τῆς ὄψεως συνισταμένου τοῦ ἀέρος καὶ τῆς
the reflection of-the sight condensing the air and the
ἀτμίδος εἰς νέφος, ἐὰν ὁμαλὴς καὶ μικρομερὴς συνισταμένη
vapor into cloud if even and fine-in-parts condensing
τύχῃ. Διὸ καὶ σημεῖον ἡ μὲν σύστασις ὕδατός ἐστιν,
it-chance Wherefore also sign the indeed condensation of-water is

αἱ μέντοι διασπάσεις ἢ μαράνσεις, αὗται μὲν εὐδιῶν,
the however breakings-up or fadings these indeed of-fair-weathers
αἱ δὲ διασπάσεις πνεύματος. Ἐὰν μὲν γὰρ μήτε
the(-ones) and breakings-up of-wind If indeed for neither
καταμαρανθῇ μήτε διασπασθῇ, ἀλλ' ἐαθῇ τὴν φύσιν
it-fade nor be-broken-up but be-allowed the nature
ἀπολαμβάνειν τὴν αὑτῆς, ὕδατος εἰκότως σημεῖόν ἐστιν·
to-recover the of-itself of-water reasonably sign it-is
δηλοῖ γὰρ ἤδη γίγνεσθαι τοιαύτην τὴν σύστασιν, ἐξ ἧς
it-shows for already to-come-about such the condensation from which
τὸ συνεχὲς λαμβανούσης τῆς πυκνώσεως ἀναγκαῖον εἰς
the continuous taking the thickening necessary into
ὕδωρ ἐλθεῖν. Διὸ καὶ μέλαιναι γίνονται τὴν χρόαν αὗται
water to-come Wherefore also black become the color these
μάλιστα τῶν ἄλλων. Ὅταν δὲ διασπασθῇ, πνεύματος
most of-the others When and it-be-broken-up of-wind
σημεῖον· ἡ γὰρ διαίρεσις ὑπὸ πνεύματος γέγονεν ἤδη
sign the for division by wind has-come-about already
μὲν ὄντος, οὔπω δὲ παρόντος.
indeed being not-yet but present
Σημεῖον δὲ τούτου διότι ἐντεῦθεν γίγνεται ὁ ἄνεμος,
Sign and of-this that from-there comes-about the wind
ὅθεν ἂν ἡ κυρία γίγνηται διάσπασις. Ἀπομαραινομένη δὲ
whence — the principal comes-about breaking-up Fading and
εὐδίας· εἰ γὰρ μὴ ἔχει πως οὕτως ὁ ἀὴρ ὥστε κρατεῖν
of-fair-weather if for not is somehow so the air so-as to-master
τοῦ ἐναπολαμβανομένου θερμοῦ μηδ' ἔρχεσθαι εἰς πύκνωσιν
the intercepted heat nor to-go into thickening
ὑδατώδη, δῆλον ὡς οὔπω ἡ ἀτμὶς ἀποκέκριται τῆς
watery clear that not-yet the vapor has-been-separated from-the
ἀναθυμιάσεως τῆς ξηρᾶς καὶ πυρώδους· τοῦτο δ' εὐδίας
exhalation the dry and fiery this and of-fair-weather

αἴτιον. Πῶς μὲν οὖν ἔχοντος τοῦ ἀέρος γίγνεται ἡ
cause How indeed then being the air comes-about the
ἀνάκλασις, εἴρηται. Ἀνακλᾶται δ' ἀπὸ τῆς συνισταμένης
reflection has-been-said Is-reflected and from the condensing
ἀχλύος περὶ τὸν ἥλιον ἢ τὴν σελήνην ἡ ὄψις· διὸ οὐκ
mist about the sun or the moon the sight wherefore not
ἐξ ἐναντίας ὥσπερ ἡ ἶρις φαίνεται. Πάντοθεν δ' ὁμοίως
from opposite just-as the rainbow appears From-all-sides and alike
ἀνακλωμένης κύκλον ἀναγκαῖον εἶναι ἢ κύκλου μέρος· ἀπὸ
being-reflected circle necessary to-be or of-circle part from
γὰρ τοῦ αὐτοῦ σημείου πρὸς τὸ αὐτὸ σημεῖον αἱ ἴσαι
for the same point to the same point the equal(-lines)
κλασθήσονται ἐπὶ κύκλου γραμμῆς ἀεί. Ἔστω γὰρ ἀπὸ
will-be-broken on of-circle line always Let-there-be for from
τοῦ σημείου ἐφ' ᾧ τὸ Α πρὸς τὸ Β κεκλασμένη ᾖ
the point at which the A to the B broken the(-line)
τε τὸ Α Γ Β καὶ ἡ τὸ Α Ζ Β καὶ ἡ τὸ Α
both the A C B and the(-line) the A F B and the(-line) the A
Δ Β· ἴσαι δ' αὗταί τε αἱ Α Γ Α Ζ Α Δ ἀλλήλαις, καὶ
D B equal and these both the A C A F A D to-one-another and
αἱ πρὸς τὸ Β ἀλλήλαις, οἷον αἱ Γ Β Ζ Β Δ Β· καὶ
the(-ones) to the B to-one-another such-as the C B F B D B and
ἐπεζεύχθω ἡ Α Ε Β, ὥστε τὰ τρίγωνα ἴσα· καὶ γὰρ
let-there-be-joined the A E B so-that the triangles equal also for
ἐπ' ἴσης τῆς Α Ε Β ἤχθωσαν δὴ κάθετοι ἐπὶ τὴν Α
on equal the A E B let-be-drawn indeed perpendiculars onto the A
Ε Β ἐκ τῶν γωνιῶν, ἀπὸ μὲν τῆς Γ ἡ τὸ ΓΕ, ἀπὸ
E B from the angles from indeed the C the(-line) the CE from
δὲ τῆς Ζ ἡ τὸ ΖΕ, ἀπὸ δὲ τῆς Δ ἡ τὸ ΔΕ.
and the F the(-line) the FE from and the D the(-line) the DE

Ἴσαι δὴ αὗται· ἐν ἴσοις γὰρ τριγώνοις καὶ ἐν ἑνὶ ἐπιπέδῳ
Equal indeed these in equal for triangles and in one plane
πᾶσαι· πρὸς ὀρθὰς γὰρ πᾶσαι τῇ Α Ε Β, καὶ ἐφ᾽
all at right(-angles) for all to-the A E B and at
ἓν σημεῖον τὸ Ε συνάπτουσιν. Κύκλος ἄρα ἔσται ἡ
one point the E they-meet Circle therefore will-be the(-line)
γραφομένη, κέντρον δὲ τὸ Ε. Ἔστω δὴ τὸ μὲν Β ὁ
being-drawn center and the E Let-be indeed the indeed B the
ἥλιος, τὸ δὲ Α ἡ ὄψις, ἡ δὲ περὶ τὸ Γ Ζ Δ περιφέρεια τὸ
sun the and A the sight the and about the C F D circumference the
νέφος ἀφ᾽ οὗ ἀνακλᾶται ἡ ὄψις πρὸς τὸν ἥλιον. Δεῖ δὲ
cloud from which is-reflected the sight to the sun One-must and
νοεῖν συνεχῆ τὰ ἔνοπτρα· ἀλλὰ διὰ μικρότητα ἕκαστον
to-understand continuous the mirrors but because-of smallness each
μὲν ἀόρατον, τὸ δ᾽ ἐξ ἁπάντων ἓν εἶναι δοκεῖ διὰ
indeed invisible the(-thing) but from all one to-be seems because-of
τὸ ἐφεξῆς. Φαίνεται δὲ τὸ μὲν λευκόν, ὁ ἥλιος, κύκλῳ
the successive Appears and the indeed white the sun in-a-circle
συνεχῶς ἐν ἑκάστῳ φαινόμενος τῶν ἐνόπτρων, καὶ μηδεμίαν
continuously in each appearing of-the mirrors and no
ἔχων αἰσθητὴν διαίρεσιν, πρὸς δὲ τῇ γῇ μᾶλλον διὰ τὸ
having perceptible division near and the earth more because-of the
νηνεμώτερον εἶναι· πνεύματος γὰρ ὄντος οὐκ εἶναι στάσιν
calmer to-be wind for being not to-be stability
φανερόν. Παρὰ δὲ τοῦτο μέλαινα ἡ ἐχομένη περιφέρεια,
evident Beside and this black the adjoining circumference
διὰ τὴν ἐκείνης λευκότητα δοκοῦσα εἶναι μελαντέρα.
because-of the of-that whiteness seeming to-be blacker
Πλεονάκις δὲ γίγνονται αἱ ἅλῳ περὶ τὴν σελήνην διὰ τὸ
More-often and come-about the halos about the moon because-of the
τὸν ἥλιον θερμότερον ὄντα θᾶττον διαλύειν τὰς συστάσεις
the sun hotter being faster to-dissolve the condensations

τοῦ ἀέρος. Περὶ δὲ τοὺς ἀστέρας γίνονται μὲν διὰ
of-the air About and the stars they-come-about indeed because-of
τὰς αὐτὰς αἰτίας, οὐ σημειώδεις δ' ὁμοίως, ὅτι μικρὰς
the same causes not significant but alike because small
πάμπαν ἐπιδηλοῦσι τὰς συστάσεις καὶ οὔπω γονίμους.
altogether they-show the condensations and not-yet productive

IV · THE RAINBOW

The rainbow is sight reflected to the sun from a cloud forming into drops, each too small to show a shape, so they show only color. Bright seen through dark looks red; the strongest sight sees red, weaker sight green, and weaker still purple, and yellow appears where red meets green. The rainbow about a lamp, from oars, or from sprinkled water has the same causes, and the moon's rainbow looks white. The outer bow is fainter and shows its colors reversed, and a third would be too faint to reach the sun.

Ἡ δ' ἶρις ὅτι μέν ἐστιν ἀνάκλασις, εἴρηται πρότερον·
The and rainbow that indeed is reflection has-been-said earlier
ποία δέ τις ἀνάκλασις, καὶ πῶς καὶ διὰ τίν' αἰτίαν
what-sort but some reflection and how and because-of what cause
ἕκαστα γίγνεται τῶν συμβαινόντων περὶ ταύτην,
each comes-about of-the(-things) happening about it
λέγωμεν νῦν. Ἀνακλωμένη μὲν οὖν ἡ ὄψις ἀπὸ πάντων
let-us-say now Being-reflected indeed then the sight from all
φαίνεται τῶν λείων, τούτων δ' ἐστὶ καὶ ἀὴρ καὶ ὕδωρ.
appears of-the smooth(-things) of-these and is both air and water
Γίγνεται δ' ἀπὸ μὲν ἀέρος, ὅταν τύχῃ συνιστάμενος.
It-comes-about and from indeed air when it-chance condensing
Διὰ δὲ τὴν τῆς ὄψεως ἀσθένειαν πολλάκις καὶ ἄνευ
Because-of and the of-the sight weakness often even without

συστάσεως ποιεῖ ἀνάκλασιν, οἷόν ποτε συνέβαινέ τινι
condensation it-makes reflection as once happened to-someone
πάθος ἠρέμα καὶ οὐκ ὀξὺ βλέποντι· ἀεὶ γὰρ εἴδωλον
affection faintly and not sharply seeing always for image
ἐδόκει προηγεῖσθαι βαδίζοντι αὐτῷ, ἐξ ἐναντίας βλέπον
seemed to-go-before walking him from opposite looking
πρὸς αὐτόν. Τοῦτο δ' ἔπασχε διὰ τὸ τὴν ὄψιν
toward him This and he-suffered because-of the the sight
ἀνακλᾶσθαι πρὸς αὐτόν· οὕτω γὰρ ἀσθενὴς ἦν καὶ λεπτὴ
to-be-reflected toward him so for weak it-was and thin
πάμπαν ὑπὸ τῆς ἀρρωστίας, ὥστ' ἔνοπτρον ἐγίνετο καὶ
altogether by the illness so-that mirror became even
ὁ πλησίον ἀήρ, καὶ οὐκ ἐδύνατο ἀπωθεῖν ὡς ὁ πόρρω
the near air and not it-could to-thrust-away as the far
καὶ πυκνός. Διόπερ αἵ τ' ἄκραι ἀνεσπασμέναι φαίνονται
and dense Wherefore the both headlands drawn-up appear
ἐν τῇ θαλάττῃ, καὶ μείζω τὰ μεγέθη πάντων, ὅταν εὖροι
in the sea and greater the sizes of-all when east-winds
πνέωσι, καὶ τὰ ἐν ταῖς ἀχλύσιν, οἷον καὶ ἥλιος καὶ
blow and the(-things) in the mists such-as both sun and
ἄστρα ἀνίσχοντα καὶ δύνοντα μᾶλλον ἢ μεσουρανοῦντα.
stars rising and setting more than in-mid-heaven
Ἀπὸ δ' ὕδατος μάλιστα ἀνακλᾶται, καὶ ἀπὸ ἀρχομένου
From and water most it-is-reflected and from beginning
γίνεσθαι μᾶλλον ἔτι ἢ ἀπ' ἀέρος· ἕκαστον γὰρ τῶν μορίων
to-come-about more still than from air each for of-the parts
ἐξ ὧν γίνεται συνισταμένων ἡ ψακὰς ἔνοπτρον ἀναγκαῖον
from which comes-about condensing the raindrop mirror necessary
εἶναι μᾶλλον τῆς ἀχλύος. Ἐπεὶ δὲ καὶ δῆλον καὶ εἴρηται
to-be more than-the mist Since and both clear and has-been-said
πρότερον ὅτι ἐν τοῖς τοιούτοις ἐνόπτροις τὸ χρῶμα μόνον
earlier that in the such mirrors the color only

ἐμφαίνεται, τὸ δὲ σχῆμα ἄδηλον, ἀναγκαῖον, ὅταν ἄρχηται
appears-in the but shape unclear necessary when it-begins
ὕειν καὶ ἤδη μὲν συνιστῆται εἰς ψακάδας ὁ ἐν τοῖς νέφεσιν
to-rain and already indeed be-condensing into raindrops the in the clouds
ἀήρ, μήπω δ' ὑῃ, ἐὰν ἐξ ἐναντίας ᾖ ὁ ἥλιος ἢ ἄλλο
air not-yet but it-rain if from opposite be the sun or other
τι οὕτω λαμπρὸν ὥστε γίγνεσθαι ἔνοπτρον τὸ νέφος,
something so bright so-that to-become mirror the cloud
καὶ τὴν ἀνάκλασιν γίνεσθαι πρὸς τὸ λαμπρὸν ἐξ ἐναντίας,
and the reflection to-come-about toward the bright(-thing) from opposite
γίγνεσθαί τε ἔμφασιν χρώματος, οὐ σχήματος. Ἑκάστου
to-come-about and appearance of-color not of-shape Each
δ' ὄντος τῶν ἐνόπτρων μικροῦ καὶ ἀοράτου, τῆς δ' ἐξ
and being of-the mirrors small and invisible the but from
ἁπάντων αὐτῶν συνεχείας τοῦ μεγέθους ὁρωμένης, ἀνάγκη
all of-them continuity of-the magnitude being-seen necessity
συνεχὲς μέγεθος τοῦ αὐτοῦ φαίνεσθαι χρώματος· ἕκαστον γὰρ
continuous magnitude of-the same to-appear color each for
τῶν ἐνόπτρων τὸ αὐτὸ ἀποδίδωσι χρῶμα τῷ συνεχεῖ.
of-the mirrors the same renders color to-the continuous(-whole)
Ὥστ' ἐπεὶ ταῦτ' ἐνδέχεται συμβαίνειν, ὅταν τοῦτον ἔχῃ
So-that since these-things are-possible to-happen when this be
τὸν τρόπον ὅ τε ἥλιος καὶ τὸ νέφος καὶ ἡμεῖς ὦμεν μεταξὺ
the way the both sun and the cloud and we be between
αὐτῶν, ἔσται διὰ τὴν ἀνάκλασιν ἔμφασίς τις. Ἀλλὰ
them there-will-be because-of the reflection appearance some But
μὴν καὶ φαίνεται τότε καὶ οὐκ ἄλλως ἐχόντων γιγνομένη ἡ
truly also appears then and not otherwise being coming-about the
ἶρις. Ὅτι μὲν οὖν ἀνάκλασις ἡ ἶρις τῆς ὄψεως πρὸς τὸν
rainbow That indeed then reflection the rainbow of-the sight toward the
ἥλιόν ἐστι, φανερόν· διὸ καὶ ἐξ ἐναντίας ἀεὶ γίνεται,
sun is evident wherefore also from opposite always it-comes-about

ἡ δ' ἅλως περὶ αὐτόν· καίτοι ἄμφω ἀνακλάσεις· ἀλλ' ἥ
the but halo about it and-yet both reflections but the
γε τῶν χρωμάτων ποικιλία διαφέρει· ἡ μὲν γὰρ ἀφ'
at-least of-the colors variety differs the(-one) indeed for from
ὕδατος καὶ μέλανος γίνεται ἀνάκλασις καὶ πόρρωθεν, ἡ
water and dark comes-about reflection and from-afar the(-other)
δ' ἐγγύθεν καὶ ἀπ' ἀέρος λευκοτέρου τὴν φύσιν. Φαίνεται δὲ
but from-near and from air whiter the nature Appears and
τὸ λαμπρὸν διὰ τοῦ μέλανος ἢ ἐν τῷ μέλανι (διαφέρει γὰρ
the bright through the dark or in the dark it-matters for
οὐθέν) φοινικοῦν. Ὁρᾶν δ' ἔξεστι τό γε τῶν χλωρῶν
nothing red To-see and it-is-possible the at-least of-the green
ξύλων πῦρ, ὡς ἐρυθρὰν ἔχει τὴν φλόγα διὰ τὸ τῷ
wood fire how red it-has the flame because-of the with-the
καπνῷ πολλῷ μεμῖχθαι τὸ πῦρ λαμπρὸν ὂν καὶ λευκόν·
smoke much to-have-been-mixed the fire bright being and white
καὶ δι' ἀχλύος καὶ καπνοῦ ὁ ἥλιος φαίνεται φοινικοῦς.
and through mist and smoke the sun appears red
Διὸ ἡ μὲν τῆς ἴριδος ἀνάκλασις, ἡ μὲν πρώτη
Wherefore the indeed of-the rainbow reflection the indeed first
τοιαύτην ἔχειν φαίνεται τὴν χρόαν (ἀπὸ ῥανίδων γὰρ
such to-have appears the color from drops for
μικρῶν γίνεται ἡ ἀνάκλασις), ἡ δὲ τῆς ἅλω οὔ.
small comes-about the reflection the(-one) but of-the halo not
Περὶ δὲ τῶν ἄλλων χρωμάτων ὕστερον ἐροῦμεν. Ἔτι δὲ
About and the other colors later we-will-speak Further and
περὶ αὐτὸν μὲν τὸν ἥλιον οὐ γίνεται διατριβὴ τοιαύτης
about itself indeed the sun not comes-about lingering of-such
συστάσεως, ἀλλ' ἢ ὕει ἢ διαλύεται. Ἐκ δὲ τῶν
condensation but either it-rains or it-is-dissolved From and the
ἐναντίων ἐν τῷ μεταξὺ τῆς τοῦ ὕδατος γενέσεως γίνεταί
opposite(-side) in the interval of-the of-the water coming-to-be comes-about

τις χρόνος· τούτου γὰρ μὴ συμβαίνοντος ἦσαν ἂν
some time this for not happening would-have-been —
κεχρωματισμέναι αἱ ἅλῳ ὥσπερ ἡ ἶρις. Νῦν δ' ὅλα μὲν
colored the halos just-as the rainbow Now but whole indeed
οὐ γίγνεται τοιαύτην ἔχοντα τὴν ἔμφασιν, οὐδὲ κύκλῳ,
not come-about such having the appearance nor in-a-circle
μικρὰ δὲ καὶ κατὰ μόριον, αἳ καλοῦνται ῥάβδοι, ἐπεὶ εἰ
small but and in part which are-called rods since if
συνίστατο τοιαύτη ἀχλὺς οἵα γένοιτ' ἂν ὕδατος ἢ τινος
were-condensing such mist as would-become — of-water or of-some
ἄλλου μέλανος, καθάπερ ἐλέγομεν, ἐφαίνετο ἂν ἡ ἶρις
other dark just-as we-were-saying would-appear — the rainbow
ὅλη, ὥσπερ ἡ περὶ τοὺς λύχνους. Περὶ γὰρ τούτους τὰ
whole just-as the(-one) about the lamps About for these the
πλεῖστα νοτίων ὄντων ἶρις γίγνεται τοῦ χειμῶνος, μάλιστα
most-part southerly being rainbow comes-about of-the winter most
δὲ δήλη γίνεται τοῖς ὑγροὺς ἔχουσι τοὺς ὀφθαλμούς·
and visible it-becomes to-the(-ones) moist having the eyes
τούτων γὰρ ἡ ὄψις ταχὺ δι' ἀσθένειαν ἀνακλᾶται.
of-these for the sight quickly because-of weakness is-reflected
Γίγνεται δ' ἀπό τε τῆς τοῦ ἀέρος ὑγρότητος καὶ
It-comes-about and from both the of-the air moisture and
ἀπὸ λιγνύος τῆς ἀπὸ τῆς φλογὸς ἀπορρεούσης καὶ
from soot the(-one) from the flame flowing-off and
μιγνυμένης· τότε γὰρ γίγνεται ἔνοπτρον, καὶ διὰ τὴν
being-mixed then for it-becomes mirror and because-of the
μελανίαν· καπνώδης γὰρ ἡ λιγνύς· τὸ δὲ τοῦ λύχνου
blackness smoky for the soot the and of-the lamp
φῶς οὐ λευκὸν ἀλλὰ πορφυροῦν φαίνεται κύκλῳ καὶ
light not white but purple appears in-a-circle and
ἰριῶδες, φοινικοῦν δ' οὔ· ἔστι γὰρ ἥ τε ὄψις ὀλίγη
rainbow-like red but not is for the both sight little

ἡ ἀνακλωμένη, καὶ μέλαν τὸ ἔνοπτρον. Ἡ δ' ἀπὸ
the(-one) being-reflected and dark the mirror The and from
τῶν κωπῶν τῶν ἀναφερομένων ἐκ τῆς θαλάττης ἶρις
the oars the(-ones) being-raised out-of the sea rainbow
τῇ μὲν θέσει τὸν αὐτὸν γίγνεται τρόπον τῇ ἐν
in-the indeed position the same comes-about way to-the(-one) in
τῷ οὐρανῷ, τὸ δὲ χρῶμα ὁμοιοτέρα τῇ περὶ τοὺς
the heaven in-the but color more-like to-the(-one) about the
λύχνους· οὐ γὰρ φοινικῆν ἀλλὰ πορφυρᾶν ἔχουσα φαίνεται
lamps not for red but purple having it-appears
τὴν χρόαν. Ἡ δ' ἀνάκλασις ἀπὸ τῶν μικροτάτων μὲν
the color The and reflection from the smallest indeed
συνεχῶν δὲ γίγνεται ῥανίδων· αὗται δ' ὕδωρ ἀποκεκριμένον
continuous but comes-about drops these and water separated
εἰσὶν ἤδη παντελῶς. Γίνεται δὲ κἄν τις λεπταῖς
are already completely It-comes-about and even-if someone with-fine
ῥανίσιν ῥαίνῃ εἴς τι τοιοῦτον χωρίον, ὃ τὴν θέσιν πρὸς
drops sprinkle into some such place which the position toward
τὸν ἥλιον ἐστραμμένον ἐστί, καὶ τῇ μὲν ὁ ἥλιος
the sun turned is and on-one-side indeed the sun
ἀνέχει τῇ δὲ σκιάζει· ἐν τῷ τοιούτῳ γάρ, ἐὰν εἴσω
shines on-the-other and it-shades in the such for if inward
τις ῥαίνῃ, τῷ ἑστῶτι ἐκτός, ᾗ ἐπαλλάττουσιν αἱ
someone sprinkle to-the(-one) standing outside where overlap the
ἀκτῖνες καὶ ποιοῦσι τὴν σκιάν, φαίνεται ἶρις.
rays and make the shade appears rainbow
Ὁ δὲ τρόπος καὶ ἡ χρόα ὁμοία καὶ τὸ αἴτιον τὸ αὐτὸ
The and way and the color like and the cause the same
τῇ ἀπὸ τῶν κωπῶν· τῇ γὰρ χειρὶ κώπῃ χρῆται ὁ
to-the(-one) from the oars the for hand as-oar uses the(-one)
ῥαίνων. Ὅτι δὲ τὸ χρῶμα τοιοῦτον, ἅμα δῆλον ἔσται καὶ
sprinkling That and the color such at-once clear will-be also

περὶ τῶν ἄλλων χρωμάτων τῆς φαντασίας, ἐκ τῶνδε. Δεῖ
about the other colors the appearance from these One-must
γὰρ νοήσαντας, ὥσπερ εἴρηται, καὶ ὑποθεμένους πρῶτον
for having-understood just-as has-been-said and having-assumed first
μὲν ὅτι τὸ λαμπρὸν ἐν τῷ μέλανι ἢ διὰ τοῦ μέλανος
indeed that the bright in the dark or through the dark
χρῶμα ποιεῖ φοινικοῦν, δεύτερον δ' ὅτι ἡ ὄψις ἐκτεινομένη
color makes red second and that the sight being-extended
ἀσθενεστέρα γίνεται καὶ ἐλάττων, τρίτον δ' ὅτι τὸ μέλαν
weaker becomes and less third and that the dark
οἷον ἀπόφασίς ἐστιν· τῷ γὰρ ἐκλιπεῖν τὴν ὄψιν φαίνεται
as-it-were negation is by-the for to-fail the sight appears
μέλαν, διὸ τὰ πόρρω πάντα μελάντερα φαίνεται,
dark wherefore the(-things) far all darker appear
διὰ τὸ μὴ δικνεῖσθαι τὴν ὄψιν. Θεωρείσθω μὲν οὖν
because-of the not to-reach the sight Let-be-studied indeed then
ταῦτα ἐκ τῶν περὶ τὰς αἰσθήσεις συμβαινόντων· ἐκείνων
these from the(-things) about the senses happening of-those
γὰρ ἴδιοι οἱ περὶ τούτων λόγοι· νῦν δ' ὅσον ἀνάγκη,
for proper the about these accounts now but as-much-as necessity
τοσοῦτον περὶ αὐτῶν λέγωμεν. Φαίνεται δ' οὖν διὰ
so-much about them let-us-say Appear and then because-of
ταύτην τὴν αἰτίαν τά τε πόρρω μελάντερα καὶ ἐλάττω
this the cause the(-things) both far darker and smaller
καὶ λειότερα, καὶ τὰ ἐν τοῖς ἐνόπτροις, καὶ τὰ νέφη
and smoother and the(-things) in the mirrors and the clouds
μελάντερα βλέπουσιν εἰς τὸ ὕδωρ ἢ εἰς αὐτὰ τὰ νέφη.
darker to-those-looking into the water than into themselves the clouds
Καὶ τοῦτο πάνυ ἐπιδήλως· διὰ γὰρ τὴν ἀνάκλασιν ὀλίγῃ
And this very noticeably because-of for the reflection little
τῇ ὄψει θεωροῦνται. Διαφέρει δ' οὐθὲν τὸ ὁρώμενον
by-the sight they-are-seen It-matters and nothing the seen

μεταβάλλειν ἢ τὴν ὄψιν· ἀμφοτέρως γὰρ ἔσται ταὐτόν.
to-change or the sight both-ways for it-will-be the-same
Πρὸς δὲ τούτοις δεῖ μὴ λεληθέναι καὶ τόδε· συμβαίνει
Besides and these one-must not to-have-escaped also this it-happens
γὰρ ὅταν ᾖ τοῦ ἡλίου νέφος πλησίον, εἰς μὲν αὐτὸ βλέποντι
for when be of-the sun cloud near into indeed it to-one-looking
μηδὲν φαίνεσθαι κεχρωματισμένον ἀλλ' εἶναι λευκόν, ἐν
nothing to-appear colored but to-be white in
δὲ τῷ ὕδατι ταὐτὸ τοῦτο θεωροῦντι χρῶμά τι ἔχειν τῆς
but the water the-same this to-one-observing color some to-have of-the
ἴριδος. Δῆλον τοίνυν ὅτι ἡ ὄψις ὥσπερ καὶ τὸ μέλαν
rainbow Clear therefore that the sight just-as also the dark
κλωμένη δι' ἀσθένειαν μελάντερον ποιεῖ φαίνεσθαι, καὶ
being-broken because-of weakness darker makes to-appear also
τὸ λευκὸν ἧττον λευκόν, καὶ προσάγει πρὸς τὸ μέλαν. Ἡ
the white less white and brings-near to the dark The
μὲν οὖν ἰσχυροτέρα ὄψις εἰς φοινικοῦν χρῶμα μετέβαλεν,
indeed then stronger sight into red color changed
ἡ δ' ἐχομένη εἰς τὸ πράσινον, ἡ δ' ἔτι ἀσθενεστέρα εἰς
the and next into the green the and still weaker into
τὸ ἁλουργόν. Ἐπὶ δὲ τὸ πλεῖον οὐκέτι φαίνεται, ἀλλ' ἐν
the purple To and the more no-longer it-appears but in
τοῖς τρισίν, ὥσπερ καὶ τῶν ἄλλων τὰ πλεῖστα, καὶ τούτων
the three just-as also of-the others the most also of-these
ἔσχε τέλος· τῶν δ' ἄλλων ἀναίσθητος ἡ μεταβολή.
has end of-the and others imperceptible the change
Διὸ καὶ ἡ ἶρις τρίχρως φαίνεται, ἑκατέρα μέν,
Wherefore also the rainbow three-colored appears each indeed
ἐναντίως δέ. Ἡ μὲν οὖν πρώτη τὴν ἔξω φοινικῆν ἔχει·
oppositely but The indeed then first the outer red has
ἀπὸ μεγίστης γὰρ περιφερείας πλείστη προσπίπτει ἡ ὄψις
from greatest for circumference most falls the sight

πρὸς τὸν ἥλιον, μεγίστη δ' ἡ ἔξω· ἡ δ' ἐχομένη καὶ
toward the sun greatest and the(-one) outer the and next and
ἡ τρίτη ἀνάλογον. Ὥστ' εἰ τὰ περὶ τῶν χρωμάτων
the third proportionally So-that if the(-things) about the colors
τῆς φαντασίας εἴρηται καλῶς, ἀνάγκη τρίχρων τε εἶναι
the appearance have-been-said well necessity three-colored both to-be
αὐτὴν καὶ τούτοις τοῖς χρώμασι κεχρῶσθαι μόνοις. Τὸ δὲ
it and with-these the colors to-be-colored alone The and
ξανθὸν φαίνεται διὰ τὸ παρ' ἄλληλα φαίνεσθαι. Τὸ γὰρ
yellow appears because-of the beside one-another to-appear The for
φοινικοῦν παρὰ τὸ πράσινον λευκὸν φαίνεται. Σημεῖον δὲ
red beside the green white appears Sign and
τούτου· ἐν γὰρ τῷ μελαντάτῳ νέφει μάλιστα ἄκρατος
of-this in for the darkest cloud most pure
γίνεται ἡ ἶρις· συμβαίνει δὲ τότε ξανθότατον εἶναι δοκεῖν
becomes the rainbow it-happens and then yellowest to-be to-seem
τὸ φοινικοῦν. Ἔστι δὲ τὸ ξανθὸν ἐν τῇ ἴριδι χρῶμα
the red Is and the yellow in the rainbow color
μεταξὺ τοῦ τε φοινικοῦ καὶ πρασίνου χρώματος. Διὰ
between the both red and green color Because-of
τὴν μελανίαν οὖν τοῦ κύκλῳ νέφους ὅλον αὐτοῦ φαίνεται
the blackness then of-the around cloud whole of-it appears
τὸ φοινικοῦν λευκόν· ἔστι γὰρ πρὸς ἐκεῖνα λευκόν.
the red white it-is for compared-to those white
Καὶ πάλιν ἀπομαραινομένης τῆς ἴριδος ἐγγυτάτω, ὅταν
And again fading the rainbow nearest when
λύηται τὸ φοινικοῦν· ἡ γὰρ νεφέλη λευκὴ οὖσα,
it-is-dissolved the red the for cloud white being
προσπίπτουσα παρὰ τὸ πράσινον, μεταβάλλει εἰς τὸ
falling-upon beside the green changes into the
ξανθόν. Μέγιστον δὲ σημεῖον τούτων ἡ ἀπὸ τῆς σελήνης
yellow Greatest and sign of-these the from the moon

ἶρις· φαίνεται γὰρ λευκὴ πάμπαν. Γίγνεται δὲ τοῦτο, ὅτι
rainbow appears for white altogether Comes-about and this because
ἔν τε τῷ νέφει ζοφερῷ ὄντι φαίνεται καὶ ἐν νυκτί. Ὥσπερ
in both the cloud gloomy being it-appears and in night Just-as
οὖν πῦρ ἐπὶ πῦρ, μέλαν παρὰ μέλαν ποιεῖ τὸ ἠρέμα λευκὸν
then fire on fire dark beside dark makes the faintly white
παντελῶς φαίνεσθαι λευκόν· τοῦτο δ' ἐστὶ τὸ φοινικοῦν.
completely to-appear white this and is the red
Γίγνεται δὲ τοῦτο τὸ πάθος καταφανὲς καὶ ἐπὶ τῶν
Comes-about and this the affection plain also in-the-case-of the
ἀνθῶν· ἐν γὰρ τοῖς ὑφάσμασι καὶ ποικίλμασιν ἀμύθητον
dyes in for the woven-stuffs and embroideries indescribably
διαφέρει τῇ φαντασίᾳ ἄλλα παρ' ἄλλα τιθέμενα ἔνια τῶν
differ in-the appearance some beside others being-placed some of-the
χρωμάτων, οἷον καὶ τὰ πορφυρᾶ ἐν λευκοῖς ἢ μέλασιν
colors such-as also the purple(-ones) in white or black
ἐρίοις, ἔτι δ' ἐν αὐγῇ τοιᾳδὶ ἢ τοιᾳδί· διὸ καὶ οἱ
wools further and in light of-this-sort or of-that-sort wherefore also the
ποικιλταί φασι διαμαρτάνειν ἐργαζόμενοι πρὸς τὸν λύχνον
embroiderers say to-err working by the lamp
πολλάκις τῶν ἀνθῶν, λαμβάνοντες ἕτερα ἀνθ' ἑτέρων.
often of-the dyes taking some instead-of others
Διότι μὲν οὖν τρίχρως τε, καὶ ὅτι ἐκ τούτων φαίνεται
Why indeed then three-colored both and that from these appears
τῶν χρωμάτων μόνων ἡ ἶρις, εἴρηται. Διπλῆ δὲ καὶ
the colors alone the rainbow has-been-said Double and and
ἀμαυροτέρα τοῖς χρώμασιν ἡ περιέχουσα, καὶ τῇ θέσει
fainter in-the colors the(-one) surrounding and in-the position
τὰς χρόας ἐξ ἐναντίας ἔχει κειμένας διὰ τὴν αὐτὴν
the colors from opposite has lying because-of the same
αἰτίαν. Μακροτέραν γὰρ ἀποτεινομένη ἡ ὄψις ὥσπερ τὸ
cause Longer for being-extended the sight just-as the

πορρώτερον ὁρᾷ, καὶ τὸ ἐνταῦθα τὸν αὐτὸν τρόπον.
farther sees also the(-thing) here the same way
Ἀσθενεστέρα οὖν ἀπὸ τῆς ἔξωθεν ἡ ἀνάκλασις γίνεται
Weaker then from the outer the reflection comes-about
διὰ τὸ πορρώτερον ποιεῖσθαι τὴν ἀνάκλασιν, ὥστ'
because-of the farther to-make the reflection so-that
ἐλάττων προσπίπτουσα τὰ χρώματα ποιεῖ ἀμαυρότερα
less falling the colors makes fainter
φαίνεσθαι. Καὶ ἀντεστραμμένως δὴ διὰ τὸ πλεῖον ἀπὸ
to-appear And reversed indeed because-of the more from
τῆς ἐλάττονος καὶ τῆς ἐντὸς περιφερείας προσπίπτειν πρὸς
the smaller and the inner circumference to-fall toward
τὸν ἥλιον· ἐγγυτέρω γὰρ τῆς ὄψεως οὖσα ἀνακλᾶται ἀπὸ
the sun nearer for to-the sight being it-is-reflected from
τῆς ἐγγυτάτω περιφερείας τῆς πρώτης ἴριδος. Ἐγγυτάτω
the nearest circumference of-the first rainbow Nearest
δ' ἐν τῇ ἔξωθεν ἴριδι ἡ ἐλαχίστη περιφέρεια, ὥστε αὕτη
and in the outer rainbow the smallest circumference so-that this
ἕξει τὸ χρῶμα φοινικοῦν· ἡ δ' ἐχομένη καὶ ἡ τρίτη
will-have the color red the and next and the third
κατὰ λόγον. Ἡ ἔξω ἶρις ἐφ' ᾧ τὸ Β, ἡ ἔσω ἐφ' ᾧ
according-to ratio The outer rainbow at which the B the inner at which
τὸ Α· τὰ χρώματα δ', ἐφ' ᾧ τὸ Γ, φοινικοῦν, ἐφ' ᾧ τὸ
the A the colors and at which the C red at which the
Δ, πράσινον, ἐφ' ᾧ Ε, ἁλουργόν· τὸ ξανθὸν δὲ φαίνεται
D green at which E purple the yellow and appears
ἐφ' οὗ τὸ Ζ. Τρεῖς δ' οὐκέτι γίνονται, οὐδὲ πλείους
at which the F Three and no-longer come-about nor more
ἴριδες διὰ τὸ καὶ τὴν δευτέραν γίγνεσθαι ἀμαυροτέραν,
rainbows because-of the also the second to-become fainter

ὥστε καὶ τὴν τρίτην ἀνάκλασιν πάμπαν ἀσθενῆ γίγνεσθαι
so-that also the third reflection altogether weak to-become
καὶ ἀδυνατεῖν ἀφικνεῖσθαι πρὸς τὸν ἥλιον.
and to-be-unable to-reach toward the sun

V · WHY THE RAINBOW IS NEVER A FULL CIRCLE

The geometry is proved: lines reflected from the cloud to the sun at a fixed ratio meet on a circle whose pole lies on the line from the sun through the eye. With the sun on the horizon the horizon cuts off a semicircle; as the sun rises the visible part shrinks. So in the short days after the autumn equinox a rainbow can form at any hour, but in the long days none forms at midday.

Ὅτι δ' οὔτε κύκλον οἷόν τε γίγνεσθαι τῆς ἴριδος οὔτε
That and neither circle possible — to-come-about of-the rainbow nor
μεῖζον ἡμικυκλίου τμῆμα, καὶ περὶ τῶν ἄλλων τῶν
greater than-semicircle segment and about the other(-things) the(-ones)
συμβαινόντων περὶ αὐτήν, ἐκ τοῦ διαγράμματος ἔσται
happening about it from the diagram will-be
θεωροῦσι δῆλον. Ἡμισφαιρίου γὰρ ὄντος ἐπὶ τοῦ ὁρίζοντος
to-those-studying clear Hemisphere for being on the horizon
κύκλου τοῦ ἐφ' ᾧ τὸ Α, κέντρου δὲ τοῦ Κ, ἄλλου
circle the(-one) at which the A center and the K other
δέ τινος ἀνατέλλοντος σημείου ἐφ' ᾧ τὸ Η, ἐὰν αἱ
and some rising point at which the G if the(-lines)
ἀπὸ τοῦ Κ γραμμαὶ κατὰ κῶνον ἐκπίπτουσαι ποιῶσιν
from the K lines in cone going-out make
ὥσπερ ἄξονα τὴν ἐφ' ᾗ ἡ Η Κ, καὶ ἀπὸ τοῦ Κ ἐπὶ
as-it-were axis the(-line) at which the G K and from the K to
τὸ Μ ἐπιζευχθεῖσαι ἀνακλασθῶσιν ἀπὸ τοῦ ἡμισφαιρίου
the M having-been-joined be-reflected from the hemisphere

ἐπὶ τὸ Η, ἐπὶ τὴν μείζω γωνίαν πρὸς κύκλου περιφέρειαν
to the G on the greater angle on of-circle circumference
προσπεσοῦνται αἱ ἀπὸ τοῦ Κ· καὶ ἐὰν μὲν ἐπ' ἀνατολῆς
will-fall the(-lines) from the K and if indeed at rising
ἢ ἐπὶ δύσεως τοῦ ἄστρου ἡ ἀνάκλασις γένηται, ἡμικύκλιον
or at setting of-the star the reflection come-about semicircle
ἀποληφθήσεται τοῦ κύκλου ὑπὸ τοῦ ὁρίζοντος τὸ ὑπὲρ
will-be-cut-off of-the circle by the horizon the(-part) above
γῆν γιγνόμενον, ἐὰν δ' ἐπάνω, ἔλαττον ἀεὶ ἡμικυκλίου.
earth becoming if but above less always than-semicircle
Ἐλάχιστον δ', ὅταν ἐπὶ τοῦ μεσημβρινοῦ γένηται τὸ ἄστρον.
Least and when on the meridian comes the star
Ἔστω γὰρ ἐπ' ἀνατολῆς πρῶτον, οὗ τὸ Η, καὶ
Let-it-be for at rising first where the G and
ἀνακεκλάσθω ἡ Κ Μ ἐπὶ τὸ Η, καὶ τὸ ἐπίπεδον
let-be-reflected the K M to the G and the plane
ἐκβεβλήσθω ἐν ᾧ τὸ Α, τὸ ἀπὸ τοῦ τριγώνου ἐν ᾧ τὸ
let-be-produced in which the A the(-one) from the triangle in which the
Η Κ Μ. Κύκλος οὖν ἡ τομὴ ἔσται τῆς σφαίρας. Ὁ μέγιστος
G K M Circle then the section will-be of-the sphere The greatest
ἔστω ὁ ἐφ' ᾧ Α· διοίσει γὰρ οὐθέν, ἂν ὁποιανοῦν
let-it-be the(-one) at which A it-will-matter for nothing if whichever
τῶν ἐπὶ τῆς Η Κ κατὰ τὸ τρίγωνον τὸ Κ Μ Η
of-the(-planes) on the G K along the triangle the K M G
ἐκβληθῇ τὸ ἐπίπεδον. Αἱ οὖν ἀπὸ τῶν Η Κ ἀναγόμεναι
be-produced the plane The(-lines) then from the G K being-drawn
γραμμαὶ ἐν τούτῳ τῷ λόγῳ οὐ συσταθήσονται τοῦ ἐφ' ᾧ
lines in this the ratio not will-be-constructed of-the at which
Α ἡμικυκλίου πρὸς ἄλλο καὶ ἄλλο σημεῖον· ἐπεὶ γὰρ τά
A semicircle at one and another point since for the
τε Η Κ σημεῖα δέδοται, καὶ ἡ Κ Η δεδομένη ἂν εἴη
both G K points are-given also the K G given — would-be

καὶ ἡ Μ Η, ὥστε καὶ ὁ λόγος τῆς Μ Η πρὸς τὴν Μ Κ.
and the M G so-that also the ratio of-the M G to the M K
Δεδομένης οὖν περιφερείας ἐφάψεται τὸ Μ. Ἔστω δὴ αὕτη
Given then circumference will-touch the M Let-it-be indeed this
ἐφ' ἧς τὰ Ν Μ· ὥστε ἡ τομὴ τῶν περιφερειῶν δέδοται.
on which the N M so-that the intersection of-the circumferences is-given
Πρὸς ἄλλῃ δὲ τῇ πρὸς τῇ Μ Ν περιφερείᾳ ἀπὸ τῶν
At other and the(-one) at the M N circumference from the
αὐτῶν σημείων ὁ αὐτὸς λόγος ἐν τῷ αὐτῷ ἐπιπέδῳ οὐ
same points the same ratio in the same plane not
συνίσταται. Ἐκκείσθω οὖν τις γραμμὴ ἡ Δ Β, καὶ τετμήσθω
is-constructed Let-be-set-out then some line the D B and let-it-be-cut
ὡς ἡ Μ Η πρὸς Μ Κ, ἡ Δ πρὸς τὸ Β. Μείζων δὲ ἡ Μ
as the M G to M K the D to the B Greater and the M
Η τῆς Μ Κ, ἐπείπερ ἐπὶ τὴν μείζω γωνίαν ἡ ἀνάκλασις
G than-the M K since on the greater angle the reflection
τοῦ κώνου· ὑπὸ γὰρ τὴν μείζω γωνίαν ὑποτείνει τὴν
of-the cone under for the greater angle it-subtends the(-one)
τοῦ Κ Μ Η τριγώνου. Μείζων ἄρα καὶ ἡ Δ τῆς Β.
of-the K M G triangle Greater therefore also the D than-the B
Προσπεπορίσθω οὖν πρὸς τὴν Β, ἐφ' ἧς τὸ Ζ· ὥστ' εἶναι
Let-be-added then to the B on which the F so-that to-be
ὅπερ τὴν Δ πρὸς τὴν Β, τὴν Β Ζ πρὸς τὴν Δ. Εἶτα ὅπερ
as the D to the B the B F to the D Then as
ἡ Ζ πρὸς τὴν Κ Η, ἡ τὸ Β πρὸς ἄλλην πεποιήσθω
the F to the K G the(-one) the B to other let-be-made
τὴν Κ Π, καὶ ἀπὸ τοῦ Π ἐπὶ τὸ Μ ἐπεζεύχθω ἡ τὸ Μ Π.
the K P and from the P to the M let-be-joined the the M P
Ἔσται οὖν τὸ Π πόλος τοῦ κύκλου, πρὸς ὃν αἱ
Will-be then the P pole of-the circle on which the(-lines)
ἀπὸ τοῦ Κ γραμμαὶ προσπίπτουσιν· ἔσται γὰρ ὅπερ ἡ Ζ
from the K lines fall it-will-be for as the F

πρὸς τὴν Κ Η, καὶ ἡ Β πρὸς τὴν Κ Π, καὶ ἡ Δ πρὸς
to the K G also the B to the K P and the D to
τὴν Π Μ. Μὴ γὰρ ἔστω, ἀλλ' ἢ πρὸς ἐλάττω ἢ πρὸς
the P M Not for let-it-be but either to less or to
μείζω τῆς Π Μ· οὐθὲν γὰρ διοίσει. Ἔστω πρὸς Π Ρ.
greater than-the P M nothing for it-will-matter Let-it-be to P R
Τὸν αὐτὸν ἄρα λόγον αἱ Η Κ καὶ Κ Π καὶ ἡ Π Ρ πρὸς
The same therefore ratio the G K and K P and the P R to
ἀλλήλας ἕξουσιν ὅνπερ αἱ Δ Β Ζ. Αἱ δὲ Δ Β Ζ ἀνάλογον
one-another will-have which-very the D B F The and D B F proportional
ἦσαν, ὅπερ ἡ Δ πρὸς Β, ἡ Ζ Β πρὸς Δ· ὥστε ὅπερ ἡ Π
were as the D to B the F B to D so-that as the P
Η πρὸς τὴν Π Ρ, ἡ τὸ Π Ρ πρὸς τὴν Π Κ. Ἂν οὖν
G to the P R the(-one) the P R to the P K If then
ἀπὸ τῶν Κ Η αἱ Η Ρ καὶ Κ Ρ ἐπὶ τὸ Ρ ἐπιζευχθῶσιν,
from the K G the G R and K R to the R be-joined
αἱ ἐπιζευχθεῖσαι αὗται τὸν αὐτὸν ἕξουσι λόγον ὅνπερ
the(-lines) joined these the same will-have ratio which-very
ἡ Π Η πρὸς τὴν Π Ρ· περὶ γὰρ τὴν αὐτὴν γωνίαν τὴν
the P G to the P R about for the same angle the
Π ἀνάλογον αἵ τε τοῦ Η Π Ρ τριγώνου καὶ τοῦ Κ Ρ Π.
P proportional the both of-the G P R triangle and of-the K R P
Ὥστε καὶ ἡ Π Ρ πρὸς τὴν Κ Ρ τὸν αὐτὸν ἕξει λόγον,
So-that also the P R to the K R the same will-have ratio
καὶ ἡ Η Π πρὸς τὴν Π Ρ. Ἔχει δὲ καὶ ἡ Μ Η πρὸς
as the G P to the P R Has and also the M G to
τὴν Μ Κ τὸν αὐτὸν λόγον ὅνπερ ἡ τὸ Δ πρὸς τὸ Β
the M K the same ratio which-very the(-one) the D to the B
ἀμφότεραι. Ὥστ' ἀπὸ τῶν Η Κ σημείων οὐ μόνον πρὸς τῇ
both So-that from the G K points not only at the
Μ Ν περιφερείᾳ συσταθήσονται τὸν αὐτὸν ἔχουσαι λόγον,
M N circumference will-be-constructed the same having ratio

ἀλλὰ καὶ ἄλλοθι· ὅπερ ἀδύνατον. Ἐπεὶ οὖν ἡ Δ οὔτε πρὸς
but also elsewhere which-very impossible Since then the D neither to
ἐλάττω τῆς Π Μ οὔτε πρὸς μείζω (ὁμοίως γὰρ δείξομεν),
less than-the P M nor to greater likewise for we-will-show
δῆλον ὅτι πρὸς αὐτὴν ἂν εἴη τὴν ἐφ' ᾗ Μ Π. Ὥστ'
clear that to itself — it-would-be the on which M P So-that
ἔσται ὅπερ ἡ Μ Π πρὸς τὴν Π Κ, ἡ τὸ Π Η πρὸς τὴν
it-will-be as the M P to the P K the(-one) the P G to the
Μ Π, καὶ λοιπὴ ἡ τὸ Μ Η πρὸς Μ Κ. Ἂν οὖν τῷ
M P and remaining the(-one) the M G to M K If then the(-one)
ἐφ' ᾧ τὸ Π πόλῳ χρώμενος, διαστήματι δὲ τῷ ἐφ' ᾧ
at which the P pole using interval and the(-one) at which
Μ Π, κύκλος γραφῇ, ἁπασῶν ἐφάψεται τῶν γωνιῶν ἃς
M P circle be-drawn all it-will-touch the angles which
ἀνακλώμεναι ποιοῦσιν αἱ ἀπὸ τοῦ Μ Η κύκλου· εἰ δὲ μή,
being-reflected make the(-lines) from the M G circle if but not
ὁμοίως δειχθήσονται τὸν αὐτὸν ἔχουσαι λόγον αἱ ἄλλοθι
likewise will-be-shown the same having ratio the(-lines) elsewhere
καὶ ἄλλοθι τοῦ ἡμικυκλίου συνιστάμεναι, ὅπερ ἦν ἀδύνατον.
and elsewhere of-the semicircle being-constructed which-very was impossible
Ἂν οὖν περιαγάγῃς τὸ ἡμικύκλιον τὸ ἐφ' ᾧ τὸ Α
If then you-revolve the semicircle the(-one) at which the A
περὶ τὴν ἐφ' ᾗ Η Κ Π διάμετρον, αἱ ἀπὸ τοῦ Η
about the(-line) on which G K P diameter the(-lines) from the G
Κ ἀνακλώμεναι πρὸς τὸ ἐφ' ᾧ τὸ Μ ἐν πᾶσι τοῖς
K being-reflected at the(-point) at which the M in all the
ἐπιπέδοις ὁμοίως ἕξουσι, καὶ ἴσην ποιήσουσι γωνίαν τὴν
planes likewise will-be and equal will-make angle the
Κ Μ Η. Καὶ ἣν ποιοῦσι δὲ γωνίαν αἱ Η Π καὶ Μ Π
K M G Also which make and angle the G P and M P
ἐπὶ τῆς Η Π, ἀεὶ ἴσῃ ἔσται. Τρίγωνα οὖν ἐπὶ τῆς Η
on the G P always equal will-be Triangles then on the G

Π καὶ Κ Π ἴσα τῷ Η Μ Π καὶ Κ Μ Π συνεστήκασιν.
P and K P equal to-the G M P and K M P have-been-constructed
Τούτων δ' αἱ κάθετοι ἐπὶ τὸ αὐτὸ σημεῖον πεσοῦνται
Of-these and the perpendiculars on the same point will-fall
τῆς Η Π καὶ ἴσαι ἔσονται. Πιπτέτωσαν ἐπὶ τὸ Ο.
of-the G P and equal will-be Let-them-fall on the O
Κέντρον ἄρα τοῦ κύκλου τὸ Ο, ἡμικύκλιον δὲ τὸ
Center therefore of-the circle the O semicircle and the(-one)
περὶ τὴν Μ Ν ἀφῄρηται ἀπὸ τοῦ ὁρίζοντος· τῶν
about the M N has-been-cut-off by the horizon of-the(-parts)
μὲν γὰρ ἄνω τὸν ἥλιον οὐ κρατεῖν, τῶν δὲ πρὸς
indeed for above the sun not to-prevail of-the(-parts) but near
τῇ γῇ στηριζομένων κρατεῖν, καὶ διαχεῖν τὸν ἀέρα.
the earth resting to-prevail and to-disperse the air
Καὶ διὰ τοῦτο τὴν ἶριν οὐ συμβάλλειν τὸν κύκλον.
And because-of this the rainbow not to-complete the circle
Γίνεσθαι δὲ καὶ νύκτωρ ἀπὸ τῆς σελήνης ὀλιγάκις·
To-come-about and also by-night from the moon seldom
οὔτε γὰρ ἀεὶ πλήρης, ἀσθενεστέρα τε τὴν φύσιν ὥστε
neither for always full weaker and the nature so-as
κρατεῖν τοῦ ἀέρος. Μάλιστα δ' ἵστασθαι τὴν ἶριν, ὅπου
to-prevail-over the air Most and to-stand the rainbow where
μάλιστα κρατεῖται ὁ ἥλιος· πλείστη γὰρ ἐν αὐτῇ ἰκμὰς
most is-overcome the sun most for in it moisture
ἐνέμεινεν. Πάλιν ἔστω ὁ ὁρίζων μὲν ἐφ' οὗ τὸ Α Β Γ,
remained Again let-be the horizon indeed on which the A B C
ἐπανατεταλκέτω δὲ τὸ Η, ὁ δ' ἄξων ἔστω νῦν ἐφ' ᾧ
let-have-risen and the G the and axis let-be now on which
τὸ Η Π. Τὰ μὲν οὖν ἄλλα πάντα ὁμοίως δειχθήσεται
the G P The(-things) indeed then other all likewise will-be-shown
ὡς καὶ πρότερον, ὁ δὲ πόλος τοῦ κύκλου ὁ ἐφ' ᾧ Π
as also before the but pole of-the circle the(-one) at which P

κάτω ἔσται τοῦ ὁρίζοντος τοῦ ἐφ' ᾧ τὸ ΑΓ, ἀρθέντος
below will-be the horizon the(-one) on which the AC having-been-raised
τοῦ ἐφ' ᾧ τὸ Η σημείου. Ἐπὶ δὲ τῆς αὐτῆς ὅ τε
the(-point) at which the G point On and the same the both
πόλος καὶ τὸ κέντρον τοῦ κύκλου καὶ τὸ τοῦ ὁρίζοντος
pole and the center of-the circle and the(-one) of-the horizon
νῦν τὴν ἀνατολήν· ἔστι γὰρ οὗτος ἐφ' ᾧ τὸ ΗΠ.
now the rising is for this on which the GP
Ἐπεὶ δὲ τῆς διαμέτρου τῆς ΑΓ τὸ ΚΗ ἐπάνω, τὸ κέντρον
Since and of-the diameter the AC the KG above the center
εἴη ἂν ὑποκάτω τοῦ ὁρίζοντος πρότερον τοῦ ἐφ' ᾧ
would-be — below the horizon earlier the(-one) on which
τὸ ΑΓ, ἐπὶ τῆς ΚΠ γραμμῆς, ἐφ' οὗ τὸ Ο. Ὥστ' ἔλαττον
the AC on the KP line at which the O So-that less
ἔσται τὸ ἐπάνω τμῆμα ἡμικυκλίου τὸ ἐφ' ᾧ ΨΥΩ· τὸ
will-be the above segment than-semicircle the(-one) on which PsYŌ the
γὰρ ΨΥΩ ἡμικύκλιον ἦν, νῦν δ' ἀποτέτμηται ἀπὸ τοῦ ΑΓ
for PsYŌ semicircle was now but has-been-cut-off by the AC
ὁρίζοντος. Τὸ δὴ ΥΩ ἀφανὲς ἔσται ἐπαρθέντος αὐτοῦ
horizon The indeed YŌ invisible will-be having-been-raised itself
τοῦ ἡλίου, ἐλάχιστον δ', ὅταν ἐπὶ μεσημβρίαν· ὅσῳ
the sun least and when at midday by-as-much-as
γὰρ ἀνώτερον τὸ Η, κατώτερος ὅ τε πόλος καὶ τὸ
for higher the G lower the both pole and the
κέντρον τοῦ κύκλου ἔσται. Ὅτι δ' ἐν μὲν ταῖς ἐλάττοσιν
center of-the circle will-be That and in indeed the shorter
ἡμέραις ταῖς μετ' ἰσημερίαν τὴν μετοπωρινὴν ἐνδέχεται
days the(-ones) after equinox the autumnal it-is-possible
ἀεὶ γίγνεσθαι ἶριν, ἐν δὲ ταῖς μακροτέραις ἡμέραις
always to-come-about rainbow in but the longer days
ταῖς ἀπὸ ἰσημερίας τῆς ἑτέρας ἐπὶ τὴν ἰσημερίαν τὴν
the(-ones) from equinox the one to the equinox the

ἑτέραν περὶ μεσημβρίαν οὐ γίγνεται ἶρις, αἴτιον ὅτι τὰ
other about midday not comes-about rainbow cause that the
μὲν πρὸς ἄρκτον τμήματα πάντα μείζω ἡμικυκλίου καὶ
indeed toward north segments all greater than-semicircle and
ἀεὶ ἐπὶ μείζω ἡμικυκλίου, τὸ δ' ἀφανὲς μικρόν, τὰ
always by more than-semicircle the(-part) but invisible small the
δὲ πρὸς μεσημβρίαν τμήματα τοῦ ἰσημερινοῦ, τὸ μὲν
but toward south segments of-the equator the indeed
ἄνω τμῆμα μικρόν, τὸ δ' ὑπὸ γῆν μέγα.
upper segment small the(-one) but under earth large
Καὶ ἀεὶ δὴ τὰ πορρωτέρω μείζω· ὥστ' ἐν μὲν
And always indeed the(-ones) farther greater so-that in indeed
ταῖς πρὸς τὰς θερινὰς τροπὰς ἡμέραις διὰ τὸ μέγεθος
the toward the summer solstice days because-of the size
τοῦ τμήματος, πρὶν ἐπὶ τὸ μέσον ἐλθεῖν τοῦ τμήματος
of-the segment before to the middle to-come of-the segment
καὶ ἐπὶ τὸ μεσημβρινὸν τὴν τὸ Η, κάτω ἤδη παντελῶς
and to the meridian the the G below already completely
γίνεται τὸ Π, διὰ τὸ πόρρω ἀφεστάναι τῆς γῆς
becomes the P because-of the far to-stand-off from-the earth
τὴν μεσημβρίαν διὰ τὸ μέγεθος τοῦ τμήματος. Ἐν δὲ
the midday because-of the size of-the segment In but
ταῖς πρὸς τὰς χειμερινὰς τροπὰς ἡμέραις, διὰ τὸ μὴ
the toward the winter solstice days because-of the not
πολὺ ὑπὲρ γῆς εἶναι τὰ τμήματα τῶν κύκλων, τοὐναντίον
much above earth to-be the segments of-the circles the-opposite
ἀναγκαῖον γίγνεσθαι· βραχὺ γὰρ ἀρθείσης τῆς ἐφ'
necessary to-come-about little for having-been-raised the(-one) at
ᾧ τὸ Η, ἐπὶ τῆς μεσημβρίας γίγνεται ὁ ἥλιος.
which the G at the midday comes the sun

Mock suns and rods are reflections too: rods come from uneven mist and are colored; mock suns come from even, dense mist and are white, a surer sign of rain. They appear at the side, neither too near the sun nor too far from it. Within the earth the two exhalations make two kinds of bodies. The dry one makes the things that are dug, such as stones, realgar, ocher, sulfur, and cinnabar; the vaporous one makes the metals that are mined, such as iron, bronze, and gold. These are vapor solidified before it became water, so they are in a way water, and all but gold can be burned.

Τὰς δ' αὐτὰς αἰτίας ὑπολεπτέον καὶ περὶ παρηλίου
The and same causes one-must-suppose also about mock-sun
καὶ ῥάβδων ταῖς εἰρημέναις. Γίνεται γὰρ παρήλιος μὲν
and rods as-the stated(-ones) Comes-about for mock-sun indeed
ἀνακλωμένης τῆς ὄψεως πρὸς τὸν ἥλιον, ῥάβδοι δὲ διὰ
being-reflected the sight toward the sun rods and because-of
τὸ προσπίπτειν τοιαύτην οὖσαν τὴν ὄψιν, οἵαν εἴπομεν ἀεὶ
the to-fall such being the sight as we-said always
γίγνεσθαι, ὅταν πλησίον ὄντων τοῦ ἡλίου νεφῶν ἀπό τινος
to-come-about when near being of-the sun clouds from some
ἀνακλασθῇ τῶν ὑγρῶν πρὸς τὸ νέφος· φαίνεται γὰρ αὐτὰ
it-be-reflected of-the moist(-things) toward the cloud appear for themselves
μὲν ἀχρωμάτιστα τὰ νέφη κατ' εὐθυωρίαν εἰσβλέπουσιν, ἐν
indeed colorless the clouds in straight-line to-those-looking in
δὲ τῷ ὕδατι ῥάβδων μεστὸν τὸ νέφος· πλὴν τότε μὲν ἐν τῷ
but the water of-rods full the cloud except then indeed in the
ὕδατι δοκεῖ τὸ χρῶμα τοῦ νέφους εἶναι, ἐν δὲ ταῖς ῥάβδοις
water seems the color of-the cloud to-be in but the rods
ἐπ' αὐτοῦ τοῦ νέφους. Γίγνεται δὲ τοῦτο, ὅταν ἀνώμαλος ἡ
on itself the cloud Comes-about and this when uneven the
τοῦ νέφους ᾖ σύστασις, καὶ τῇ μὲν πυκνὸν τῇ δὲ
of-the cloud be condensation and in-one-part indeed dense in-another and

μανόν, καὶ τῇ μὲν ὑδατωδέστερον τῇ δ' ἧττον·
loose and in-one-part indeed more-watery in-another and less
ἀνακλασθείσης γὰρ τῆς ὄψεως πρὸς τὸν ἥλιον, τὸ σχῆμα
having-been-reflected for the sight toward the sun the shape
μὲν τοῦ ἡλίου οὐχ ὁρᾶται διὰ μικρότητα τῶν ἐνόπτρων,
indeed of-the sun not is-seen because-of smallness of-the mirrors
τὸ δὲ χρῶμα διὰ τὸ ἐν ἀνωμάλῳ φαίνεσθαι λαμπρὸν
the but color because-of the in uneven(-mirror) to-appear bright
καὶ λευκὸν τὸν ἥλιον, πρὸς ὃν ἀνεκλάσθη ἡ ὄψις, τὸ
and white the sun toward which was-reflected the sight the(-part)
μὲν φοινικοῦν φαίνεται, τὸ δὲ πράσινον ἢ ξανθόν.
indeed red appears the(-part) and green or yellow
Διαφέρει γὰρ οὐθὲν διὰ τοιούτων ὁρᾶν ἢ ἀπὸ τοιούτων
It-matters for nothing through such-things to-see or from such-things
ἀνακλωμένην· ἀμφοτέρως γὰρ φαίνεται τὴν χρόαν ὅμοιον,
being-reflected both-ways for appears the color alike
ὥστ' εἰ κἀκείνως φοινικοῦν, καὶ οὕτως. Αἱ μὲν οὖν ῥάβδοι
so-that if in-that-way-too red also this-way The indeed then rods
γίγνονται δι' ἀνωμαλίαν τοῦ ἐνόπτρου οὐ τῷ σχήματι
come-about because-of unevenness of-the mirror not in-the shape
ἀλλὰ τῷ χρώματι, ὁ δὲ παρήλιος, ὅταν ὅτι μάλιστα
but in-the color the but mock-sun when as most
ὁμαλὸς ᾖ ὁ ἀὴρ καὶ πυκνὸς ὁμοίως· διὸ φαίνεται
even be the air and dense alike wherefore it-appears
λευκός. Ἡ μὲν γὰρ ὁμαλότης τοῦ ἐνόπτρου ποιεῖ χρόαν
white The indeed for evenness of-the mirror makes color
μίαν τῆς ἐμφάσεως· ἡ δ' ἀνάκλασις ἀθρόας τῆς ὄψεως,
one of-the appearance the and reflection all-together the sight
διὰ τὸ ἅμα προσπίπτειν πρὸς τὸν ἥλιον ἀπὸ πυκνῆς
because-of the at-once to-fall toward the sun from dense
οὔσης τῆς ἀχλύος, καὶ οὔπω μὲν οὔσης ὕδωρ ἐγγὺς δ'
being the mist and not-yet indeed being water near but

ὕδατος, τὸ ὑπάρχον τῷ ἡλίῳ ἐμφαίνεσθαι χρῶμα ποιεῖ,
to-water the belonging to-the sun to-appear-in color makes
ὥσπερ ἀπὸ χαλκοῦ λείου κλωμένης διὰ τὴν πυκνότητα.
just-as from bronze smooth being-reflected because-of the density
Ὥστ' ἐπεὶ τὸ χρῶμα τοῦ ἡλίου λευκόν, καὶ ὁ παρήλιος
So-that since the color of-the sun white also the mock-sun
φαίνεται λευκός. Διὰ δὲ τὸ αὐτὸ τοῦτο μᾶλλον ὕδατος
appears white Because-of and the same this more of-water
σημεῖον ὁ παρήλιος τῶν ῥάβδων· μᾶλλον γὰρ συμβαίνει
sign the mock-sun than-the rods more for it-happens
τὸν ἀέρα εὐεργῶς ἔχειν πρὸς γένεσιν ὕδατος.
the air readily to-be toward generation of-water
Ὁ δὲ νότιος τοῦ βορείου μᾶλλον, ὅτι μᾶλλον ὁ
The and southern than-the northern more because more the
νότιος ἀὴρ εἰς ὕδωρ μεταβάλλει τοῦ πρὸς ἄρκτον.
southern air into water changes than-the(-air) toward north
Γίγνονται δ' ὥσπερ εἴπομεν, περί τε τὰς δυσμὰς καὶ
They-come-about and just-as we-said about both the settings and
περὶ τὰς ἀνατολάς, καὶ οὔτ' ἄνωθεν οὔτε κάτωθεν, ἀλλ'
about the risings and neither from-above nor from-below but
ἐκ τῶν πλαγίων καὶ ῥάβδοι καὶ παρήλιοι· καὶ οὔτ' ἐγγὺς
from the sides both rods and mock-suns and neither near
τοῦ ἡλίου λίαν οὔτε πόρρω παντελῶς· ἐγγὺς μὲν γὰρ
the sun very nor far altogether near indeed for
οὖσαν ὁ ἥλιος διαλύει τὴν σύστασιν, πόρρω δ' οὔσης
being the sun dissolves the condensation far but being
ἡ ὄψις οὐκ ἀνακλασθήσεται· ἀπὸ γὰρ μικροῦ ἐνόπτρου
the sight not will-be-reflected from for small mirror
πόρρω ἀποτεινομένη ἀσθενὴς γίγνεται. Διὸ καὶ αἱ ἅλῳ
far being-extended weak becomes Wherefore also the halos
οὐ γίγνονται ἐξ ἐναντίας τοῦ ἡλίου. Ἄνω μὲν οὖν ἐὰν
not come-about from opposite the sun Above indeed then if

γίγνηται καὶ ἐγγύς, διαλύσει ὁ ἥλιος· ἐὰν δὲ πόρρω,
it-come-about and near will-dissolve the sun if but far
ἐλάττων ἡ ὄψις οὖσα ἢ ὥστε ποιεῖν ἀνάκλασιν οὐ
less the sight being than so-as to-make reflection not
προσπεσεῖται. Ἐν δὲ τῷ πλαγίῳ ὑπὸ τὸν ἥλιόν ἐστι
will-fall In but the side under the sun it-is-possible
τοσοῦτον ἀποστῆναι τὸ ἔνοπτρον, ὥστε μήτε τὸν ἥλιον
so-far to-stand-off the mirror so-that neither the sun
διαλῦσαι, τήν τε ὄψιν ἀθρόαν ἐλθεῖν, διὰ τὸ πρὸς τὴν γῆν
to-dissolve the and sight all-together to-come because-of the toward the earth
φερομένην μὴ διικνεῖσθαι ὥσπερ δι' ἀχανοῦς φερομένην.
being-carried not to-pass-through just-as through void being-carried
Ὑπὸ δὲ τὸν ἥλιον οὐ γίγνεται διὰ τὸ πλησίον μὲν
Under and the sun not it-comes-about because-of the near indeed
τῆς γῆς διαλύεσθαι ἂν ὑπὸ τοῦ ἡλίου, ἄνω δὲ μεσουρανίου
the earth to-be-dissolved — by the sun above but in-mid-heaven
ὄντος τὴν ὄψιν διασπᾶσθαι. Καὶ ὅλως οὐδ' ἐκ πλαγίας
being the sight to-be-scattered And wholly not-even from side
μεσουρανίου γίγνεται· ἡ γὰρ ὄψις οὐχ ὑπὸ τὴν γῆν
in-mid-heaven it-comes-about the for sight not under the earth
φέρεται, ὥστ' ὀλίγη ἀφικνεῖται πρὸς τὸ ἔνοπτρον, καὶ
is-carried so-that little arrives at the mirror and
ἡ ἀνακλωμένη γίγνεται πάμπαν ἀσθενής. Ὅσα μὲν
the(-sight) being-reflected becomes altogether weak As-many-as indeed
οὖν ἔργα συμβαίνει παρέχεσθαι τὴν ἔκκρισιν ἐν τοῖς τόποις
then works it-happens to-produce the secretion in the places
τοῖς ὑπὲρ τῆς γῆς, σχεδόν ἐστι τοσαῦτα καὶ τοιαῦτα.
the(-ones) above the earth nearly are so-many and such
Ὅσα δ' ἐν αὐτῇ τῇ γῇ, ἐγκατακλειομένη τοῖς τῆς γῆς
As-many-as but in itself the earth being-shut-up in-the of-the earth
μέρεσιν, ἀπεργάζεται, λεκτέον. Ποιεῖ γὰρ δύο διαφορὰς
parts it-produces one-must-tell It-makes for two differences

σωμάτων διὰ τὸ διπλῆ πεφυκέναι καὶ αὐτή, καθάπερ
of-bodies because-of the twofold to-be-by-nature also it just-as
καὶ ἐν τῷ μετεώρῳ· δύο μὲν γὰρ αἱ ἀναθυμιάσεις, ἡ
also in the upper-region two indeed for the exhalations the(-one)
μὲν ἀτμιδώδης ἡ δὲ καπνώδης, ὥς φαμεν, εἰσίν·
indeed vaporous the(-other) and smoky as we-say are
δύο δὲ καὶ τὰ εἴδη τῶν ἐν τῇ γῇ γινομένων, τὰ
two and also the kinds of-the(-things) in the earth coming-about the(-ones)
μὲν ὀρυκτὰ τὰ δὲ μεταλλευτά. Ἡ μὲν οὖν ξηρὰ
indeed dug the(-others) and mined The indeed then dry
ἀναθυμίασίς ἐστιν ἥ τις ἐκπυροῦσα ποιεῖ τὰ ὀρυκτὰ
exhalation is which — igniting makes the dug(-things)
πάντα, οἷον λίθων τε γένη τὰ ἄτηκτα καὶ σανδαράκην
all such-as of-stones both kinds the unmeltable and realgar
καὶ ὤχραν καὶ μίλθον καὶ θεῖον καὶ τἆλλα τὰ τοιαῦτα.
and ocher and ruddle and sulfur and the-other the such
Τὰ δὲ πλεῖστα τῶν ὀρυκτῶν ἐστὶ τὰ μὲν κονία
The and most of-the dug(-things) are the(-ones) indeed dust
κεχρωματισμένη, τὰ δὲ λίθος ἐκ τοιαύτης γεγονὼς
colored the(-others) and stone from such having-come-about
συστάσεως, οἷον τὸ κιννάβαρι. Τῆς δ' ἀναθυμιάσεως τῆς
composition such-as the cinnabar Of-the but exhalation the
ἀτμιδώδους, ὅσα μεταλλεύεται, καὶ ἔστιν ἢ χυτὰ
vaporous as-many-as are-mined and are either fusible
ἢ ἐλατά, οἷον σίδηρος, χαλκός, χρυσός. Ποιεῖ δὲ ταῦτα
or malleable such-as iron bronze gold Makes and these
πάντα ἡ ἀναθυμίασις ἡ ἀτμιδώδης ἐγκατακλειομένη, καὶ
all the exhalation the vaporous being-shut-up and
μάλιστα ἐν τοῖς λίθοις, διὰ ξηρότητα εἰς ἓν συνθλιβομένη
most in the stones because-of dryness into one being-compressed
καὶ πηγνυμένη, οἷον δρόσος ἢ πάχνη, ὅταν ἀποκριθῇ.
and being-solidified as dew or hoarfrost when it-be-separated

Ἐνταῦθα δὲ πρὶν ἀποκριθῆναι γεννᾶται ταῦτα. Διὸ
Here but before to-be-separated are-generated these Wherefore
ἔστι μὲν ὡς ὕδωρ ταῦτα, ἔστι δ' ὡς οὔ· δυνάμει
are indeed in-a-way water these are but in-a-way not in-potency
μὲν γὰρ ἡ ὕλη ὕδατος ἦν, ἔστι δ' οὐκέτι, οὐδ' ἐξ
indeed for the matter of-water was is but no-longer nor from
ὕδατος γενομένου διά τι πάθος, ὥσπερ οἱ χυμοί. Οὐ
water having-come-about because-of some affection just-as the juices Not
γὰρ οὕτω γίνεται τὸ μὲν χαλκὸς τὸ δὲ χρυσός,
for so becomes the(-one) indeed bronze the(-other) and gold
ἀλλὰ πρὶν γενέσθαι παγείσης τῆς ἀναθυμιάσεως ἕκαστα
but before to-come-about having-solidified the exhalation each
τούτων ἐστίν. Διὸ καὶ πυροῦται πάντα καὶ γῆν ἔχει·
of-these is Wherefore also are-ignited all and earth have
ξηρὰν γὰρ ἔχει ἀναθυμίασιν· ὁ δὲ χρυσὸς μόνος οὐ
dry for they-have exhalation the but gold alone not
πυροῦται. Κοινῇ μὲν οὖν εἴρηται περὶ πάντων αὐτῶν,
is-ignited In-common indeed then has-been-said about all of-them
ἰδίᾳ δ' ἐπισκεπτέον προχειριζομένοις περὶ ἕκαστον γένος.
separately but one-must-examine taking-in-hand about each kind

BOOK IV

ΜΕΤΕΩΡΟΛΟΓΙΚΩΝ Δ.

I · COMING TO BE AND ROTTING

Of the four qualities, hot and cold act, dry and moist are acted on. Their work is natural coming to be and its opposite, natural destruction, whose common end is rotting: the destruction of a moist thing's own heat by heat from outside. Rotting things end dry, as earth and dung; they rot less in cold than in heat, and less in motion than at rest; and animals breed in them because the separated heat composes what is secreted.

Ἐπεὶ δὲ τέτταρα διώρισται αἴτια τῶν στοιχείων,
Since and four have-been-distinguished causes of-the elements
τούτων δὲ κατὰ τὰς συζυγίας καὶ τὰ στοιχεῖα τέτταρα
of-these and according-to the pairings also the elements four
συμβέβηκεν εἶναι, ὧν τὰ μὲν δύο ποιητικά, τὸ θερμὸν καὶ
it-happens to-be of-which the indeed two active the hot and
τὸ ψυχρόν, τὰ δὲ δύο παθητικά, τὸ ξηρὸν καὶ τὸ ὑγρόν· ἡ
the cold the but two passive the dry and the moist the
δὲ πίστις τούτων ἐκ τῆς ἐπαγωγῆς· φαίνεται γὰρ ἐν πᾶσιν
and proof of-these from the induction appear for in all
ἡ μὲν θερμότης καὶ ψυχρότης ὁρίζουσαι καὶ συμφύουσαι
the indeed heat and cold bounding and uniting
καὶ μεταβάλλουσαι τὰ ὁμογενῆ καὶ τὰ μὴ ὁμογενῆ,
and changing the(-things) of-like-kind and the(-things) not of-like-kind
καὶ ὑγραίνουσαι καὶ ξηραίνουσαι καὶ σκληρύνουσαι καὶ
and moistening and drying and hardening and
μαλάττουσαι, τὰ δὲ ξηρὰ καὶ ὑγρὰ ὁριζόμενα καὶ
softening the(-things) but dry and moist being-bounded and
τἆλλα τὰ εἰρημένα πάθη πάσχοντα αὐτά τε καθ' αὑτὰ
the-other the mentioned affections suffering themselves both by themselves

καὶ ὅσα κοινὰ ἐξ ἀμφοῖν σώματα συνέστηκεν. Ἔτι δ'
and as-many-as common from both bodies are-composed Further and
ἐκ τῶν λόγων δῆλον, οἷς ὁριζόμεθα τὰς φύσεις αὐτῶν·
from the definitions clear by-which we-define the natures of-them
τὸ μὲν γὰρ θερμὸν καὶ ψυχρὸν ὡς ποιητικὰ λέγομεν
the indeed for hot and cold as active we-speak-of
(τὸ γὰρ συγκριτικὸν ὥσπερ ποιητικόν τι ἐστί), τὸ
the for combining as-it-were active something is the
δὲ ὑγρὸν καὶ ξηρὸν παθητικόν (τὸ γὰρ εὐόριστον καὶ
but moist and dry passive the for easily-bounded and
δυσόριστον τῷ πάσχειν τι λέγεται τὴν φύσιν αὐτῶν).
hard-to-bound by-the to-suffer something is-said the nature of-them
Ὅτι μὲν οὖν τὰ μὲν ποιητικὰ τὰ δὲ παθητικά,
That indeed then the(-ones) indeed active the(-others) but passive
φανερόν· διωρισμένων δὲ τούτων ληπτέον ἂν εἴη
evident having-been-determined and these one-must-grasp — would-be
τὰς ἐργασίας αὐτῶν, αἷς ἐργάζονται τὰ ποιητικά, καὶ
the workings of-them by-which work the active(-ones) and
τῶν παθητικῶν τὰ εἴδη. Πρῶτον μὲν οὖν καθόλου ἡ ἁπλῆ
of-the passive(-ones) the forms First indeed then universally the simple
γένεσις καὶ ἡ φυσικὴ μεταβολὴ τούτων τῶν δυνάμεών
coming-to-be and the natural change of-these the powers
ἐστιν ἔργον, καὶ ἡ ἀντικειμένη φθορὰ κατὰ φύσιν.
is work and the opposed destruction according-to nature
Αὗται μὲν οὖν τοῖς τε φυτοῖς ὑπάρχουσι καὶ ζῴοις καὶ
These indeed then to-the both plants belong and animals and
τοῖς μέρεσιν αὐτῶν. Ἔστι δ' ἡ ἁπλῆ καὶ φυσικὴ γένεσις
to-the parts of-them Is and the simple and natural coming-to-be
μεταβολὴ ὑπὸ τούτων τῶν δυνάμεων, ὅταν ἔχωσι λόγον
change by these the powers when they-have proportion
ἐκ τῆς ὑποκειμένης ὕλης ἑκάστῃ φύσει· αὗται δ' εἰσὶν αἱ
out-of the underlying matter to-each nature these and are the

εἰρημέναι δυνάμεις παθητικαί. Γεννῶσι δὲ τὸ θερμὸν καὶ
mentioned powers passive Generate and the hot and
ψυχρὸν κρατοῦντα τῆς ὕλης· ὅταν δὲ μὴ κρατῇ, κατὰ μέρος
cold mastering the matter when but not they-master in part
μὲν μώλυσις καὶ ἀπεψία γίγνεται. Τῇ δ' ἁπλῇ γενέσει
indeed half-cooking and inconcoction comes-about To-the and simple coming-to-be
ἐναντίον μάλιστα κοινὸν σῆψις· πᾶσα γὰρ ἡ κατὰ
opposite most common rotting all for the according-to
φύσιν φθορὰ εἰς τοῦθ' ὁδός ἐστιν, οἷον γῆρας καὶ αὔανσις.
nature destruction to this road is such-as old-age and withering
Τέλος δὲ τῶν ἄλλων ἁπάντων σαπρότης, ἂν μή τι
End and of-the others all rottenness if not something
βίᾳ φθαρῇ τῶν φύσει συνεστώτων· ἔστι γὰρ
by-force be-destroyed of-the(-things) by-nature composed it-is-possible for
καὶ σάρκα καὶ ὀστοῦν καὶ ὁτιοῦν κατακαῦσαι, ὧν τὸ
both flesh and bone and anything to-burn-up of-which the
τέλος τῆς κατὰ φύσιν φθορᾶς σῆψίς ἐστιν. Διὸ ὑγρὰ
end of-the according-to nature destruction rotting is Wherefore moist
πρῶτον, εἶτα ξηρὰ τέλος γίγνεται τὰ σηπόμενα· ἐκ
first then dry at-last become the(-things) rotting out-of
τούτων γὰρ ἐγένετο, καὶ ὡρίσθη τῷ ὑγρῷ τὸ ξηρὸν
these for they-came-about and was-bounded by-the moist the dry
ἐργαζομένων τῶν ποιητικῶν. Γίγνεται δ' ἡ φθορά, ὅταν
working the active(-ones) Comes-about and the destruction when
κρατῇ τοῦ ὁρίζοντος τὸ ὁριζόμενον διὰ τὸ περιέχον.
masters the bounding the(-thing) bounded because-of the surrounding
Οὐ μὴν ἀλλ' ἰδίως λέγεται σῆψις ἐπὶ τῶν κατὰ
Not truly but properly is-said rotting in-the-case-of the(-things) in
μέρος φθειρομένων, ὅταν χωρισθῇ τῆς φύσεως. Διὸ
part being-destroyed when it-be-separated from-the nature Wherefore
καὶ σήπεται πάντα τἆλλα πλὴν πυρός· καὶ γὰρ γῆ καὶ
also rot all the-others except fire also for earth and

ὕδωρ καὶ ἀὴρ σήπεται· πάντα γὰρ ὕλη τῷ πυρί ἐστι
water and air rot all for matter to-the fire are
ταῦτα. Σῆψις δ' ἐστὶ φθορὰ τῆς ἐν ἑκάστῳ ὑγρῷ οἰκείας
these Rotting and is destruction of-the in each moist proper
καὶ κατὰ φύσιν θερμότητος ὑπ' ἀλλοτρίας θερμότητος·
and according-to nature heat by foreign heat
αὕτη δ' ἐστὶν ἡ τοῦ περιέχοντος. Ὥστ' ἐπεὶ κατ'
this and is the(-heat) of-the surrounding So-that since by
ἔνδειαν πάσχει θερμοῦ, τὸ δὲ ἐνδεὲς τοιαύτης δυνάμεως
deficiency it-suffers of-heat the and deficient in-such power
ψυχρὸν πᾶν, ἄμφω ἂν αἴτια εἴη, καὶ κοινὸν τὸ πάθος ἡ
cold all both — causes would-be and common the affection the
σῆψις, ψυχρότητός τε οἰκείας καὶ θερμότητος ἀλλοτρίας.
rotting of-coldness both proper and of-heat foreign
Διὰ τοῦτο γὰρ καὶ ξηρότερα γίνεται τὰ σηπόμενα
Because-of this for also drier become the(-things) rotting
πάντα, καὶ τέλος γῆ καὶ κόπρος· ἐξιόντος γὰρ τοῦ οἰκείου
all and at-last earth and dung going-out for the proper
θερμοῦ συνεξατμίζει τὸ κατὰ φύσιν ὑγρόν, καὶ τὸ
heat evaporates-with(-it) the according-to nature moist and the(-thing)
σπῶν τὴν ὑγρότητα οὐκέτ' ἔστιν· ἐπάγει γὰρ ἕλκουσα
drawing the moisture no-longer is draws-in for attracting
ἡ οἰκεία θερμότης. Καὶ ἐν τοῖς ψύχεσι δ' ἧττον σήπεται
the proper heat And in the colds and less they-rot
ἢ ἐν ταῖς ἀλέαις· ἐν μὲν γὰρ τῷ χειμῶνι ὀλίγον ἐν τῷ
than in the heats in indeed for the winter little in the
περιέχοντι ἀέρι καὶ ὕδατι τὸ θερμόν, ὥστ' οὐδὲν ἰσχύει,
surrounding air and water the heat so-that nothing it-avails
ἐν δὲ τῷ θέρει πλέον. Καὶ οὔτε τὸ πεπηγός (μᾶλλον
in but the summer more And neither the(-thing) solidified more
γὰρ ψυχρὸν ἢ ὁ ἀὴρ θερμός· οὔκουν κρατεῖται, τὸ δὲ
for cold than the air hot not-therefore it-is-mastered the and

κινοῦν κρατεῖ) οὔτε τὸ ζέον ἢ θερμόν· ἐλάττων γὰρ
moving masters nor the(-thing) boiling or hot less for
ἡ ἐν τῷ ἀέρι θερμότης τῆς ἐν τῷ πράγματι, ὥστ'
the in the air heat than-the(-one) in the thing so-that
οὐ κρατεῖ οὐδὲ ποιεῖ μεταβολὴν οὐδεμίαν. Ὁμοίως δὲ
not it-masters nor makes change none Likewise and
καὶ τὸ κινούμενον καὶ ῥέον ἧττον σήπεται τοῦ
also the(-thing) being-moved and flowing less rots than-the(-thing)
ἀκινητίζοντος· ἀσθενεστέρα γὰρ γίνεται ἡ ὑπὸ τῆς ἐν
at-rest weaker for becomes the by the(-heat) in
τῷ ἀέρι θερμότητος κίνησις τῆς ἐν τῷ πράγματι
the air heat motion than-the(-one) in the thing
προϋπαρχούσης, ὥστε οὐθὲν ποιεῖ μεταβάλλειν.
pre-existing so-that nothing it-makes to-change
Ἡ δ' αὐτὴ αἰτία καὶ τοῦ τὸ πολὺ ἧττον τοῦ ὀλίγου
The and same cause also of-the the much less than-the little
σήπεσθαι· ἐν γὰρ τῷ πλείονι πλεῖόν ἐστι πῦρ οἰκεῖον καὶ
to-rot in for the greater more is fire proper and
ψυχρὸν ἢ ὥστε κρατεῖν τὰς ἐν τῷ περιεστῶτι δυνάμεις.
cold than so-that to-master the in the surrounding powers
Διὸ καὶ ἡ θάλασσα κατὰ μέρος μὲν διαιρουμένη ταχὺ
Wherefore also the sea in part indeed being-divided quickly
σήπεται, ἅπασα δ' οὔ, καὶ τἆλλα ὕδατα ὡσαύτως. Καὶ ζῷα
rots whole but not and the-other waters likewise And animals
ἐγγίνεται τοῖς σηπομένοις διὰ τὸ τὴν ἀποκεκριμένην
come-to-be-in the(-things) rotting because-of the the separated
θερμότητα φυσικὴν οὖσαν συνιστάναι τὰ ἐκκριθέντα.
heat natural being to-compose the(-things) secreted
Τί μὲν οὖν ἐστὶ γένεσις καὶ τί φθορά, εἴρηται.
What indeed then is coming-to-be and what destruction has-been-said

Heat produces concoction, whose kinds are ripening, boiling, and roasting; cold produces inconcoction, whose kinds are rawness, half-cooking, and scorching. These names are used loosely, for want of proper ones. Concoction is the completion of a thing's matter by its own natural heat, as in must, pus, and rheum, and it leaves things thicker, hotter, and drier; urine and stools so concocted are signs of health. Inconcoction is incompleteness from lack of that heat.

Λοιπὸν δ' εἰπεῖν τὰ ἐχόμενα εἴδη, ὅσα αἱ εἰρημέναι
Remaining and to-tell the next forms as-many-as the mentioned
δυνάμεις ἐργάζονται ἐξ ὑποκειμένων τῶν φύσει
powers produce out-of underlying the(-things) by-nature
συνεστώτων ἤδη. Ἔστι δὴ θερμοῦ μὲν πέψις, πέψεως
composed already Is indeed of-heat indeed concoction of-concoction
δὲ πέπανσις, ἕψησις, ἔτι ὄπτησις· ψυχρότητος δὲ
and ripening boiling further roasting of-coldness but
ἀπεψία, ταύτης δὲ ὠμότης, μώλυσις, στάτευσις. Δεῖ
inconcoction of-this and rawness half-cooking scorching One-must
δ' ὑπολαμβάνειν μὴ κυρίως ταῦτα λέγεσθαι τὰ ὀνόματα
and to-suppose not properly these to-be-said the names
τοῖς πράγμασιν, ἀλλ' οὐ κεῖται καθόλου τοῖς ὁμοίοις,
of-the things but not are-laid-down universally for-the like(-things)
ὥστε οὐ ταῦτα ἀλλὰ τοιαῦτα δεῖ νομίζειν εἶναι τὰ
so-that not these but such one-must to-consider to-be the
εἰρημένα εἴδη. Εἴπωμεν δ' αὐτῶν ἕκαστον τί ἐστιν.
mentioned forms Let-us-say and of-them each what it-is
Πέψις μὲν οὖν ἐστὶ τελείωσις ὑπὸ τοῦ φυσικοῦ καὶ
Concoction indeed then is completion by the natural and
οἰκείου θερμοῦ ἐκ τῶν ἀντικειμένων παθητικῶν· ταῦτα
proper heat out-of the opposed passive(-qualities) these
δ' ἐστὶν ἡ οἰκεία ἑκάστη ὕλη. Ὅταν γὰρ πεφθῇ,
and are the proper each matter When for it-be-concocted

τετελείωταί τε καὶ γέγονεν. Καὶ ἡ ἀρχὴ τῆς
it-has-been-completed both and has-come-to-be And the beginning of-the
τελειώσεως ὑπὸ θερμότητος τῆς οἰκείας συμβαίνει, κἂν
completion by heat the proper happens even-if
διά τινος τῶν ἐκτὸς βοηθείας συνεπιτελεσθῇ, οἷον ἡ
through some of-the outside help it-be-helped-to-completion such-as the
τροφὴ συμπέττεται διὰ λουτρῶν καὶ ἄλλων τοιούτων·
food is-helped-to-concoct through baths and other such-things
ἀλλ' ἥ γε ἀρχὴ ἡ ἐν αὐτῷ θερμότης ἐστίν.
but the at-least beginning the in it heat is
Τὸ δὲ τέλος τοῖς μὲν ἡ φύσις ἐστί, φύσις δὲ ἣν λέγομεν
The and end for-some indeed the nature is nature and which we-call
ὡς εἶδος καὶ οὐσίαν· τοῖς δ' εἰς ὑποκειμένην τινὰ μορφὴν
as form and substance for-others and into underlying some shape
τὸ τέλος ἐστὶ τῆς πέψεως, ὅταν τοιονδὶ γένηται καὶ
the end is of-the concoction when of-such-a-sort it-becomes and
τοσονδὶ τὸ ὑγρὸν ἢ ὀπτώμενον ἢ ἑψόμενον ἢ σηπόμενον
so-much the moist either being-roasted or being-boiled or rotting
ἢ ἄλλως πως θερμαινόμενον· τότε γὰρ χρήσιμόν ἐστι καὶ
or otherwise somehow being-heated then for useful it-is and
πεπέφθαι φαμέν, ὥσπερ τὸ γλεῦκος καὶ τὰ ἐν τοῖς
to-have-been-concocted we-say just-as the must and the(-things) in the
φύμασι συνιστάμενα, ὅταν γένηται πῦον, καὶ τὸ δάκρυον,
growths forming when it-becomes pus and the tear
ὅταν γένηται λήμη. Ὁμοίως δὲ καὶ τἆλλα. Συμβαίνει
when it-becomes rheum Likewise and also the-others It-happens
δὲ τοῦτο πάσχειν ἅπασιν, ὅταν κρατηθῇ ἡ ὕλη καὶ ἡ
and this to-suffer to-all when be-mastered the matter and the
ὑγρότης· αὕτη γάρ ἐστιν ἡ ὁριζομένη ὑπὸ τῆς ἐν τῇ
moisture this for is the(-thing) being-bounded by the in the
φύσει θερμότητος. Ἕως γὰρ ἂν ἐνῇ ἐν αὐτῇ ὁ λόγος,
nature heat As-long-as for — be-in in it the ratio

φύσις τοῦτ᾽ ἔστιν. Διὸ καὶ ὑγιείας σημεῖα τὰ τοιαῦτα,
nature this is Wherefore also of-health signs the such-things
καὶ οὖρα καὶ ὑποχωρήσεις καὶ ὅλως τὰ περιττώματα. Καὶ
both urine and stools and wholly the residues And
λέγεται πεπέφθαι, ὅτι δηλοῖ κρατεῖν τὴν θερμότητα
is-said to-have-been-concocted because it-shows to-master the heat
τὴν οἰκείαν τοῦ ἀορίστου. Ἀνάγκη δὲ τὰ πεττόμενα
the proper the indeterminate Necessity and the(-things) being-concocted
παχύτερα καὶ θερμότερα εἶναι· τοιοῦτον γὰρ ἀποτελεῖ τὸ
thicker and hotter to-be such for renders the
θερμόν, εὐογκότερον καὶ παχύτερον καὶ ξηρότερον. Πέψις
hot bulkier and thicker and drier Concoction
μὲν οὖν τοῦτ᾽ ἐστίν, ἀπεψία δὲ ἀτέλεια δι᾽ ἔνδειαν
indeed then this is inconcoction and incompleteness because-of deficiency
τῆς οἰκείας θερμότητος· ἡ δ᾽ ἔνδεια τῆς θερμότητος
of-the proper heat the and deficiency of-the heat
ψυχρότης ἐστίν· ἡ δ᾽ ἀτέλεια ἐστὶ τῶν ἀντικειμένων
coldness is the and incompleteness is of-the opposed
παθητικῶν, ἥπερ ἐστὶν ἑκάστῳ φύσει ὕλη. Πέψις μὲν
passive(-qualities) which-very is for-each by-nature matter Concoction indeed
οὖν καὶ ἀπεψία διωρίσθω τοῦτον τὸν τρόπον.
then and inconcoction let-be-defined this the way

Ripening concocts the nourishment in fruit and is complete when the seed can produce its like; rawness is its opposite. Boiling concocts by moist heat from outside, and half-cooking is its failure; roasting concocts by dry, foreign heat, and scorching is its failure. Art imitates nature: digestion is like boiling.

Πέπανσις δ' ἐστὶ πέψις τις· ἡ γὰρ τῆς ἐν τοῖς
Ripening and is concoction a-kind the for of-the in the
περικαρπίοις τροφῆς πέψις πέπανσις λέγεται. Ἐπεὶ δ'
fruits nourishment concoction ripening is-called Since and
ἡ πέψις τελείωσίς τις, τότε ἡ πέπανσις τελεία ἐστίν,
the concoction completion a-kind then the ripening complete is
ὅταν τὰ ἐν τῷ περικαρπίῳ σπέρματα δύνηται ἀποτελεῖν
when the in the fruit seeds be-able to-produce
τοιοῦτον ἕτερον οἷον αὐτό· καὶ γὰρ ἐπὶ τῶν ἄλλων
such another as itself also for in-the-case-of the others
τὸ τέλειον οὕτω λέγομεν. Περικαρπίου μὲν οὖν αὕτη
the complete so we-speak-of Of-fruit indeed then this
πέπανσις, λέγεται δὲ καὶ ἄλλα πολλὰ πέπονα τῶν
ripening are-called and also other many(-things) ripe of-the(-things)
πεπεμμένων, κατὰ μὲν τὴν αὐτὴν ἰδέαν, μεταφορᾷ δέ,
concocted in indeed the same form by-metaphor but
διὰ τὸ μὴ κεῖσθαι, καθάπερ εἴρηται καὶ πρότερον,
because-of the not to-be-laid-down just-as has-been-said also earlier
ὀνόματα καθ' ἑκάστην τελείωσιν περὶ τὰ ὁριζόμενα
names for each completion about the(-things) being-bounded
ὑπὸ τῆς φυσικῆς θερμότητος καὶ ψυχρότητος. Ἔστι δὲ ἡ
by the natural heat and coldness Is and the
φυμάτων καὶ φλέγματος καὶ τῶν τοιούτων πέπανσις ἡ ὑπὸ
of-growths and of-phlegm and of-the such-things ripening the by

τοῦ φυσικοῦ θερμοῦ τοῦ ἐνόντος ὑγροῦ πέψις· ἀδύνατον
the natural heat of-the being-within moist concoction impossible
γὰρ ὁρίζειν μὴ κρατοῦν. Ἐκ μὲν οὖν τῶν πνευματικῶν
for to-bound not mastering Out-of indeed then the airy(-things)
ὑδατώδη, ἐκ δὲ τῶν τοιούτων τὰ γεηρὰ συνίσταται, καὶ
watery(-things) out-of and the such(-things) the earthy are-composed and
ἐκ λεπτῶν ἀεὶ παχύτερα γίγνεται πεπαινόμενα πάντα.
from thin always thicker become being-ripened all
Καὶ τὰ μὲν εἰς αὐτὴν ἡ φύσις ἄγει κατὰ τοῦτο,
And the(-things) indeed into itself the nature leads in this
τὰ δ' ἐκβάλλει. Πέπανσις μὲν οὖν εἴρηται τί
the(-others) and casts-out Ripening indeed then has-been-said what
ἐστιν, ὠμότης δ' ἐστὶ τὸ ἐναντίον· ἐναντίον δὲ πεπάνσει
is rawness and is the opposite opposite and to-ripening
ἀπεψία τῆς ἐν τῷ περικαρπίῳ τροφῆς· αὕτη δ' ἐστὶν
inconcoction of-the in the fruit nourishment this and is
ἡ ἀόριστος ὑγρότης. Διὸ ἢ πνευματικὴ ἢ ὑδατώδης
the indeterminate moisture Wherefore either airy or watery
ἢ τῶν ἐξ ἀμφοῖν ἐστὶν ἡ ὠμότης. Ἐπεὶ δ' ἡ
or of-the(-things) from both is the rawness Since and the
πέπανσις τελείωσίς τις ἐστίν, ἡ ὠμότης ἀτέλεια ἔσται.
ripening completion a-kind is the rawness incompleteness will-be
Γίγνεται δ' ἀτέλεια δι' ἔνδειαν τοῦ φυσικοῦ θερμοῦ
Comes-about and incompleteness because-of deficiency of-the natural heat
καὶ ἀσυμμετρίαν πρὸς τὸ ὑγρὸν τὸ πεπαινόμενον. Οὐδὲν
and disproportion to the moist the(-one) being-ripened Nothing
δ' ὑγρὸν αὐτὸ καθ' αὑτὸ πεπαίνεται ἄνευ ξηροῦ· ὕδωρ
and moist itself by itself is-ripened without dry water
γὰρ οὐ παχύνεται μόνον τῶν ὑγρῶν. Συμβαίνει δὲ τοῦτο
for not is-thickened alone of-the liquids Happens and this
ἢ τῷ τὸ θερμὸν ὀλίγον εἶναι ἢ τῷ τὸ ὁριζόμενον
either by-the the heat little to-be or by-the the(-thing) being-bounded

πολύ· διὸ καὶ λεπτοὶ οἱ χυμοὶ τῶν ὠμῶν, καὶ ψυχροὶ
much wherefore also thin the juices of-the raw(-things) and cold
μᾶλλον ἢ θερμοί, καὶ ἄβρωτοι καὶ ἄποτοι. Λέγεται δὲ
rather than hot and uneatable and undrinkable Is-said and
καὶ ἡ ὠμότης ὥσπερ καὶ ἡ πέπανσις, πολλαχῶς.
also the rawness just-as also the ripening in-many-ways
Ὅθεν καὶ οὖρα καὶ ὑποχωρήσεις καὶ κατάρροι ὠμοὶ λέγονται
Whence also urine and stools and catarrhs raw are-called
διὰ τὸ αὐτὸ αἴτιον· τῷ γὰρ μὴ κεκρατῆσθαι ὑπὸ τῆς
because-of the same cause by-the for not to-have-been-mastered by the
θερμότητος μηδὲ συνεστάναι ὠμὰ πάντα προσαγορεύεται.
heat nor to-have-been-composed raw all are-called
Πόρρω δὲ προϊόντων καὶ κέραμος ὠμὸς καὶ γάλα ὠμὸν
Far and going-on both pottery raw and milk raw
καὶ ἄλλα πολλὰ λέγεται, ἐὰν δυνάμενα μεταβάλλειν
and other many(-things) are-called if being-able to-change
καὶ συνίστασθαι ὑπὸ θερμότητος ἀπαθῆ ᾖ. Διὸ τὸ
and to-be-composed by heat unaffected they-be Wherefore the
ὕδωρ ἑφθὸν μὲν λέγεται, ὠμὸν δ' οὔ, ὅτι οὐ παχύνεται.
water boiled indeed is-called raw but not because not it-is-thickened
Πέπανσις μὲν οὖν καὶ ὠμότης εἴρηται τί ἐστι, καὶ διὰ
Ripening indeed then and rawness has-been-said what is and because-of
τί ἐστιν ἑκάτερον αὐτῶν· ἕψησις δ' ἐστὶ τὸ μὲν ὅλον
what is each of-them boiling and is the indeed whole
πέψις ὑπὸ θερμότητος ὑγρᾶς τοῦ ἐνυπάρχοντος ἀορίστου
concoction by heat moist of-the being-present indeterminate
ἐν τῷ ὑγρῷ, λέγεται δὲ τοὔνομα κυρίως μόνον ἐπὶ
in the liquid is-said and the-name properly only in-the-case-of
τῶν ἑψομένων. Τοῦτο δ' ἂν εἴη, ὥσπερ εἴρηται,
the(-things) being-boiled This and — would-be just-as has-been-said
πνευματῶδες ἢ ὑδατῶδες. Ἡ δὲ πέψις γίνεται ἀπὸ τοῦ
airy or watery The and concoction comes-about from the

ἐν τῷ ὑγρῷ πυρός· τὸ γὰρ ἐπὶ τῶν τηγάνων ὀπτᾶται·
in the liquid fire the(-thing) for on the frying-pans is-roasted
ὑπὸ γὰρ τοῦ ἔξωθεν θερμοῦ πάσχει, ἐν ᾧ δ' ἐστὶν
by for the outside heat it-is-affected in which and it-is
ὑγρῷ, ποιεῖ ἐκεῖνο μᾶλλον ξηρόν, εἰς αὑτὸ ἀναλαμβάνον.
liquid makes that more dry into itself taking-up
Τὸ δ' ἑψόμενον τοὐναντίον ποιεῖ· ἐκκρίνεται γὰρ ἐξ αὐτοῦ
The but being-boiled the-opposite does is-secreted for out-of it
τὸ ὑγρὸν ὑπὸ τῆς ἐν τῷ ἔξω ὑγρῷ θερμασίας. Διὸ
the moist by the in the outside liquid heat Wherefore
ξηρότερα τὰ ἑφθὰ τῶν ὀπτῶν· οὐ γὰρ ἀνασπᾷ εἰς αὑτὰ
drier the boiled than-the roasted not for draw-up into themselves
τὸ ὑγρὸν τὰ ἑψόμενα· κρατεῖ γὰρ ἡ ἔξωθεν θερμότης
the moist the(-things) being-boiled masters for the outside heat
τῆς ἐντός· εἰ δ' ἐκράτει ἡ ἐντός, εἵλκεν ἂν εἰς ἑαυτήν.
the inside if but mastered the inside it-would-draw — into itself
Ἔστι δ' οὐ πᾶν σῶμα ἑψητόν· οὔτε γὰρ ἐν ᾧ μηθέν
Is but not every body boilable neither for in which nothing
ἐστιν ὑγρόν, οἷον ἐν λίθοις, οὔτ' ἐν οἷς ἔνεστι μέν,
is moist such-as in stones nor in which is-in indeed
ἀλλ' ἀδύνατον κρατηθῆναι διὰ πυκνότητα, οἷον ἐν τοῖς
but impossible to-be-mastered because-of density such-as in the
ξύλοις· ἀλλ' ὅσα τῶν σωμάτων ἔχει ὑγρότητα παθητικὴν
timbers but as-many-as of-the bodies have moisture passive
ὑπὸ τῆς ἐν τῷ ὑγρῷ πυρώσεως. Λέγεται δὲ καὶ χρυσὸς
by the in the liquid heating Is-said and also gold
ἕψεσθαι καὶ ξύλον καὶ ἄλλα πολλά, κατὰ μὲν τὴν ἰδέαν
to-be-boiled and wood and other many(-things) in indeed the form
οὐ τὴν αὐτήν, μεταφορᾷ δέ· οὐ γὰρ κεῖται ὀνόματα
not the same by-metaphor but not for are-laid-down names
ταῖς διαφοραῖς. Καὶ τὰ ὑγρὰ δὲ ἕψεσθαι λέγομεν, οἷον
for-the differences Also the liquids and to-be-boiled we-say such-as

γάλα καὶ γλεῦκος, ὅταν ὁ ἐν τῷ ὑγρῷ χυμὸς εἰς εἶδός τι
milk and must when the in the liquid flavor into form some
μεταβάλλῃ ὑπὸ τοῦ κύκλῳ καὶ ἔξωθεν πυρὸς θερμαίνοντος,
changes by the around and outside fire heating
ὥστε τρόπον τινὰ παραπλήσιον τῇ εἰρημένῃ ἑψήσει ποιεῖ.
so-that in-a-way some similar to-the mentioned boiling it-acts
Τέλος δ' οὐ ταὐτὸ πᾶσιν, οὔτε ἑψομένοις οὔτε πεττομένοις,
End and not the-same for-all neither being-boiled nor being-concocted
ἀλλὰ τοῖς μὲν πρὸς ἐδωδήν, τοῖς δὲ πρὸς ῥόφησιν,
but for-some indeed for eating for-others and for drinking
τοῖς δὲ πρὸς ἄλλην χρείαν, ἐπεὶ καὶ τὰ φάρμακα ἕψειν
for-others and for other use since also the drugs to-boil
λέγομεν. Ὥστε ὅσα παχύτερα δύναται γίγνεσθαι ἢ
we-speak-of So-that as-many-as thicker can become or
ἐλάττω ἢ βαρύτερα, ἢ τὰ μὲν αὐτῶν τοιαῦτα τὰ
smaller or heavier or the(-ones) indeed of-them such the(-others)
δ' ἐναντία, διὰ τὸ διακρινόμενα τὰ μὲν παχύνεσθαι
and opposite because-of the being-separated the(-ones) indeed to-be-thickened
τὰ δὲ λεπτύνεσθαι, ὥσπερ τὸ γάλα εἰς ὀρρὸν καὶ
the(-others) and to-be-thinned just-as the milk into whey and
πυτίαν, πάντα ἑψητά ἐστιν. Τὸ δ' ἔλαιον οὐχ ἕψεται
rennet all boilable are The but oil not is-boiled
αὐτὸ καθ' αὑτό, ὅτι τούτων οὐθὲν πάσχει. Ἡ μὲν οὖν
itself by itself because of-these nothing it-suffers The indeed then
κατὰ τὴν ἕψησιν λεγομένη πέψις τοῦτ' ἐστίν· καὶ οὐδὲν
according-to the boiling called concoction this is and nothing
διαφέρει ἐν ὀργάνοις τεχνικοῖς ἢ φυσικοῖς, ἐὰν γίγνηται·
it-matters in vessels artificial or natural if it-comes-about
διὰ τὴν αὐτὴν γὰρ αἰτίαν πάντα ἔσται. Μώλυσις δ'
because-of the same for cause all will-be Half-cooking and
ἀπεψία μὲν ἡ ἐναντία ἑψήσει· εἴη δ' ἂν ἐναντία ἥ
inconcoction indeed the(-one) opposite to-boiling would-be and — opposite the

τε πρώτη λεχθεῖσα ἀπεψία τοῦ ἐν τῷ σώματι ἀορίστου
both first mentioned inconcoction of-the in the body indeterminate
δι᾽ ἔνδειαν τῆς ἐν τῷ ὑγρῷ τῷ πέριξ θερμότητος.
because-of deficiency of-the in the liquid the around heat
Ἡ δ᾽ ἔνδεια μετὰ ψυχρότητος ὅτι ἐστίν, εἴρηται· γίγνεται
The and deficiency with coldness that is has-been-said it-comes-about
δὲ διὰ κίνησιν ἄλλην· ἐκκρούεται γὰρ ἡ πέττουσα, καὶ ἡ
and because-of motion another is-knocked-out for the concocting(-heat) and the
ἔνδεια δὲ ἢ διὰ τὸ πλῆθος τῆς ἐν τῷ ὑγρῷ ψυχρότητος,
deficiency and either because-of the quantity of-the in the liquid coldness
ἢ διὰ τὸ ἐν τῷ ἑψομένῳ πλῆθος· τότε γὰρ συμβαίνει
or because-of the in the being-boiled quantity then for it-happens
τὴν ἐν τῷ ὑγρῷ θερμότητα πλείω μὲν εἶναι ἢ ὥστε μὴ
the in the liquid heat greater indeed to-be than so-as not
κινῆσαι, ἐλάττω δὲ ἢ ὥστε ὁμαλῦναι καὶ συμπέψαι.
to-move less but than so-as to-even-out and to-concoct-together
Διὸ σκληρότερα μὲν τὰ μεμωλυσμένα γίγνεται τῶν
Wherefore harder indeed the(-things) half-cooked become than-the
ἑφθῶν, τὰ δ᾽ ὑγρὰ διωρισμένα μᾶλλον. Ἕψησις μὲν οὖν καὶ
boiled the and liquids separated more Boiling indeed then and
μώλυσις εἴρηται, καὶ τί ἐστι καὶ διὰ τί ἐστιν· ὄπτησις
half-cooking have-been-said both what they-are and because-of what they-are roasting
δ᾽ ἐστὶ πέψις ὑπὸ θερμότητος ξηρᾶς καὶ ἀλλοτρίας. Διὰ
and is concoction by heat dry and foreign Because-of
τοῦτο κἂν ἕψων τις ποιῇ μεταβάλλειν καὶ πέττεσθαι,
this even-if boiling someone make to-change and to-be-concocted
μὴ ὑπὸ τῆς τοῦ ὑγροῦ θερμότητος ἀλλ᾽ ὑπὸ τῆς τοῦ
not by the of-the liquid heat but by the(-heat) of-the
πυρός, ὅταν τελεσθῇ, ὀπτὸν γίνεται καὶ οὐχ ἑφθόν,
fire when it-be-completed roasted it-becomes and not boiled

καὶ τῇ ὑπερβολῇ προσκεκαῦσθαι λέγεται· ὑπὸ ξηρᾶς δὲ
and in-the excess to-have-been-scorched it-is-said by dry and
θερμότητος γίνεται, ὅταν ξηρότερον γίγνηται ἐπιτελεσθέν.
heat it-becomes when drier it-become having-been-completed
Διὸ καὶ τὰ ἐκτὸς ξηρότερα τῶν ἐντός· τὰ δ'
Wherefore also the outside(-parts) drier than-the inside the(-things) and
ἑφθὰ τοὐναντίον. Καὶ ἔργον ἐπὶ τῶν χειροκμήτων τὸ
boiled the-opposite And task in-the-case-of the handmade(-things) the
ὀπτῆσαι μεῖζον ἢ ἑψῆσαι· χαλεπὸν γὰρ τὰ ἐντὸς καὶ
to-roast greater than to-boil hard for the(-parts) inside and
τὰ ἐκτὸς ὁμαλῶς θερμαίνειν. Ἀεὶ γὰρ τὰ ἐγγύτερον
the outside evenly to-heat Always for the(-parts) nearer
τοῦ πυρὸς ξηραίνεται θᾶττον, ὥστε καὶ μᾶλλον. Συνιόντων
the fire are-dried faster so-that also more Closing
οὖν τῶν ἔξω πόρων οὐ δύναται ἐκκρίνεσθαι τὸ ἐνυπάρχον
then the outer pores not can to-be-secreted the being-present
ὑγρόν, ἀλλ' ἐγκατακλείεται, ὅταν οἱ πόροι μύσωσιν.
moist but is-shut-in when the pores close
Ὄπτησις μὲν οὖν καὶ ἕψησις γίγνονται μὲν τέχνῃ, ἔστι
Roasting indeed then and boiling come-about indeed by-art are
δ', ὥσπερ λέγομεν, τὰ εἴδη καθόλου ταὐτὰ καὶ φύσει·
but just-as we-say the forms universally the-same also by-nature
ὅμοια γὰρ τὰ γιγνόμενα πάθη, ἀλλ' ἀνώνυμα· μιμεῖται γὰρ
like for the coming-about affections but nameless imitates for
ἡ τέχνη τὴν φύσιν, ἐπεὶ καὶ ἡ τῆς τροφῆς ἐν τῷ σώματι
the art the nature since also the of-the food in the body
πέψις ὁμοία ἑψήσει ἐστίν· καὶ γὰρ ἐν ὑγρῷ καὶ θερμῷ
concoction like to-boiling is also for in moist and hot
ὑπὸ τῆς τοῦ σώματος θερμότητος γίγνεται. Καὶ ἀπεψίαι
by the of-the body heat it-comes-about And inconcoctions
ἔνιαι ὅμοιαι τῇ μωλύσει. Καὶ ζῷον οὐκ ἐγγίνεται ἐν τῇ
some like to-the half-cooking And animal not comes-to-be-in in the

πέψει, ὥσπερ τινές φασιν, ἀλλ' ἐν τῇ ἀποκρίσει σηπομένῃ
concoction just-as some say but in the excretion rotting
ἐν τῇ κάτω κοιλίᾳ, εἶτ' ἐπανέρχεται ἄνω· πέττεται μὲν
in the lower belly then it-comes-back up is-concocted indeed
γὰρ ἐν τῇ ἄνω κοιλίᾳ, σήπεται δ' ἐν τῇ κάτω τὸ
for in the upper belly rots but in the lower the(-thing)
ἀποκριθέν· δι' ἣν δ' αἰτίαν, εἴρηται ἐν ἑτέροις.
excreted because-of which and cause has-been-said in other(-works)
Ἡ μὲν οὖν μώλυσις τῇ ἑψήσει ἐναντίον· τῇ δὲ ὡς
The indeed then half-cooking to-the boiling opposite to-the and as
ὀπτήσει λεγομένῃ πέψει ἔστι μέν τι ἀντικείμενον
roasting called concoction is indeed something opposed
ὁμοίως, ἀνωνυμώτερον δέ. Εἴη δ' ἂν ὅμοιον, εἰ
likewise more-nameless but Would-be and — like if
γένοιτο στάτευσις ἀλλὰ μὴ ὄπτησις δι' ἔνδειαν
there-should-be scorching but not roasting because-of deficiency
θερμότητος, ἣ συμβαίη ἂν ἢ δι' ὀλιγότητα τοῦ
of-heat which would-happen — either because-of smallness of-the
ἔξω πυρὸς ἢ διὰ τὸ πλῆθος τοῦ ἐν τῷ ὀπτωμένῳ
outside fire or because-of the quantity of-the in the(-thing) being-roasted
ὕδατος· τότε γὰρ πλείων μέν ἐστιν ἢ ὥστε μὴ κινῆσαι,
water then for greater indeed it-is than so-as not to-move
ἐλάττων δ' ἢ ὥστε πέψαι. Τί μὲν οὖν ἐστὶ πέψις
less but than so-as to-concoct What indeed then is concoction
καὶ ἀπεψία, καὶ πέπανσις καὶ ὠμότης, καὶ ἕψησις καὶ
and inconcoction and ripening and rawness and boiling and
ὄπτησις καὶ τἀναντία τούτοις, εἴρηται.
roasting and the-opposites to-these has-been-said

The passive qualities are moist and dry; earth is most properly dry and water moist, and every determinate body here holds both, as Empedocles' barley-meal is glued with water. Animals live only in earth and water. Every determinate body is hard or soft: hard what does not yield inward at its surface, soft what does, both judged by touch as the mean.

Τῶν δὲ παθητικῶν, τοῦ ὑγροῦ καὶ τοῦ ξηροῦ, λεκτέον τὰ
Of-the and passive(-qualities) the moist and the dry one-must-tell the
εἴδη. Εἰσὶ δ' αἱ μὲν ἀρχαὶ τῶν σωμάτων αἱ παθητικαὶ ὑγρὸν
forms Are and the indeed principles of-the bodies the passive moist
καὶ ξηρόν, τὰ δ' ἄλλα μικτὰ μὲν ἐκ τούτων, ὁποτέρου
and dry the(-things) and other mixed indeed from these of-whichever
δὲ μᾶλλον, τούτου μᾶλλον τὴν φύσιν ἐστίν, οἷον τὰ
and more of-this more the nature are such-as the(-ones)
μὲν ξηροῦ μᾶλλον τὰ δ' ὑγροῦ. Πάντα δὲ τὰ μὲν
indeed of-dry more the(-others) and of-moist All and the(-ones) indeed
ἐντελεχείᾳ ἔσται, τὰ δ' ἐν τῷ ἀντικειμένῳ· ἔχει δ' οὕτω
in-actuality will-be the(-others) and in the opposite is and so
τῆξις πρὸς τὸ τηκτόν. Ἐπεὶ δ' ἐστὶ τὸ μὲν ὑγρὸν εὐόριστον,
melting to the meltable Since and is the indeed moist easily-bounded
τὸ δὲ ξηρὸν δυσόριστον, ὅμοιόν τι τῷ ὄψῳ καὶ τοῖς
the and dry hard-to-bound like something to-the relish and the
ἡδύσμασι πρὸς ἄλληλα πάσχουσιν· τὸ γὰρ ὑγρὸν τῷ ξηρῷ
seasonings toward one-another they-are-affected the for moist to-the dry

αἴτιον τοῦ ὁρίζεσθαι, καὶ ἑκάτερον ἑκατέρῳ οἷον κόλλα
cause of-the to-be-bounded and each to-each as-it-were glue
γίγνεται, ὥσπερ καὶ Ἐμπεδοκλῆς ἐποίησεν ἐν τοῖς φυσικοῖς
becomes just-as also Empedocles composed in the physical(-poems)

Ἄλφιτον ὕδατι κολλήσας.
Barley-meal with-water having-glued

Καὶ διὰ τοῦτο ἐξ ἀμφοῖν ἐστὶ τὸ ὡρισμένον σῶμα.
And because-of this from both is the bounded body
Λέγεται δὲ τῶν στοιχείων ἰδιαίτατα ξηροῦ μὲν γῆ, ὑγροῦ
Is-said and of-the elements most-properly of-dry indeed earth of-moist
δὲ ὕδωρ. Διὰ τοῦτο ἅπαντα τὰ ὡρισμένα σώματα
and water Because-of this all the bounded bodies
ἐνταῦθα οὐκ ἄνευ γῆς καὶ ὕδατος· ὁποτέρου δὲ πλεῖον,
here not without earth and water of-whichever and more
κατὰ τὴν δύναμιν τούτου ἕκαστον φαίνεται. Καὶ ἐν γῇ
in the power of-this each appears And in earth
καὶ ἐν ὕδατι ζῷα μόνον ἐστίν, ἐν ἀέρι δὲ καὶ πυρὶ οὐκ
and in water animals only are in air but and fire not
ἔστιν, ὅτι τῶν σωμάτων ὕλη ταῦτα. Τῶν δὲ σωματικῶν
are because of-the bodies matter these Of-the and bodily
παθημάτων ταῦτα πρῶτα ἀνάγκη ὑπάρχειν τῷ ὡρισμένῳ,
affections these first necessity to-belong to-the bounded
σκληρότητα ἢ μαλακότητα· ἀνάγκη γὰρ τὸ ἐκ ξηροῦ
hardness or softness necessity for the(-thing) from dry
καὶ ὑγροῦ ἢ σκληρὸν εἶναι ἢ μαλακόν. Ἔστι δὲ σκληρὸν
and moist either hard to-be or soft Is and hard
μὲν τὸ μὴ ὑπεῖκον εἰς αὑτὸ κατὰ τὸ ἐπίπεδον, μαλακὸν
indeed the(-thing) not yielding into itself at the surface soft
δὲ τὸ ὑπεῖκον τῷ μὴ ἀντιπεριίστασθαι· τὸ γὰρ ὕδωρ
and the(-thing) yielding by-the not to-be-displaced-around the for water

οὐ μαλακόν· οὐ γὰρ ὑπείκει τῇ θλίψει τὸ ἐπίπεδον εἰς
not soft not for yields to-the pressure the surface into
βάθος, ἀλλ' ἀντιπεριίσταται. Ἁπλῶς μὲν οὖν σκληρὸν ἢ
depth but it-is-displaced-around Simply indeed then hard or
μαλακὸν τὸ ἁπλῶς τοιοῦτον, πρὸς ἕτερον δὲ τὸ
soft the(-thing) simply such relative-to another and the(-thing)
πρὸς ἐκεῖνο τοιοῦτον. Πρὸς μὲν οὖν ἄλληλα ἀόριστά
relative-to that such Relative-to indeed then one-another indeterminate
ἐστι τῷ μᾶλλον καὶ ἧττον· ἐπεὶ δὲ πρὸς τὴν αἴσθησιν
they-are by-the more and less since but by the perception
πάντα κρίνομεν τὰ αἰσθητά, δῆλον ὅτι καὶ τὸ σκληρὸν καὶ
all we-judge the perceptibles clear that also the hard and
τὸ μαλακὸν ἁπλῶς πρὸς τὴν ἁφὴν ὡρίκαμεν, ὡς μεσότητι
the soft simply by the touch we-have-defined as as-a-mean
χρώμενοι τῇ ἁφῇ. Διὸ τὸ μὲν ὑπερβάλλον αὐτῆς
using the touch Wherefore the(-thing) indeed exceeding it
σκληρόν, τὸ δ' ἐλλεῖπον μαλακὸν εἶναί φαμεν.
hard the(-thing) and falling-short soft to-be we-say

V · DRYING

A determinate body is hard or soft by solidification, and solidifying is a kind of drying. Two causes are at work: the agent, which is hot or cold, and the matter it acts on, which is water, earth, or a mixture of the two. Whatever is water, is a kind of water, or holds water, as wool or milk does, dries by heat from within or without; even cooling dries, by driving out the heat that carries the moisture with it.

Ἀνάγκη δὲ σκληρὸν ἢ μαλακὸν εἶναι τὸ ὡρισμένον σῶμα
Necessity and hard or soft to-be the bounded body
οἰκείῳ ὅρῳ· ἢ γὰρ ὑπείκειν ἢ μή· ἔτι πεπηγὸς εἶναι·
by-its-own boundary either for to-yield or not further solidified to-be

τούτῳ γὰρ ὁρίζεται. Ὥστ' ἐπεὶ πᾶν μὲν τὸ ὡρισμένον καὶ
by-this for it-is-bounded So-that since all indeed the bounded and
συνεστηκὸς ἢ μαλακὸν ἢ σκληρόν, ταῦτα δὲ πήξει
composed either soft or hard these and by-solidification
ἐστίν, ἅπαντ' ἂν εἴη τὰ σώματα τὰ σύνθετα καὶ ὡρισμένα
are all — would-be the bodies the composite and bounded
οὐκ ἄνευ πήξεως. Πήξεως οὖν πέρι ῥητέον. Ἔστι δὲ τὰ
not without solidification Solidification then about one-must-speak Are and the
αἴτια τὰ περὶ τὴν ὕλην δύο, τό τε ποιοῦν καὶ τὸ πάθος,
causes the(-ones) about the matter two the both acting and the affection
τὸ μὲν ποιοῦν ὡς ὅθεν ἡ κίνησις, τὸ δὲ πάθος ὡς εἶδος.
the indeed acting as whence the motion the and affection as form
Ὥστε καὶ πήξεως καὶ διαχύσεως, καὶ τοῦ ξηραίνεσθαι
So-that both of-solidification and of-dissolving and of-the to-be-dried
καὶ τοῦ ὑγραίνεσθαι. Ποιεῖ δὲ τὸ ποιοῦν δυσὶ δυνάμεσι,
and of-the to-be-moistened Acts and the acting by-two powers
καὶ πάσχει τὸ πάσχον παθήμασι δυσίν, ὥσπερ εἴρηται·
and is-affected the affected by-affections two just-as has-been-said
ποιεῖ μὲν θερμῷ καὶ ψυχρῷ, τὸ δὲ πάθος ἢ παρουσίᾳ
it-acts indeed by-hot and cold the and affection either by-presence
ἢ ἀπουσίᾳ θερμοῦ ἢ ψυχροῦ. Ἐπεὶ δὲ τὸ πήγνυσθαι
or by-absence of-hot or cold Since and the to-be-solidified
ξηραίνεσθαί πώς ἐστι, περὶ τούτου εἴπωμεν πρῶτον.
to-be-dried in-a-way is about this let-us-speak first
Τὸ δὴ πάσχον ἢ ὑγρὸν ἢ ξηρὸν ἢ ἐκ τούτων. Τιθέμεθα
The indeed affected either moist or dry or from these We-posit
δὲ ὑγροῦ σῶμα ὕδωρ, ξηροῦ δὲ γῆν· ταῦτα γὰρ τῶν
and of-moist body water of-dry and earth these for of-the
ὑγρῶν καὶ τῶν ξηρῶν παθητικά. Διὸ καὶ τὸ ψυχρὸν
moist and of-the dry passive Wherefore also the cold
τῶν παθητικῶν μᾶλλον· ἐν τούτοις γάρ ἐστι· καὶ γὰρ ἡ
of-the passive(-ones) rather in these for it-is also for the

γῆ καὶ τὸ ὕδωρ ψυχρὰ ὑπόκειται. Ποιητικὸν δὲ τὸ ψυχρὸν
earth and the water cold are-assumed Active and the cold
ὡς φθαρτικὸν ἢ ὡς κατὰ συμβεβηκός, καθάπερ εἴρηται
as destructive or as by accident just-as has-been-said
πρότερον· ἐνίοτε γὰρ καὶ κάειν λέγεται καὶ θερμαίνειν
earlier sometimes for even to-burn is-said and to-heat
τὸ ψυχρόν, οὐχ ὡς τὸ θερμόν, ἀλλὰ τῷ συνάγειν ἢ
the cold not as the hot but by-the to-gather or
ἀντιπεριστάναι τὸ θερμόν. Ξηραίνεται δὲ ὅσα ἐστὶν ὕδωρ
to-displace-around the hot Are-dried and as-many-as are water
καὶ ὕδατος εἴδη, ἢ ἔχει ὕδωρ εἴτ' ἐπακτὸν εἴτε συμφυές.
and of-water kinds or have water whether imported or natural
Λέγω δ' ἐπακτὸν μὲν οἷον ἐν ἐρίῳ, σύμφυτον δ' οἷον ἐν
I-mean and imported indeed as in wool natural and as in
γάλακτι. Ὕδατος δ' εἴδη τὰ τοιάδε, οἶνος, οὖρον, ὀρρός,
milk Of-water and kinds the such wine urine whey
καὶ ὅλως ὅσα μηδεμίαν ἢ βραχεῖαν ἔχει ὑπόστασιν,
and wholly as-many-as no or slight have sediment
μὴ διὰ γλισχρότητα· ἐνίοις μὲν γὰρ αἴτιον τοῦ μὴ
not because-of viscosity for-some indeed for cause of-the not
ὑφίστασθαι μηδὲν ἡ γλισχρότης, ὥσπερ ἐλαίῳ ἢ πίττῃ.
to-settle nothing the viscosity just-as in-oil or pitch
Ξηραίνεται δὲ πάντα ἢ θερμαινόμενα ἢ ψυχόμενα,
Are-dried and all either being-heated or being-cooled
ἀμφότερα δὲ θερμῷ, καὶ ὑπὸ τῆς ἐντὸς θερμότητος ἢ
both and by-hot and by the inside heat or
τῆς ἔξω· καὶ γὰρ τὰ τῇ ψύξει ξηραινόμενα, ὥσπερ
the outside also for the(-things) by-the cooling being-dried just-as
ἱμάτιον, ἐὰν ᾖ κεχωρισμένον αὐτὸ καθ' αὑτὸ τὸ ὑγρόν,
cloak if it-be separated itself by itself the moist
ὑπὸ τοῦ ἐντὸς θερμοῦ συνεξατμίζοντος τὸ ὑγρὸν ξηραίνεται,
by the inside heat evaporating-with(-it) the moist is-dried

ἂν ὀλίγον ᾖ τὸ ὑγρόν, ἐξιούσης τῆς θερμότητος ὑπὸ τοῦ
if little be the moist going-out the heat by the
περιεστῶτος ψυχροῦ. Ξηραίνεται μὲν οὖν, ὥσπερ εἴρηται,
surrounding cold Are-dried indeed then just-as has-been-said
ἅπαντα ἢ θερμαινόμενα ἢ ψυχόμενα, καὶ πάντα θερμῷ,
all either being-heated or being-cooled and all by-hot
ἢ τῷ ἐντὸς ἢ τῷ ἐκτὸς συνεξατμίζοντι τὸ ὑγρόν.
either the inside or the outside evaporating-with(-it) the moist
Λέγω δ' ἐκτὸς μέν, ὥσπερ τὰ ἑψόμενα, ἐντὸς δέ,
I-mean and outside indeed just-as the(-things) being-boiled inside and
ὅταν ἀφαιρεθέντος ὑφ' ἧς ἔχει θερμότητος ἀναλωθῇ
when having-been-removed by which it-has heat it-be-used-up
ἀποπνεούσης. Περὶ μὲν οὖν τοῦ ξηραίνεσθαι εἴρηται.
breathing-off About indeed then the to-be-dried has-been-said

VI · SOLIDIFYING AND MELTING

Moistening is either condensing into water or melting what has been solidified. Opposites undo each other: what cold solidifies, fire melts, and what dry heat solidifies, cold water melts, as with soda and salts, though pottery and some stones stay indissoluble. Mixtures of earth and water are both solidified and thickened by fire and by cold. Some things solidified by cooling cannot be melted but only softened, like iron and horn, yet wrought iron can be melted and solidified again, and steel is made by purging its slag. Millstones also melt and flow.

Τὸ δ' ὑγραίνεσθαί ἐστιν ἓν μὲν τὸ ὕδωρ γίγνεσθαι
The and to-be-moistened is one indeed the water to-come-about
συνιστάμενον, ἓν δὲ τὸ τήκεσθαι τὸ πεπηγός. Τούτων
condensing one and the to-be-melted the solidified Of-these
δὲ συνίσταται μὲν εἰς ὕδωρ ψυχόμενον τὸ πνεῦμα· περὶ
and condenses indeed into water being-cooled the vapor about

δὲ τήξεως ἅμα καὶ πήξεως ἔσται δῆλον. Πήγνυται δὲ
and melting together and solidification it-will-be clear Are-solidified and
ὅσα πήγνυται ἢ ὕδατος ὄντα ἢ γῆς καὶ ὕδατος, καὶ
as-many-as are-solidified either of-water being or of-earth and water and
ταῦτα ἢ θερμῷ ξηρῷ ἢ ψυχρῷ. Διὸ καὶ λύεται τοῖς
these either by-hot dry or by-cold Wherefore also are-dissolved by-the
ἐναντίοις, ὅσα λύεται τῶν ὑπὸ θερμοῦ παγέντων
opposites as-many-as are-dissolved of-the(-things) by hot solidified
ἢ ὑπὸ ψυχροῦ· τὰ μὲν γὰρ ὑπὸ ξηροῦ θερμοῦ παγέντα
or by cold the(-ones) indeed for by dry hot solidified
ὑπὸ ὕδατος λύεται, ὅ ἐστιν ὑγρὸν ψυχρόν, τὰ δὲ
by water are-dissolved which is moist cold the(-ones) and
ὑπὸ ψυχροῦ παγέντα ὑπὸ πυρὸς λύεται, ὅ ἐστι θερμόν.
by cold solidified by fire are-dissolved which is hot
Πήγνυσθαι δ' ἔνια δόξειεν ἂν ὑπὸ ὕδατος, οἷον τὸ μέλι
To-be-solidified and some would-seem — by water such-as the honey
τὸ ἑφθόν· πήγνυται δ' οὐχ ὑπὸ τοῦ ὕδατος, ἀλλ' ὑπὸ
the boiled it-is-solidified but not by the water but by
τοῦ ἐν αὐτῷ ψυχροῦ. Ὅσα μὲν οὖν ἐστὶν ὕδατος, οὐ
the in it cold As-many-as indeed then are of-water not
πήγνυται ὑπὸ πυρός. Λύεται γὰρ ὑπὸ πυρός, τὸ δ' αὐτὸ
are-solidified by fire It-is-dissolved for by fire the and same
τῷ αὐτῷ κατὰ ταὐτὸ οὐκ ἔστιν αἴτιον τοῦ ἐναντίου.
by-the same in the-same-respect not is cause of-the opposite
Ἔτι τῷ ἀπιέναι τὸ θερμὸν πήγνυται, ὥστε δῆλον ὅτι τῷ
Further by-the to-depart the heat it-is-solidified so-that clear that by-the
εἰσιέναι λυθήσεται· ὥστε ποιοῦντος τοῦ ψυχροῦ πήγνυται.
to-enter it-will-be-dissolved so-that acting the cold it-is-solidified
Διὸ οὐ παχύνεται τὰ τοιαῦτα πηγνύμενα· ἡ γὰρ πάχυνσις
Wherefore not are-thickened the such(-things) being-solidified the for thickening
ὑγροῦ μὲν ἀπιόντος γίγνεται, τοῦ ξηροῦ δὲ συνισταμένου·
moist indeed departing comes-about the dry and condensing

ὕδωρ δὲ τῶν ὑγρῶν οὐ παχύνεται μόνον. Ὅσα δὲ
water and of-the liquids not is-thickened alone As-many-as and
κοινὰ γῆς καὶ ὕδατος, καὶ ὑπὸ πυρὸς πήγνυται καὶ ὑπὸ
common of-earth and water both by fire are-solidified and by
τοῦ ψυχροῦ, παχύνεται δ' ὑπ' ἀμφοῖν ἔστι μὲν ὡς τὸν
the cold are-thickened and by both is indeed in-a-way the
αὐτὸν τρόπον, ἔστι δ' ὡς ἄλλως, ὑπὸ μὲν θερμοῦ τὸ
same way is but in-a-way otherwise by indeed hot the
ὑγρὸν ἐξάγοντος (ἐξατμίζοντος γὰρ τοῦ ὑγροῦ παχύνεται
moist drawing-out evaporating for the moist is-thickened
τὸ ξηρὸν καὶ συνίσταται), ὑπὸ δὲ τοῦ ψυχροῦ τὸ θερμὸν
the dry and condenses by and the cold the hot
ἐκθλίβοντος, μεθ' οὗ τὸ ὑγρὸν συναπέρχεται συνεξατμίζον.
squeezing-out with which the moist goes-off-together evaporating-with(-it)
Ὅσα μὲν οὖν μαλακὰ ἀλλὰ μὴ ὑγρά, οὐ παχύνεται
As-many-as indeed then soft but not liquid not are-thickened
ἀλλὰ πήγνυται ἐξιόντος τοῦ ὑγροῦ, οἷον ὁ ὀπτώμενος
but are-solidified going-out the moist such-as the being-baked
κέραμος· ὅσα δὲ ὑγρὰ τῶν μικτῶν, καὶ παχύνεται,
pottery as-many-as but liquid of-the mixed also are-thickened
οἷον γάλα. Πολλὰ δὲ καὶ ὑγραίνεται πρῶτον, ὅσα ἢ
such-as milk Many and also are-moistened first as-many-as either
παχέα ἢ σκληρὰ ὑπὸ ψυχροῦ προϋπῆρχεν ὄντα, ὥσπερ καὶ
thick or hard by cold previously-were being just-as also
ὁ κέραμος τὸ πρῶτον ὀπτώμενος ἀτμίζει καὶ μαλακώτερος
the pottery — at-first being-baked steams and softer
γίνεται· διὸ καὶ διαστρέφεται ἐν ταῖς καμίνοις.
becomes wherefore also is-warped in the kilns
Ὅσα μὲν οὖν ὑπὸ ψυχροῦ πήγνυται τῶν κοινῶν γῆς
As-many-as indeed then by cold are-solidified of-the common of-earth
καὶ ὕδατος, πλεῖον δὲ ἐχόντων γῆς, τὰ μὲν τῷ
and water more and having of-earth the(-ones) indeed by-the

τὸ θερμὸν ἐξεληλυθέναι πηγνύμενα, ταῦτα τήκεται θερμῷ
the heat to-have-gone-out being-solidified these are-melted by-hot
εἰσιόντος πάλιν τοῦ θερμοῦ, οἷον ὁ πηλὸς ὅταν παγῇ·
entering again the heat such-as the mud when it-be-solidified
ὅσα δὲ διὰ ψύξιν, καὶ τοῦ θερμοῦ συνεξατμίσαντος
as-many-as but because-of cooling and the heat having-evaporated-together
ἅπαντος, ταῦτα δὲ ἄλυτα μὴ ὑπερβαλλούσῃ θερμότητι,
all these and indissoluble not by-excessive heat
ἀλλὰ μαλάττεται, οἷον σίδηρος καὶ κέρας. Τήκεται δὲ καὶ
but they-are-softened such-as iron and horn Is-melted and also
ὁ εἰργασμένος σίδηρος, ὥστε ὑγρὸς γίγνεσθαι καὶ πάλιν
the wrought iron so-as liquid to-become and again
πήγνυσθαι. Καὶ τὰ στομώματα ποιοῦσιν οὕτως· ὑφίσταται
to-be-solidified And the steels they-make so settles
γὰρ καὶ ἀποκαθαίρεται κάτω ἡ σκωρία· ὅταν δὲ πολλάκις
for and is-purged below the slag when and often
πάθῃ καὶ καθαρὸς γένηται, τοῦτο στόμωμα γίγνεται.
it-undergo(-this) and pure become this steel becomes
Οὐ ποιοῦσι δὲ πολλάκις αὐτὸ διὰ τὸ ἀπουσίαν γίγνεσθαι
Not they-do and often it because-of the loss to-come-about
πολλὴν καὶ τὸν σταθμὸν ἐλάττω ἀποκαθαιρομένου. Ἔστι δ'
much and the weight less being-purged Is and
ἀμείνων σίδηρος ὁ ἐλάττω ἔχων ἀποκάθαρσιν. Τήκεται
better iron the(-one) less having dross Is-melted
δὲ καὶ ὁ λίθος ὁ πυρίμαχος ὥστε στάζειν καὶ ῥεῖν· τὸ
and also the stone the fire-resisting so-as to-drip and to-flow the
δὲ πηγνύμενον ὅταν ῥυῇ, πάλιν γίγνεται σκληρόν.
and solidifying when it-has-flowed again becomes hard
Καὶ αἱ μύλαι τήκονται ὥστε ῥεῖν· τὸ δὲ ῥέον
And the millstones are-melted so-as to-flow the and flowing(-matter)
πηγνύμενον τὸ μὲν χρῶμα μέλαν, ὅμοιον δὲ γίνεται τῇ
solidifying the indeed color black like but becomes to-the

τιτάνῳ. Τήκεται δὲ καὶ ὁ πηλὸς καὶ ἡ γῆ. Ὅσα δ'
lime Is-melted and also the mud and the earth As-many-as and
ὑπὸ θερμοῦ ξηροῦ πήγνυται, τὰ μὲν ἄλυτα, τὰ
by hot dry are-solidified the(-ones) indeed indissoluble the(-others)
δὲ λύεται ὑγρῷ. Κέραμος μὲν οὖν καὶ λίθων ἐνίων γένη,
and are-dissolved by-liquid Pottery indeed then and of-stones some kinds
ὅσοι ὑπὸ πυρὸς τῆς γῆς συγκαυθείσης γίγνονται,
as-many-as by fire the earth having-been-burnt-together come-about
οἷον οἱ μυλίαι, ἄλυτα, νίτρον δὲ καὶ ἅλες λυτὰ ὑγρῷ, οὐ
such-as the millstones indissoluble soda but and salts soluble by-liquid not
παντὶ δὲ ἀλλὰ ψυχρῷ. Διὸ ὕδατι καὶ ὅσα ὕδατος
by-every and but by-cold Wherefore by-water and as-many-as of-water
εἴδη τήκεται, ἐλαίῳ δ' οὐ τήκεται. Τῷ γὰρ ξηρῷ θερμῷ
kinds they-are-melted by-oil but not they-are-melted To-the for dry hot
ἐναντίον ψυχρὸν ὑγρόν. Εἰ οὖν ἔπηξε θάτερον, θάτερον
opposite cold moist If then solidified the-one the-other
λύσει· οὕτω γὰρ τἀναντία ἔσται αἴτια τῶν ἐναντίων.
will-dissolve so for the-opposites will-be causes of-the opposites

VII · THICKENING

Fire thickens only what has more water than earth; what has more earth it solidifies, as soda, salts, stone, and pottery. Oil is the puzzle: neither cold nor fire solidifies it, yet both thicken it, because it is full of air. What heat and then cold solidify is hardest to dissolve, like iron. Wood floats, but ebony sinks, since its air has gone, and pottery admits neither water nor fire.

Παχύνεται μὲν οὖν ὑπὸ πυρὸς μόνον, ὅσα ὕδατος
Are-thickened indeed then by fire only as-many-as of-water
πλεῖον ἔχει ἢ γῆς, πήγνυται δέ, ὅσα γῆς. Διὸ
more have than of-earth are-solidified but as-many-as of-earth Wherefore

καὶ τὸ νίτρον καὶ οἱ ἅλες γῆς εἰσὶ μᾶλλον, καὶ λίθος
also the soda and the salts of-earth are rather and stone
καὶ κέραμος. Ἀπορώτατα δ' ἔχει ἡ τοῦ ἐλαίου φύσις.
and pottery Most-puzzlingly and is the of-the oil nature
Εἰ μὲν γὰρ ὕδατος ἔχει πλέον, ἔδει πήγνυσθαι ὑπὸ
If indeed for of-water it-has more it-was-needful to-be-solidified by
ψυχροῦ ὡς οἱ πάγοι, εἰ δὲ γῆς πλεῖον, ὑπὸ πυρὸς ὡς ὁ
cold as the frosts if but of-earth more by fire as the
κέραμος· νῦν δὲ πήγνυται μὲν ὑπ' οὐδετέρου, παχύνεται δ'
pottery now but is-solidified indeed by neither is-thickened but
ὑπ' ἀμφοῖν. Αἴτιον δ' ἐστὶν ὅτι ἀέρος ἐστὶ πλῆρες. Διὸ
by both Cause and is that of-air it-is full Wherefore
καὶ ἐν τῷ ὕδατι ἐπιπολάζει· καὶ γὰρ ὁ ἀὴρ φέρεται ἄνω.
also on the water it-floats also for the air is-carried upward
Τὸ μὲν οὖν ψυχρὸν ἐκ τοῦ ἐνόντος πνεύματος ὕδωρ
The indeed then cold out-of the being-within air water
ποιοῦν παχύνει· ἀεὶ γάρ, ὅταν μιχθῇ ὕδωρ καὶ ἔλαιον,
making thickens always for when be-mixed water and oil
ἀμφοῖν γίνεται παχύτερον. Ὑπὸ δὲ πυρὸς καὶ χρόνου
than-both becomes thicker By and fire and time
παχύνεται καὶ λευκαίνεται, λευκαίνεται μὲν ἐξατμίζοντος
it-is-thickened and is-whitened is-whitened indeed evaporating
εἴ τι ἐνῆν ὕδατος, παχύνεται δὲ διὰ τὸ μαραινομένου
if any was-in of-water is-thickened and because-of the dying-down
τοῦ θερμοῦ ἐκ τοῦ ἀέρος γίγνεσθαι ὕδωρ.
the heat out-of the air to-come-about water
Ἀμφοτέρως μὲν οὖν τὸ αὐτὸ γίνεται πάθος, καὶ διὰ
Both-ways indeed then the same comes-about affection and because-of
τὸ αὐτό, ἀλλ' οὐχ ὡσαύτως. Παχύνεται μὲν οὖν ὑπ'
the same but not in-the-same-way It-is-thickened indeed then by
ἀμφοτέρων, ξηραίνεται δ' ὑπ' οὐδετέρου· οὔτε γὰρ ὁ ἥλιος
both is-dried but by neither neither for the sun

οὔτε τὸ ψῦχος ξηραίνει· οὐ μόνον διότι γλίσχρον, ἀλλὰ
nor the cold dries not only because viscous but
καὶ διότι ἀέρος ἐστίν. Οὐ ξηραίνεται δὲ τὸ ὕδωρ οὐδ'
also because of-air it-is Not is-dried and the water nor
ἐξέψεται ὑπὸ πυρός, ὅτι οὐκ ἀτμίζει διὰ γλισχρότητα.
is-boiled-away by fire because not it-steams because-of viscosity
Ὅσα δὲ μικτὰ ὕδατος καὶ γῆς, κατὰ τὸ πλῆθος
As-many-as and mixed of-water and earth according-to the quantity
ἑκατέρου ἄξιον λέγεσθαι· οἶνος γάρ τις καὶ πήγνυται καὶ
of-each fit to-be-called wine for some both is-solidified and
ἕψεται, οἷον τὸ γλεῦκος. Ἀπέρχεται δ' ἀπὸ πάντων τῶν
is-boiled such-as the must Departs and from all the
τοιούτων ξηραινομένων τὸ ὕδωρ. Σημεῖον δ' ὅτι τὸ ὕδωρ·
such being-dried the water Sign and that the water
ἡ γὰρ ἀτμὶς συνίσταται εἰς ὕδωρ, ἐάν τις βούληται
the for vapor condenses into water if someone wish
συλλέγειν. Ὥστε ὅσοις λείπεταί τι, τοῦτο γῆς. Ἔνια
to-collect(-it) So-that in-whatever is-left something this of-earth Some
δὲ τούτων καὶ ὑπὸ ψυχροῦ, ὥσπερ εἴρηται, παχύνεται
and of-these also by cold just-as has-been-said are-thickened
καὶ ξηραίνεται· τὸ γὰρ ψυχρὸν οὐ μόνον πήγνυσιν, ἀλλὰ
and are-dried the for cold not only solidifies but
ξηραίνει μὲν τὸ ὕδωρ, παχύνει δὲ τὸν ἀέρα ὕδωρ ποιοῦν.
dries indeed the water thickens and the air water making
Ἡ δὲ πῆξις εἴρηται ξηρασία τις οὖσα. Ὅσα μὲν
The and solidification has-been-said drying a-kind being As-many-as indeed
οὖν μὴ παχύνεται ὑπὸ τοῦ ψυχροῦ ἀλλὰ πήγνυται, ὕδατός
then not are-thickened by the cold but are-solidified of-water
ἐστι μᾶλλον, οἷον οἶνος καὶ οὖρον καὶ ὄξος καὶ κονία καὶ
are rather such-as wine and urine and vinegar and lye and
ὀρρός· ὅσα δὲ παχύνεται μὴ ἐξατμίζοντα ὑπὸ πυρός,
whey as-many-as and are-thickened not evaporating by fire

τὰ μὲν γῆς, τὰ δὲ κοινὰ ὕδατος καὶ ἀέρος, μέλι
the(-ones) indeed of-earth the(-others) and common of-water and air honey
μὲν γῆς, ἔλαιον δ' ἀέρος. Ἔστι δὲ καὶ τὸ γάλα καὶ
indeed of-earth oil and of-air Are and also the milk and
τὸ αἷμα ἀμφοῖν μὲν κοινὰ καὶ ὕδατος καὶ γῆς, μᾶλλον
the blood of-both indeed common both of-water and earth rather
δὲ τὰ πολλὰ γῆς, ὥσπερ καὶ ἐξ ὅσων ὑγρῶν νίτρον
but for-the most-part of-earth just-as also from as-many-as liquids soda
γίνεται καὶ ἅλες. Καὶ λίθοι δ' ἔκ τινων συνίστανται
comes-about and salts Also stones and from some are-composed
τοιούτων. Διὸ ἐὰν μὴ χωρισθῇ ὁ ὀρρός, ἐκκάεται ὑπὸ
such Wherefore if not be-separated the whey it-is-burnt-out by
τοῦ πυρὸς ἑψόμενος. Τὸ δὲ γεῶδες συνίσταται καὶ ὑπὸ τοῦ
the fire being-boiled The and earthy coagulates also by the
ὀποῦ, ἐάν πως ἕψῃ τις, οἷον οἱ ἰατροὶ ὀπίζοντες.
fig-juice if somehow boil someone as the doctors curdling-with-fig-juice
Οὕτω δὲ χωρίζεται ὁ ὀρρὸς καὶ ὁ τυρός. Ὁ δὲ χωρισθεὶς
So and is-separated the whey and the cheese The and separated
ὀρρὸς οὐκέτι παχύνεται, ἀλλ' ἐκκάεται ὥσπερ ὕδωρ.
whey no-longer is-thickened but is-burnt-out just-as water
Εἰ δέ τι μὴ ἔχει τυρὸν γάλα ἢ ὀλίγον, τοῦτο μᾶλλον
If and some not has cheese milk or little this rather
ὕδατος καὶ ἄτροφον. Καὶ τὸ αἷμα ὁμοίως· πήγνυται
of-water and not-nourishing And the blood likewise it-is-solidified
γὰρ τῷ ξηραίνεσθαι ψυχόμενον. Ὅσα δὲ μὴ πήγνυται,
for by-the to-be-dried being-cooled As-many-as and not are-solidified
οἷον τὸ τῆς ἐλάφου, τὰ τοιαῦτα ὕδατος μᾶλλον, καὶ
such-as the(-blood) of-the deer the such of-water rather and
ψυχρότατα ταῦτα. Διὸ καὶ οὐκ ἔχει ἶνας· αἱ γὰρ
coldest these Wherefore also not they-have fibers the for
ἶνές εἰσι γῆς καὶ στερεόν. Ὥστε καὶ ἐξαιρεθεισῶν οὐ
fibers are of-earth and solid So-that also having-been-removed not

πήγνυται. Τοῦτο δ' ἔσται, ὅτι οὐ ξηραίνεται· ὕδωρ γὰρ
it-is-solidified This and will-be because not it-is-dried water for
τὸ λοιπόν, ὥσπερ τὸ γάλα τοῦ τυροῦ ἐξαιρεθέντος. Σημεῖον
the remainder just-as the milk the cheese having-been-removed Sign
δέ· τὰ νοσώδη γὰρ αἵματα οὐ θέλει πήγνυσθαι· ἰχωροειδῆ
and the diseased for bloods not tend to-be-solidified serous
γάρ, τοῦτο δὲ φλέγμα καὶ ὕδωρ διὰ τὸ ἄπεπτον εἶναι
for this and phlegm and water because-of the unconcocted to-be
καὶ ἀκράτητον ὑπὸ τῆς φύσεως. Ἔτι δὲ τὰ μὲν
and unmastered by the nature Further and the(-ones) indeed
λυτά ἐστιν, οἷον νίτρον, τὰ δὲ ἄλυτα, οἷον κέραμος,
soluble are such-as soda the(-others) and indissoluble such-as pottery
καὶ τούτων τὰ μὲν μαλακτά, οἷον κέρας, τὰ
and of-these the(-ones) indeed softenable such-as horn the(-others)
δὲ ἀμάλακτα, οἷον κέραμος καὶ λίθος. Αἴτιον δ' ὅτι
and unsoftenable such-as pottery and stone Cause and that
τὰ ἐναντία τῶν ἐναντίων αἴτια, ὥστ' εἰ πήγνυται δυοῖν,
the opposites of-the opposites causes so-that if it-is-solidified by-two
ψυχρῷ καὶ ξηρῷ, λύεσθαι ἀνάγκη θερμῷ καὶ ὑγρῷ.
by-cold and dry to-be-dissolved necessity by-hot and moist
Διὸ πυρὶ καὶ ὕδατι (ταῦτα γὰρ ἐναντία), ὕδατι μὲν
Wherefore by-fire and water these for opposites by-water indeed
ὅσα πυρὶ μόνῳ, πυρὶ δὲ ὅσα ψυχρῷ μόνῳ· ὥστ'
as-many-as by-fire alone by-fire and as-many-as by-cold alone so-that
εἰ ὑπ' ἀμφοῖν συμβαίνει πήγνυσθαι, ταῦτ' ἄλυτα μάλιστα.
if by both it-happens to-be-solidified these indissoluble most
Γίγνεται δὲ τοιαῦτα ὅσα θερμανθέντα ἔπειτα τῷ ψυχρῷ
Become and such as-many-as having-been-heated then by-the cold
πήγνυται· συμβαίνει γάρ, ὅταν τὸ θερμὸν ἐξικμάσῃ ἐξιόν,
are-solidified it-happens for when the heat has-dried-out going-out
τὸ πλεῖστον ὑγρὸν συνθλίβεσθαι πάλιν ὑπὸ τοῦ ψυχροῦ,
the most moisture to-be-compressed again by the cold

ὥστε μηδ' ὑγρῷ διδόναι δίοδον. Καὶ διὰ ταῦτα οὔτε
so-as not-even to-liquid to-give passage And because-of these-things neither
τὸ θερμὸν λύει· ὅσα γὰρ ὑπὸ ψυχροῦ πήγνυται μόνου,
the heat dissolves as-many-as for by cold are-solidified alone
ταῦτα λύει· οὔθ' ὑπὸ ὕδατος· ὅσα γὰρ ὑπὸ ψυχροῦ
these it-dissolves nor by water as-many-as for by cold
πήγνυται, οὐ λύει, ἀλλ' ὅσα ὑπὸ θερμοῦ ξηροῦ μόνον.
are-solidified not it-dissolves but as-many-as by hot dry only
Ὁ δὲ σίδηρος τακεὶς ὑπὸ θερμοῦ ψύχει πήγνυται,
The and iron having-been-melted by hot by-cold is-solidified
ὥστε πρὸς πῆξιν ἀμφοτέρων δεῖται· διὸ ἄλυτον. Τὰ
so-that for solidification both it-needs wherefore indissoluble The
δὲ ξύλα ἐστὶ γῆς καὶ ἀέρος· διὸ καυστὰ καὶ οὐ
and timbers are of-earth and air wherefore combustible and not
τηκτὰ οὐδὲ μαλακτά, καὶ ἐπὶ τῷ ὕδατι ἐπιπλεῖ, πλὴν
meltable nor softenable and on the water floats except
ἐβένου. Αὕτη δ' οὔ· τὰ μὲν γὰρ ἄλλ' ἀέρος ἔχει πλεῖον,
ebony This but not the indeed for other of-air have more
ἐκ δὲ τῆς ἐβένου τῆς μελαίνης διαπέπνευκεν ὁ ἀήρ,
out-of but the ebony the black has-breathed-out the air
καὶ ἔστι πλεῖον ἐν αὐτῇ γῆς. Κέραμος δὲ γῆς μόνης
and is more in it of-earth Pottery and of-earth alone
διὰ τὸ ξηραινόμενος παγῆναι κατὰ μικρόν· οὔτε γὰρ
because-of the being-dried to-be-solidified by little neither for
τὸ ὕδωρ εἰσόδους ἔχει, δι' ὧν μόνον πνεῦμα ἐξῆλθεν,
the water entrances has through which only air went-out
οὔτε πῦρ· ἔπηξε γὰρ αὐτό. Τί μὲν οὖν ἐστὶ πῆξις καὶ
nor fire solidified for it What indeed then is solidification and
τῆξις, καὶ διὰ πόσα καὶ ἐν πόσοις ἐστίν, εἴρηται.
melting and because-of how-many and in how-many is has-been-said

Hot and cold compose the homoeomerous bodies, such as flesh, bone, and the metals, out of earth and water. These bodies differ in what the senses perceive and in what they can undergo, and Aristotle lists the paired capacities: whether a body can be solidified, melted, softened, soaked, bent, broken, impressed, squeezed, drawn out, beaten flat, split, cut, burned, or fumigated. Melting is taken up again: what lost moisture is melted by water unless its pores have shrunk too narrow, as in pottery, and what lost heat is melted by heat. Honey, must, oil, and quicksilver do not solidify.

Ἐκ δὲ τούτων φανερὸν ὅτι ὑπὸ θερμοῦ καὶ ψυχροῦ
From and these evident that by hot and cold
συνίσταται τὰ σώματα, ταῦτα δὲ παχύνοντα καὶ πηγνύντα
are-composed the bodies these and thickening and solidifying
ποιεῖται τὴν ἐργασίαν αὐτῶν. Διὰ δὲ τὸ ὑπὸ τούτων
make the working of-them Because-of and the by these
δημιουργεῖσθαι ἐν ἅπασι μέν ἐστι θερμότης, τισὶ δὲ καὶ
to-be-fashioned in all indeed is heat in-some and also
ψυχρότης ᾗ ἐκλείπει. Ὥστ' ἐπεὶ ταῦτα μὲν ὑπάρχει
coldness where it-fails So-that since these indeed are-present
διὰ τὸ ποιεῖν, ὑγρὸν δὲ καὶ ξηρὸν διὰ τὸ πάσχειν,
because-of the to-act moist and and dry because-of the to-be-affected
μετέχει αὐτῶν τὰ κοινὰ πάντων. Ἐκ μὲν οὖν ὕδατος
share of-them the common all From indeed then water
καὶ γῆς τὰ ὁμοιομερῆ σώματα συνίσταται, καὶ ἐν φυτοῖς
and earth the homoeomerous bodies are-composed both in plants
καὶ ἐν ζῴοις, καὶ τὰ μεταλλευόμενα, οἷον χρυσὸς καὶ
and in animals and the(-things) mined such-as gold and
ἄργυρος καὶ ὅσα ἄλλα τοιαῦτα, ἐξ αὐτῶν τε καὶ τῆς
silver and as-many-as other such from them both and the
ἀναθυμιάσεως τῆς ἑκατέρου ἐγκατακλειομένης, ὥσπερ
exhalation the(-one) of-each being-shut-up just-as

εἴρηται ἐν ἄλλοις. Ταῦτα δὲ διαφέρει ἀλλήλων τοῖς τε
has-been-said in others These and differ from-one-another by-the both
πρὸς τὰς αἰσθήσεις ἰδίοις ἅπαντα καὶ τῷ ποιεῖν τι
to the senses proper all and by-the to-act something
δύνασθαι· λευκὸν γὰρ καὶ εὐῶδες καὶ ψοφητικὸν καὶ γλυκὺ
to-be-able white for and fragrant and sonorous and sweet
καὶ θερμὸν καὶ ψυχρὸν τῷ ποιεῖν τι δύνασθαι τὴν
and hot and cold by-the to-act something to-be-able on-the
αἴσθησίν ἐστι, καὶ ἄλλοις οἰκειοτέροις πάθεσιν, ὅσα
perception is and by-other more-proper affections as-many-as
τῷ πάσχειν λέγονται, λέγω δ' οἷον τὸ τηκτὸν καὶ
by-the to-be-affected are-said I-mean and such-as the meltable and
πηκτὸν καὶ καμπτὸν καὶ ὅσα ἄλλα τοιαῦτα· πάντα
solidifiable and bendable and as-many-as other such all
γὰρ τὰ τοιαῦτα παθητικά, ὥσπερ τὸ ὑγρὸν καὶ τὸ ξηρόν.
for the such passive just-as the moist and the dry
Τούτοις δ' ἤδη διαφέρει ὀστοῦν καὶ σὰρξ καὶ νεῦρον
By-these and now differ bone and flesh and sinew
καὶ ξύλον καὶ φλοιὸς καὶ λίθος καὶ τῶν ἄλλων ἕκαστον
and wood and bark and stone and of-the others each
τῶν ὁμοιομερῶν μὲν φυσικῶν δὲ σωμάτων. Εἴπωμεν
of-the homoeomerous indeed natural and bodies Let-us-say
δὲ πρῶτον τὸν ἀριθμὸν αὐτῶν, ὅσα κατὰ δύναμιν
and first the number of-them as-many-as according-to capacity
καὶ ἀδυναμίαν λέγεται. Ἔστι δὲ τάδε, πηκτὸν ἄπηκτον,
and incapacity are-said Are and these solidifiable unsolidifiable
τηκτὸν ἄτηκτον, μαλακτὸν ἀμάλακτον, τεγκτὸν ἄτεγκτον,
meltable unmeltable softenable unsoftenable soakable unsoakable
καμπτὸν ἄκαμπτον, κατακτὸν ἀκάτακτον, θραυστὸν
bendable unbendable breakable unbreakable fragmentable
ἄθραυστον, θλαστὸν ἄθλαστον, πλαστὸν ἄπλαστον, πιεστὸν
unfragmentable impressible unimpressible plastic unplastic squeezable

ἀπίεστον, ἑλκτὸν ἄνελκτον, ἐλατὸν ἀνήλατον, σχιστὸν
unsqueezable ductile unductile malleable unmalleable fissile
ἄσχιστον, τμητὸν ἄτμητον, γλίσχρον ψαθυρόν, πιλητὸν
unfissile cuttable uncuttable viscous friable compressible
ἀπίλητον, καυστὸν ἄκαυστον, θυμιατὸν ἀθυμίατον. Τὰ
incompressible combustible incombustible fumigable unfumigable The
μὲν οὖν πλεῖστα σχεδὸν τῶν σωμάτων τούτοις διαφέρει
indeed then most nearly of-the bodies by-these differ
τοῖς πάθεσιν· τίνα δ' ἕκαστον τούτων ἔχει δύναμιν,
the affections what and each of-these has capacity
εἴπωμεν. Περὶ μὲν οὖν πηκτοῦ καὶ ἀπήκτου καὶ τηκτοῦ
let-us-say About indeed then solidifiable and unsolidifiable and meltable
καὶ ἀτήκτου εἴρηται μὲν καθόλου πρότερον, ὅμως δ'
and unmeltable has-been-said indeed universally earlier nevertheless but
ἐπανέλθωμεν καὶ νῦν. Τῶν γὰρ σωμάτων ὅσα πήγνυται
let-us-return also now Of-the for bodies as-many-as are-solidified
καὶ σκληρύνεται, τὰ μὲν ὑπὸ θερμοῦ πάσχει τοῦτο
and are-hardened the(-ones) indeed by hot suffer this
τὰ δ' ὑπὸ ψυχροῦ, ὑπὸ μὲν τοῦ θερμοῦ ξηραίνοντος
the(-others) and by cold by indeed the hot drying
τὸ ὑγρόν, ὑπὸ δὲ τοῦ ψυχροῦ ἐκθλίβοντος τὸ θερμόν.
the moist by and the cold squeezing-out the hot
Ὥστε τὰ μὲν ὑγροῦ ἀπουσίᾳ τὰ δὲ θερμοῦ
So-that the(-ones) indeed of-moist by-absence the(-others) and of-hot
τοῦτο πάσχει, ὅσα μὲν ὕδατος, θερμοῦ, ὅσα δὲ
this suffer as-many-as indeed of-water of-hot as-many-as and
γῆς, ὑγροῦ. Τὰ μὲν οὖν ὑγροῦ ἀπουσίᾳ ὑπὸ ὑγροῦ
of-earth of-moist The(-ones) indeed then of-moist by-absence by liquid
διατήκεται, ἂν μὴ οὕτω συνέλθῃ ὥστ' ἐλάττους τοὺς
are-melted if not so it-contract so-that smaller the
πόρους λειφθῆναι τῶν τοῦ ὕδατος ὄγκων, οἷον ὁ
pores to-be-left than-the of-the water particles such-as the

κέραμος· ὅσα δὲ μὴ οὕτω, πάντα ὑγρῷ τήκεται, οἷον
pottery as-many-as but not so all by-liquid are-melted such-as
νίτρον, ἅλες, γῆ ἡ ἐκ πηλοῦ. Τὰ δὲ θερμοῦ
soda salts earth the(-one) from mud The(-ones) and of-hot
στερήσει ὑπὸ θερμοῦ τήκεται, οἷον κρύσταλλος, μολίβδος,
by-privation by hot are-melted such-as ice lead
χαλκός. Ποῖα μὲν οὖν πηκτὰ καὶ τηκτά, εἴρηται, καὶ ποῖα
bronze Which indeed then solidifiable and meltable has-been-said and which
ἄτηκτα. Ἄπηκτα δὲ ὅσα μὴ ἔχει ὑγρότητα ὑδατώδη,
unmeltable Unsolidifiable and as-many-as not have moisture watery
μηδ' ὕδατός ἐστιν, ἀλλὰ πλεῖον θερμοῦ καὶ γῆς, οἷον
nor of-water are but more of-hot and earth such-as
μέλι καὶ γλεῦκος (ὥσπερ ζέοντα γάρ ἐστι), καὶ ὅσα
honey and must as-it-were boiling for they-are and as-many-as
ὕδατος μὲν ἔχει, ἔστι δὲ πλεῖον ἀέρος, ὥσπερ τὸ ἔλαιον
of-water indeed have is but more of-air just-as the oil
καὶ ἄργυρος χυτός, καὶ εἴ τι γλίσχρον, οἷον ἰξός.
and silver liquid and if anything viscous such-as birdlime

IX · THE CAPACITIES DEFINED

Aristotle defines each capacity in turn. Some bodies soften, some soak without melting, as wool does, and some bend and straighten. Breaking divides a body into large pieces, fragmenting into many. Some bodies take and keep an impression, and others are squeezed, drawn out, beaten flat, split, or cut. Combustible things have pores open to fire; fumigable ones give off smoke, soot, or the steam of fat.

Μαλακτὰ δ' ἐστὶ τῶν πεπηγότων ὅσα μὴ ἐξ
Softenable and are of-the(-things) solidified as-many-as not of
ὕδατος, οἷον κρύσταλλος (πᾶς γὰρ κρύσταλλος ὕδατος),
water as ice all for ice of-water

ἀλλ᾽ ὅσα γῆς μᾶλλον, καὶ μήτ᾽ ἐξίκμασται πᾶν τὸ
but as-many-as of-earth rather and neither has-been-dried-out all the
ὑγρὸν ὥσπερ ἐν νίτρῳ ἢ ἁλσί, μήτ᾽ ἔχει ἀνωμάλως ὥσπερ
moist just-as in soda or salts nor are unevenly just-as
ὁ κέραμος, ἀλλ᾽ εἰσὶν ἑλκτὰ μὴ ὄντα διαντά, ἢ ἐλατὰ μὴ
the pottery but are ductile not being wettable or malleable not
ὄντα ὕδατος, καὶ μαλακτὰ πυρί, οἷον σίδηρος καὶ κέρας
being of-water and softenable by-fire such-as iron and horn
καὶ ξύλα. Ἔστι δὲ καὶ τῶν τηκτῶν καὶ τῶν ἀτήκτων
and timbers Are and also of-the meltable and of-the unmeltable
τὰ μὲν τεγκτὰ τὰ δὲ ἄτεγκτα, οἷον χαλκὸς
the(-ones) indeed soakable the(-others) and unsoakable such-as bronze
ἄτεγκτον, τηκτὸν ὄν, ἔριον δὲ καὶ γῆ τεγκτόν· βρέχεται
unsoakable meltable being wool but and earth soakable is-wetted
γάρ. Καὶ χαλκὸς μὲν δὴ τηκτόν, οὐχ ὑπὸ ὕδατος
for And bronze indeed indeed meltable not by water
δὲ τηκτόν. Ἀλλὰ καὶ τῶν ὑπὸ ὕδατος τηκτῶν ἔνια
but meltable But also of-the(-things) by water meltable some
ἄτεγκτα, οἷον νίτρον καὶ ἅλες· οὐδὲ γὰρ ἄλλο τεγκτὸν
unsoakable such-as soda and salts nor for other soakable
οὐδὲν ὃ μὴ μαλακώτερον γίνεται βρεχόμενον. Ἔνια δὲ
nothing which not softer becomes being-wetted Some and
τεγκτὰ ὄντα οὐ τηκτά ἐστιν, οἷον ἔριον καὶ οἱ καρποί.
soakable being not meltable are such-as wool and the fruits
Ἔστι δὲ τεγκτὰ μὲν ὅσα γῆς ὄντα ἔχει τοὺς πόρους
Are and soakable indeed as-many-as of-earth being have the pores
μείζους τῶν τοῦ ὕδατος ὄγκων, ὄντων δὲ σκληροτέρων
larger than-the of-the water particles being and harder
τοῦ ὕδατος, τηκτὰ δὲ ὕδατι ὅσα δι᾽ ὅλου.
than-the water meltable and by-water as-many-as through whole

Διὰ τί δ' ἡ μὲν γῆ καὶ τήκεται καὶ τέγγεται ὑπὸ
Because-of what and the indeed earth both is-melted and is-soaked by
τοῦ ὑγροῦ, τὸ δὲ νίτρον τήκεται μέν, τέγγεται δ' οὔ; Ὅτι
the liquid the but soda is-melted indeed is-soaked but not Because
ἐν μὲν τῷ νίτρῳ δι' ὅλου οἱ πόροι, ὥστε ἅ γε
in indeed the soda through whole the pores so-that what-things at-least
διαιρεῖται εὐθὺς ὑπὸ τοῦ ὕδατος τὰ μόρια, ἐν δὲ τῇ γῇ
are-divided at-once by the water the parts in but the earth
καὶ παραλλάξ εἰσιν οἱ πόροι, ὥστε ὁποτέρως ἂν δέξηται,
also alternately are the pores so-that whichever-way — it-receives
διαφέρει τὸ πάθος. Ἔστι δὲ καὶ τὰ μὲν τῶν σωμάτων
differs the affection Are and also the(-ones) indeed of-the bodies
καμπτὰ καὶ εὐθυντά, οἷον κάλαμος καὶ λύγος, τὰ
bendable and straightenable such-as reed and withy the(-others)
δ' ἄκαμπτα τῶν σωμάτων, οἷον κέραμος καὶ λίθος.
and unbendable of-the bodies such-as pottery and stone
Ἔστι δὲ καμπτὰ μὲν καὶ εὐθυντὰ ὅσων σωμάτων
Are and bendable indeed and straightenable of-as-many-as bodies
τὸ μῆκος δύναται εἰς εὐθύτητα ἐκ περιφερείας καὶ ἐξ
the length can into straightness from curve and from
εὐθύτητος εἰς περιφέρειαν μεταβάλλειν, καὶ τὸ κάμπτεσθαι
straightness into curve to-change and the to-be-bent
καὶ τὸ εὐθύνεσθαί ἐστι τὸ εἰς εὐθύτητα ἢ περιφέρειαν
and the to-be-straightened is the into straightness or curve
μεθίστασθαι ἢ κινεῖσθαι· καὶ γὰρ τὸ ἀνακαμπτόμενον
to-shift or to-be-moved also for the(-thing) being-bent-up
καὶ τὸ κατακαμπτόμενον κάμπτεται. Ἡ μὲν οὖν εἰς
and the(-thing) being-bent-down is-bent The indeed then into
κυρτότητα ἢ κοιλότητα κίνησις τοῦ μήκους σωζομένου
convexity or concavity motion the length being-preserved

κάμψις ἐστίν· εἰ γὰρ καὶ εἰς τὸ εὐθύ, εἴη ἂν ἅμα
bending is if for also into the straight it-would-be — at-once
κεκαμμένον καὶ εὐθύ· ὅπερ ἀδύνατον, τὸ εὐθὺ κεκάμφθαι.
bent and straight which-very impossible the straight to-have-been-bent
Καὶ εἰ κάμπτεται πᾶν ἢ ἀνακάμψει ἢ κατακάμψει,
And if is-bent all either by-bending-up or by-bending-down
τούτων δὲ τὸ μὲν εἰς τὸ κυρτὸν τὸ δ' εἰς τὸ
of-these and the(-one) indeed into the convex the(-other) and into the
κοῖλον μετάβασις, οὐκ ἂν εἴη καὶ εἰς τὸ εὐθὺ κάμψις,
concave change not — would-be also into the straight bending
ἀλλ' ἔστι κάμψις καὶ εὔθυνσις ἄλλο καὶ ἄλλο. Καὶ ταῦτά
but is bending and straightening one-thing and another And these
ἐστι καμπτὰ καὶ εὐθυντά, καὶ ἄκαμπτα καὶ ἀνεύθυντα. Καὶ
are bendable and straightenable and unbendable and unstraightenable And
τὰ μὲν κατακτὰ καὶ θραυστὰ ἅμα ἢ χωρίς, οἷον ξύλον
the(-ones) indeed breakable and fragmentable together or apart such-as wood
μὲν κατακτόν, θραυστὸν δ' οὔ, κρύσταλλος δὲ καὶ λίθος
indeed breakable fragmentable but not ice but and stone
θραυστόν, κατακτὸν δ' οὔ, κέραμος δὲ καὶ θραυστὸν καὶ
fragmentable breakable but not pottery and both fragmentable and
κατακτόν. Διαφέρει δ', ὅτι κάταξις μέν ἐστιν ἡ εἰς μεγάλα
breakable They-differ and because breaking indeed is the into large
μέρη διαίρεσις καὶ χωρισμός, θραῦσις δ' ἡ εἰς τὰ
parts division and separation fragmenting and the(-one) into the
τυχόντα καὶ πλείω δυοῖν. Ὅσα μὲν οὖν οὕτω πέπηγεν
chance(-pieces) and more than-two As-many-as indeed then so are-solidified
ὥστε πολλοὺς ἔχειν παραλλάττοντας πόρους, θραυστά (μέχρι
so-as many to-have alternating pores fragmentable up-to
γὰρ τούτου διίσταται), ὅσα δ' εἰς πολύ, κατακτά, ὅσα
for this they-separate as-many-as and to much breakable as-many-as

δ' ἄμφω, ἀμφότερα. Καὶ τὰ μὲν θλαστά, οἷον χαλκὸς
and both both And the(-ones) indeed impressible such-as bronze
καὶ κηρός, τὰ δ' ἄθλαστα, οἷον κέραμος καὶ ὕδωρ.
and wax the(-others) and unimpressible such-as pottery and water
Ἔστι δὲ θλάσις μὲν ἐπιπέδου κατὰ μέρος εἰς βάθος
Is and impression indeed of-surface in part into depth
μετάστασις ὥσει ἢ πληγῇ, τὸ δ' ὅλον ἁφῇ. Ἔστι δὲ
shift by-thrust or by-blow the and whole(-thing) by-touch Are and
τὰ τοιαῦτα καὶ μαλακτά, οἷον κηρὸς μένοντος τοῦ ἄλλου
the such(-things) also softenable such-as wax remaining the other
ἐπιπέδου κατὰ μέρος μεθίσταται, καὶ σκληρά, οἷον χαλκός,
surface in part it-shifts and hard such-as bronze
καὶ ἄθλαστα καὶ σκληρά, οἷον κέραμος (οὐ γὰρ ὑπείκει εἰς
and unimpressible and hard such-as pottery not for yields into
βάθος τὸ ἐπίπεδον), καὶ ὑγρά, οἷον ὕδωρ (τὸ γὰρ ὕδωρ
depth the surface and liquid such-as water the for water
ὑπείκει μέν, ἀλλ' οὐ κατὰ μέρος, ἀλλ' ἀντιμεθίσταται). Τῶν
yields indeed but not in part but is-displaced Of-the
δὲ θλαστῶν ὅσα μὲν μένει θλασθέντα καὶ εὔθλαστα
and impressible as-many-as indeed remain impressed and easily-impressed
χειρί, ταῦτα μὲν πλαστά, τὰ δὲ ἢ μὴ εὔθλαστα,
by-hand these indeed plastic the(-others) and either not easily-impressed
ὥσπερ λίθος ἢ ξύλον, ἢ εὔθλαστα μέν, μὴ μένει δὲ ἡ
just-as stone or wood or easily-impressed indeed not remains but the
θλάσις, ὥσπερ ἐρίου ἢ σπόγγου, οὐ πλαστά, ἀλλὰ πιεστὰ
impression just-as of-wool or of-sponge not plastic but squeezable
ταῦτ' ἐστίν. Ἔστι δὲ πιεστὰ ὅσα ὠθούμενα εἰς αὑτὰ
these are Are and squeezable as-many-as being-pushed into themselves
συνιέναι δύναται, εἰς βάθος τοῦ ἐπιπέδου παραλλάττοντος,
to-contract can into depth the surface shifting

οὐ διαιρουμένου, καὶ μεθισταμένου ἄλλου ἄλλῳ μορίου,
not being-divided and changing-place one with-another part
οἷον τὸ ὕδωρ ποιεῖ· τοῦτο γὰρ ἀντιμεθίσταται.
as the water does this for is-displaced
Ἔστι δ' ὠσις ἡ κίνησις ὑπὸ τοῦ κινοῦντος, ἣ γίγνεται
Is and thrust the motion by the mover which comes-about
ἀπὸ τῆς ἅψεως· πληγὴ δέ, ὅταν ἀπὸ τῆς φορᾶς. Πιέζεται δὲ
from the contact blow and when from the movement Are-squeezed and
ὅσα πόρους ἔχει κενοὺς συγγενοῦς σώματος· καὶ πιεστὰ
as-many-as pores have empty of-kindred body and squeezable
ταῦτα ὅσα δύναται εἰς τὰ ἑαυτῶν κενὰ συνιέναι
these as-many-as can into the of-themselves empty(-spaces) to-contract
ἢ εἰς τοὺς ἑαυτῶν πόρους· ἐνίοτε γὰρ οὐ κενοί εἰσιν εἰς
or into the of-themselves pores sometimes for not empty are into
οὓς συνέρχεται, οἷον ὁ βεβρεγμένος σπόγγος (πλήρεις
which it-contracts such-as the wetted sponge full
γὰρ αὐτοῦ οἱ πόροι), ἀλλ' ὧν ἂν οἱ πόροι πλήρεις
for of-it the pores but of-which — the pores full
ὦσι μαλακωτέρων ἢ αὐτὸ τὸ πεφυκὸς συνιέναι εἰς
be of-softer(-things) than itself the(-thing) being-by-nature to-contract into
αὐτά. Πιεστὰ μὲν οὖν ἐστὶν οἷον σπόγγος, κηρός, σάρξ·
them Squeezable indeed then are such-as sponge wax flesh
ἀπίεστα δὲ τὰ μὴ πεφυκότα συνιέναι ὥσει εἰς τοὺς
unsqueezable and the(-things) not being-by-nature to-contract by-thrust into the
ἑαυτῶν πόρους διὰ τὸ ἢ μὴ ἔχειν ἢ σκληροτέρων
of-themselves pores because-of the either not to-have or of-harder
ἔχειν πλήρεις· ὁ γὰρ σίδηρος ἀπίεστος καὶ λίθος καὶ ὕδωρ
to-have full the for iron unsqueezable and stone and water
καὶ πᾶν ὑγρόν. Ἑλκτὰ δ' ἐστὶν ὅσων δυνατὸν εἰς τὸ
and every liquid Ductile and are of-as-many-as possible into the

πλάγιον μεθίστασθαι τὸ ἐπίπεδον· τὸ γὰρ ἕλκεσθαι ἐστὶ
side to-shift the surface the for to-be-drawn is
τὸ ἐπὶ τὸ κινοῦν μεθίστασθαι τὸ ἐπίπεδον συνεχὲς ὄν.
the toward the mover to-shift the surface continuous being
Ἔστι δὲ τὰ μὲν ἑλκτά, οἷον θρίξ, ἱμάς, νεῦρον,
Are and the(-ones) indeed ductile such-as hair thong sinew
σταίς, ἰξός, τὰ δ' ἄνελκτα, οἷον ὕδωρ καὶ λίθος.
dough birdlime the(-others) and unductile such-as water and stone
Τὰ μὲν οὖν ταὐτά ἐστιν ἑλκτὰ καὶ πιεστά, οἷον
The(-ones) indeed then the-same are ductile and squeezable such-as
ἔριον, τὰ δ' οὐ ταὐτά, οἷον φλέγμα πιεστὸν μὲν οὐκ
wool the(-others) and not the-same such-as phlegm squeezable indeed not
ἔστιν, ἑλκτὸν δέ, καὶ ὁ σπόγγος πιεστὸν μέν, οὐχ ἑλκτὸν
is ductile but and the sponge squeezable indeed not ductile
δέ. Ἔστι δὲ καὶ τὰ μὲν ἐλατά, οἷον χαλκός, τὰ
but Are and also the(-ones) indeed malleable such-as bronze the(-others)
δ' ἀνήλατα, οἷον λίθος καὶ ξύλον. Ἔστι δ' ἐλατὰ μὲν
and unmalleable such-as stone and wood Are and malleable indeed
ὅσα τῇ αὐτῇ πληγῇ δύναται ἅμα καὶ εἰς πλάτος καὶ
as-many-as by-the same blow can at-once both into breadth and
εἰς βάθος τὸ ἐπίπεδον μεθίστασθαι κατὰ μέρος, ἀνήλατα
into depth the surface to-shift in part unmalleable
δὲ ὅσα ἀδύνατα. Ἔστι δὲ τὰ μὲν ἐλατὰ ἅπαντα
and as-many-as unable Are and the indeed malleable all
καὶ θλαστά, τὰ δὲ θλαστὰ οὐ πάντα ἐλατά, οἷον ξύλον·
also impressible the but impressible not all malleable such-as wood
ὡς μέντοι ἐπὶ πᾶν εἰπεῖν, ἀντιστρέφει. Τῶν δὲ πιεστῶν
as however on all to-say it-converts Of-the and squeezable
τὰ μὲν ἐλατὰ τὰ δ' οὔ, κηρὸς μὲν καὶ πηλὸς
the(-ones) indeed malleable the(-others) but not wax indeed and mud

ἐλατά, ἔριον δ' οὔ, οὐδ' ὕδωρ. Ἔστι δὲ καὶ τὰ μὲν
malleable wool but not nor water Are and also the(-ones) indeed
σχιστά, οἷον ξύλον, τὰ δὲ ἄσχιστα, οἷον κέραμος.
fissile such-as wood the(-others) and unfissile such-as pottery
Ἔστι δὲ σχιστὸν τὸ δυνάμενον διαιρεῖσθαι ἐπὶ πλεῖον
Is and fissile the(-thing) able to-be-divided to more
ἢ τὸ διαιροῦν διαιρεῖ· σχίζεται γάρ, ὅταν ἐπὶ πλεῖον
than the dividing(-thing) divides it-is-split for when to more
διαιρῆται ἢ τὸ διαιροῦν διαιρεῖ, καὶ προηγεῖται ἡ
it-is-divided than the dividing(-thing) divides and goes-ahead the
διαίρεσις· ἐν δὲ τῇ τμήσει οὐκ ἔστι τοῦτο. Ἄσχιστα δ'
division in but the cutting not is this Unfissile and
ὅσα μὴ δύναται τοῦτο πάσχειν. Ἔστι δ' οὔτε μαλακὸν
as-many-as not can this to-suffer Is and neither soft
οὐδὲν σχιστόν (λέγω δὲ τῶν ἁπλῶς μαλακῶν καὶ μὴ πρὸς
nothing fissile I-mean and of-the simply soft and not relative-to
ἄλληλα· οὕτω μὲν γὰρ καὶ σίδηρος ἔσται μαλακός) οὔτε
one-another so indeed for even iron will-be soft nor
τὰ σκληρὰ πάντα ἐστί, ἀλλ' ὅσα μήθ' ὑγρά ἐστι μήτε
the hard all are but as-many-as neither liquid are nor
θλαστὰ μήτε θραυστά. Τοιαῦτα δ' ἐστὶν ὅσα κατὰ μῆκος
impressible nor fragmentable Such and are as-many-as along length
ἔχει τοὺς πόρους, καθ' οὓς προσφύεται ἀλλήλοις, ἀλλὰ μὴ
have the pores along which they-cohere to-one-another but not
κατὰ πλάτος. Τμητὰ δ' ἐστὶ τῶν συνεστώτων σκληρῶν ἢ
along breadth Cuttable and are of-the composed hard or
μαλακῶν ὅσα δύναται μήτ' ἐξ ἀνάγκης προηγεῖσθαι τῆς
soft as-many-as can neither of necessity to-go-ahead-of the
διαιρέσεως μήτε θραύεσθαι διαιρούμενα· ὅσα δὲ ἢ
division nor to-be-fragmented being-divided as-many-as and either
ὑγρὰ ἢ τοιαῦτα, ἄτμητα. Ἔνια δ' ἐστὶ ταὐτὰ καὶ τμητὰ
liquid or such uncuttable Some and are the-same both cuttable

καὶ σχιστά, οἷον ξύλον· ἀλλ᾽ ὡς ἐπὶ τὸ πολὺ σχιστὸν
and fissile such-as wood but as on the most-part fissile
μὲν κατὰ τὸ μῆκος, τμητὸν δὲ κατὰ τὸ πλάτος· ἐπεὶ γὰρ
indeed along the length cuttable and along the breadth since for
διαιρεῖται ἕκαστον εἰς πολλά, ᾗ μὲν μήκη πολλὰ τὸ ἕν,
is-divided each into many where indeed lengths many the one
σχιστὸν ταύτῃ, ᾗ δὲ πλάτη πολλὰ τὸ ἕν, τμητὸν ταύτῃ.
fissile there where and breadths many the one cuttable there
Γλίσχρον δ᾽ ἐστίν, ὅταν ἑλκτὸν ᾖ ὑγρὸν ὂν ἢ μαλακόν.
Viscous and it-is when ductile it-be liquid being or soft
Τοιοῦτον δὲ γίνεται τῇ ἐπαλλάξει ὅσα ὥσπερ αἱ
Such and becomes by-the interlacing as-many-as like the
ἁλύσεις σύγκειται τῶν σωμάτων· ταῦτα γὰρ ἐπὶ πολὺ
chains are-composed of-the bodies these for to much
δύναται ἐκτείνεσθαι καὶ συνιέναι. Ὅσα δὲ μὴ τοιαῦτα,
can to-be-stretched and to-contract As-many-as and not such
ψαθυρά. Πιλητὰ δ᾽ ὅσα τῶν πιεστῶν μόνιμον ἔχει
friable Compressible and as-many-as of-the squeezable permanent have
τὴν πίεσιν, ἀπίλητα δὲ ὅσα ἢ ὅλως ἀπίεστα ἢ
the squeezing incompressible and as-many-as either wholly unsqueezable or
μὴ μόνιμον ἔχει τὴν πίεσιν. Καὶ τὰ μὲν καυστά ἐστι
not permanent have the squeezing And the(-ones) indeed combustible are
τὰ δὲ ἄκαυστα, οἷον ξύλον μὲν καυστὸν καὶ ἔριον
the(-others) and incombustible such-as wood indeed combustible and wool
καὶ ὀστοῦν, λίθος δὲ καὶ κρύσταλλος ἄκαυστον. Ἔστι δὲ
and bone stone but and ice incombustible Are and
καυστὰ ὅσα ἔχει πόρους δεκτικοὺς πυρὸς καὶ ὑγρότητα
combustible as-many-as have pores receptive of-fire and moisture
ἐν τοῖς κατ᾽ εὐθυωρίαν πόροις ἀσθενεστέραν πυρός. Ὅσα
in the in straight-line pores weaker than-fire As-many-as
δὲ ἢ μὴ ἔχει ἢ ἰσχυροτέραν, οἷον κρύσταλλος καὶ
and either not have or stronger such-as ice and

τὰ σφόδρα χλωρά, ἄκαυστα. Θυμιατὰ δ' ἐστὶ τῶν
the(-things) very green incombustible Fumigable and are of-the
σωμάτων ὅσα ὑγρότητα ἔχει μέν, οὕτω δ' ἔχει ὥστε μὴ
bodies as-many-as moisture have indeed so but have so-as not
ἐξατμίζειν πυρουμένων χωρίς· ἔστι γὰρ ἀτμὶς ἡ ὑπὸ θερμοῦ
to-evaporate being-ignited separately is for vapor the by heat
καυστικοῦ εἰς ἀέρα καὶ πνεῦμα ἔκκρισις ἐξ ὑγροῦ διαντική.
burning into air and wind secretion from moist wetting
Τὰ δὲ θυμιατὰ χρόνῳ εἰς ἀέρα ἐκκρίνεται, καὶ τὰ μὲν
The and fumigable in-time into air are-secreted and the(-ones) indeed
ἀφανιζόμενα ξηρά, τὰ δὲ γῆ γίνεται. Διαφέρει δ'
vanishing dry the(-others) and earth become Differs and
αὕτη ἡ ἔκκρισις, ὅτι οὔτε διαίνει οὔτε πνεῦμα γίγνεται.
this the secretion because neither it-wets nor wind becomes
Ἔστι δὲ πνεῦμα ῥύσις συνεχὴς ἐπὶ μῆκος ἀέρος· θυμίασις
Is and wind flow continuous along length of-air fumigation
δ' ἐστὶν ἡ ὑπὸ θερμοῦ καυστικοῦ κοινὴ ἔκκρισις ξηροῦ καὶ
and is the by heat burning common secretion of-dry and
ὑγροῦ ἀθρόως. Διόπερ οὐ διαίνει, ἀλλὰ χρωματίζει μᾶλλον.
moist all-at-once Wherefore not it-wets but it-colors rather
Ἔστι δ' ἡ μὲν ξυλώδους σώματος θυμίασις καπνός.
Is and the indeed of-woody body fumigation smoke
Λέγω δὲ καὶ ὀστᾶ καὶ τρίχας καὶ πᾶν τὸ τοιοῦτον ἐν
I-mean and also bones and hairs and all the such in

ταὐτῷ· οὐ γὰρ κεῖται ὄνομα κοινόν, ἀλλὰ κατ᾽ ἀναλογίαν
the-same not for is-laid-down name common but by analogy
ὅμως ἐν ταὐτῷ πάντ᾽ ἐστίν, ὥσπερ καὶ Ἐμπεδοκλῆς φησὶ
nevertheless in the-same all are just-as also Empedocles says

Ταὐτὰ τρίχες καὶ φύλλα καὶ οἰωνῶν πτερὰ πυκνὰ
The-same hairs and leaves and of-birds feathers thick
καὶ λεπίδες γίγνονται ἐπὶ στιβαροῖσι μέλεσσιν.
and scales become on sturdy limbs

Ἡ δὲ πίονος θυμίασις λιγνύς, ἡ δὲ λιπαροῦ κνίσσα.
The and of-fat fumigation soot the(-one) and of-oily steam-of-fat
Διὰ τοῦτο τὸ ἔλαιον οὐχ ἕψεται οὐδὲ παχύνεται, ὅτι
Because-of this the oil not is-boiled nor is-thickened because
θυμιατόν ἐστιν ἀλλ᾽ οὐκ ἀτμιστόν· ὕδωρ δ᾽ οὐ θυμιατὸν
fumigable it-is but not vaporable water but not fumigable
ἀλλ᾽ ἀτμιστόν. Οἶνος δ᾽ ὁ μὲν γλυκὺς θυμᾶται.
but vaporable Wine and the(-one) indeed sweet is-fumigated
Πίων γάρ, καὶ ταὐτὰ ποιεῖ τῷ ἐλαίῳ· οὔτε γὰρ ὑπὸ
Fat for and the-same-things does as-the oil neither for by
ψύχους πήγνυται, καίεταί τε. Ἔστι δ᾽ ὀνόματι οἶνος,
cold is-solidified it-is-burnt and It-is and in-name wine
ἔργῳ δ᾽ οὐκ ἔστιν· οὐ γὰρ οἰνώδης ὁ χυμός, διὸ καὶ
in-fact but not it-is not for winy the flavor wherefore also
οὐ μεθύσκει. Ὁ τυχὼν δ᾽ οἶνος μικρὰν ἔχει ἀναθυμίασιν,
not it-intoxicates The ordinary and wine small has exhalation
διὸ ἀνίησι φλόγα. Καυστὰ δὲ δοκεῖ εἶναι ὅσα
wherefore it-sends-up flame Combustible and seem to-be as-many-as
εἰς τέφραν διαλύεται τῶν σωμάτων. Πάσχει δὲ τοῦτο
into ash are-dissolved of-the bodies Suffer and this
πάντα ὅσα πήγνυται ἢ ὑπὸ θερμοῦ ἢ ὑπ᾽ ἀμφοῖν,
all as-many-as are-solidified either by hot or by both

ψυχροῦ καὶ θερμοῦ· ταῦτα γὰρ φαίνεται κρατούμενα ὑπὸ
cold and hot these for appear being-mastered by
τοῦ πυρός. Ἥκιστα δὲ τῶν λίθων ἡ σφραγίς, ὁ
the fire Least and of-the stones the seal-stone the(-one)
καλούμενος ἄνθραξ. Τῶν δὲ καυστῶν τὰ μὲν φλογιστά
called carbuncle Of-the and combustible the(-ones) indeed flammable
ἐστι τὰ δ' ἀφλόγιστα· τούτων δ' ἔνια ἀνθρακευτά.
are the(-others) and nonflammable of-these and some charrable
Φλογιστὰ μὲν οὖν ὅσα φλόγα παρέχεσθαι δύναται·
Flammable indeed then as-many-as flame to-produce can
ὅσα δ' οὐ δύναται, ἀφλόγιστα. Ἔστι δὲ φλογιστὰ
as-many-as but not can nonflammable Are and flammable
ὅσα μὴ ὑγρὰ ὄντα θυμιατά ἐστιν. Πίττα δὲ ἢ ἔλαιον
as-many-as not liquid being fumigable are Pitch and or oil
ἢ κηρὸς μᾶλλον μετ' ἄλλων ἢ καθ' αὑτὰ φλογιστά.
or wax more with others than by themselves flammable
Μάλιστα δ' ὅσα καπνὸν ἀνίησιν. Ἀνθρακευτὰ δ'
Most and as-many-as smoke send-up Charrable and
ὅσα τῶν τοιούτων γῆς πλέον ἔχει ἢ καπνοῦ. Ἔτι
as-many-as of-the such of-earth more have than of-smoke Further
δ' ἔνια τηκτὰ ὄντα οὐ φλογιστά ἐστιν, οἷον χαλκός,
and some meltable being not flammable are such-as bronze
καὶ φλογιστὰ οὐ τηκτά, οἷον ξύλον, τὰ δ' ἄμφω,
and flammable not meltable such-as wood the(-others) and both
οἷον λιβανωτός. Αἴτιον δ' ὅτι τὰ μὲν ξύλα ἀθρόον
such-as frankincense Cause and that the indeed timbers all-together
ἔχει τὸ ὑγρὸν καὶ δι' ὅλου συνεχές, ὥστε διακάεται,
have the moist and through whole continuous so-that it-burns-through
ὁ δὲ χαλκὸς παρ' ἕκαστον μὲν μέρος, οὐ συνεχὲς δὲ
the but bronze in each indeed part not continuous but
καὶ ἔλαττον ἢ ὥστε φλόγα ποιῆσαι· ὁ δὲ λιβανωτὸς
and less than so-as flame to-make the and frankincense

τῇ μὲν οὕτως τῇ δ' ἐκείνως ἔχει. Φλογιστὰ
in-one-part indeed so in-another and that-way is Flammable
δ' ἐστὶ τῶν θυμιατῶν ὅσα μὴ τηκτά ἐστι διὰ τὸ
and are of-the fumigable as-many-as not meltable are because-of the
μᾶλλον εἶναι γῆς· τὸ ξηρὸν γὰρ ἔχει κοινὸν τῷ πυρί.
more to-be of-earth the dry for has in-common with-the fire
Τοῦτ' οὖν θερμὸν ἂν γένηται τὸ ξηρόν, πῦρ γίγνεται.
This then hot if becomes the dry fire becomes
Διὰ τοῦτο ἡ φλὸξ πνεῦμα ἢ καπνὸς καόμενός ἐστιν.
Because-of this the flame wind or smoke burning is
Ξύλων μὲν οὖν ἡ θυμίασις καπνός, κηροῦ δὲ καὶ
Of-wood indeed then the fumigation smoke of-wax but and
λιβανωτοῦ καὶ τῶν τοιούτων καὶ πίττης, καὶ ὅσα ἔχει
of-frankincense and of-the such and of-pitch and as-many-as have
πίτταν ἢ τοιαῦτα, λιγνύς, ἐλαίου δὲ καὶ ὅσα ἐλαιώδη,
pitch or such soot of-oil but and as-many-as oily
κνίσσα· καὶ ὅσα ἥκιστα κάεται μόνα, ὅτι ὀλίγον
steam-of-fat and as-many-as least burn alone because little
ξηρὸν ἔχει, ἡ δὲ μετάβασις διὰ τούτου, μετὰ δ'
dry they-have the and transition through this with and
ἑτέρου τάχιστα. Τοῦτο γάρ ἐστι τὸ πῖον ξηρὸν λιπαρόν.
another most-quickly This for is the fat dry oily
Τὰ μὲν οὖν ἐκθυμιώμενα τῶν ὑγρῶν ὑγροῦ μᾶλλον,
The(-things) indeed then being-fumigated of-the liquids of-moist rather
ὡς ἔλαιον καὶ πίττα, τὰ δὲ καόμενα ξηροῦ.
as oil and pitch the(-things) but burning of-dry

These tests sort the homoeomerous bodies. What evaporates is of water; what does not is of earth, or common to earth and water like milk, or of earth and air like wood; what heat thickens is common, what cold thickens of earth; new wine is earthier than old. What cold freezes is of water, as ice, snow, and hail; what heat solidifies is of earth, as pottery and soda. Amber, myrrh, and frankincense, solidified by cooling, are of earth too. Gold, silver, bronze, tin, lead, and glass are of water; iron, horn, bone, and wood of earth; blood and semen are common.

Τούτοις δὲ τοῖς παθήμασι καὶ ταύταις ταῖς διαφοραῖς
By-these and the affections and by-these the differences
τὰ ὁμοιομερῆ τῶν σωμάτων, ὥσπερ εἴρηται, διαφέρει
the homoeomerous of-the bodies just-as has-been-said differ
ἀλλήλων κατὰ τὴν ἁφήν, καὶ ἔτι ὀσμαῖς καὶ χυμοῖς
from-one-another in the touch and further by-smells and flavors
καὶ χρώμασιν. Λέγω δ' ὁμοιομερῆ τά τε μεταλλευόμενα,
and colors I-mean and homoeomerous the both mined(-things)
οἷον χρυσόν, χαλκόν, ἄργυρον, καττίτερον, σίδηρον, λίθον
such-as gold bronze silver tin iron stone
καὶ τἆλλα τὰ τοιαῦτα, καὶ ὅσα ἐκ τούτων γίγνεται
and the-others the such and as-many-as from these come-about
ἐκκρινόμενα, καὶ τὰ ἐν τοῖς ζῴοις καὶ φυτοῖς, οἷον
being-secreted and the(-ones) in the animals and plants such-as
σάρκες, ὀστᾶ, νεῦρον, δέρμα, σπλάγχνον, τρίχες, ἶνες,
flesh bones sinew skin viscera hairs fibers
φλέβες, ἐξ ὧν ἤδη συνέστηκε τὰ ἀνομοιομερῆ, οἷον
veins from which already are-composed the non-homoeomerous such-as
πρόσωπον, χείρ, ποὺς καὶ τἆλλα τὰ τοιαῦτα, καὶ ἐν φυτοῖς
face hand foot and the-others the such and in plants
ξύλον, φλοιός, φύλλον, ῥίζα, καὶ ὅσα τοιαῦτα. Ἐπεὶ δὲ
wood bark leaf root and as-many-as such Since and

ταῦτα μὲν ὑπ᾽ ἄλλης αἰτίας συνέστηκεν, ἐξ ὧν δὲ ταῦτα,
these indeed by another cause are-composed of which and these
ὕλη μὲν τὸ ξηρὸν καὶ ὑγρόν, ὥστε ὕδωρ καὶ γῆ (ταῦτα
matter indeed the dry and moist so-that water and earth these
γὰρ προφανεστάτην ἔχει τὴν δύναμιν ἑκάτερον ἑκατέρου),
for most-evident has the power each of-each
τὰ δὲ ποιοῦντα τὸ θερμὸν καὶ τὸ ψυχρόν (ταῦτα
the(-things) and acting the hot and the cold these
γὰρ συνίστησι καὶ πήγνυσιν ἐξ ἐκείνων), λάβωμεν τῶν
for compose and solidify from those let-us-take of-the
ὁμοιομερῶν ποῖα γῆς εἴδη καὶ ποῖα ὕδατος καὶ ποῖα κοινά.
homoeomerous which of-earth kinds and which of-water and which common
Ἔστι δὴ τῶν σωμάτων τῶν δεδημιουργημένων τὰ
Are indeed of-the bodies the fashioned the(-ones)
μὲν ὑγρά, τὰ δὲ μαλακά, τὰ δὲ σκληρά· τούτων
indeed liquid the(-others) and soft the(-others) and hard of-these
δὲ ὅσα μαλακὰ ἢ σκληρὰ πήξει ἐστίν, εἴρηται
and as-many-as soft or hard by-solidification are has-been-said
πρότερον. Τῶν μὲν οὖν ὑγρῶν ὅσα μὲν ἐξατμίζεται,
earlier Of-the indeed then liquids as-many-as indeed evaporate
ὕδατος, ὅσα δὲ μή, ἢ γῆς κοινὰ γῆς καὶ ὕδατος,
of-water as-many-as and not either of-earth common of-earth and water
οἷον γάλα, ἢ γῆς καὶ ἀέρος, οἷον ξύλον, ἢ ὕδατος
such-as milk or of-earth and air such-as wood or of-water
καὶ ἀέρος, οἷον ἔλαιον. Καὶ ὅσα μὲν ὑπὸ θερμοῦ
and air such-as oil And as-many-as indeed by hot
παχύνεται, κοινά· ἀπορήσειε δ᾽ ἄν τις περὶ οἴνου τῶν
are-thickened common would-be-puzzled but — someone about wine of-the
ὑγρῶν. Τοῦτο γὰρ καὶ ἐξατμισθείη ἄν, καὶ παχύνεται
liquids This for both would-evaporate — and is-thickened
ὥσπερ ὁ νέος. Αἴτιον δ᾽ ὅτι οὔτε ἑνὶ εἴδει λέγεται ὁ
just-as the new Cause and that neither of-one kind is-said the

οἶνος, καὶ ὅτι ἄλλος ἄλλως· ὁ γὰρ νέος μᾶλλον γῆς
wine and that one otherwise the for new more of-earth
ἢ ὁ παλαιός· διὸ καὶ παχύνεται τῷ θερμῷ μάλιστα
than the old wherefore also is-thickened by-the hot most
καὶ πήγνυται ἧττον ὑπὸ τοῦ ψυχροῦ· ἔχει γὰρ καὶ θερμὸν
and is-solidified less by the cold it-has for both heat
πολὺ καὶ γῆς, ὥσπερ ἐν Ἀρκαδίᾳ οὕτως ἀναξηραίνεται
much and of-earth just-as in Arcadia so it-is-dried-up
ὑπὸ τοῦ καπνοῦ ἐν τοῖς ἀσκοῖς ὥστε ξυόμενος πίνεσθαι.
by the smoke in the wineskins so-that being-scraped to-be-drunk
Εἰ δὲ πᾶς ἰλὺν ἔχει, οὕτως ἑκατέρου ἐστίν, ἢ γῆς ἢ
If and all lees has so of-each it-is either of-earth or
ὕδατος, ὡς ταύτης ἔχει πλῆθος. Ὅσα δὲ ὑπὸ ψυχροῦ
of-water as of-this it-has quantity As-many-as and by cold
παχύνεται, γῆς, ὅσα δ' ὑπ' ἀμφοῖν, κοινὰ πλειόνων,
are-thickened of-earth as-many-as and by both common of-more
οἷον ἔλαιον καὶ μέλι καὶ ὁ γλυκὺς οἶνος. Τῶν δὲ
such-as oil and honey and the sweet wine Of-the and
συνεστώτων ὅσα μὲν πέπηγεν ὑπὸ ψυχροῦ, ὕδατος,
solid(-bodies) as-many-as indeed are-solidified by cold of-water
οἷον κρύσταλλος, χιών, χάλαζα, πάχνη, ὅσα δ' ὑπὸ
such-as ice snow hail hoarfrost as-many-as and by
θερμοῦ, γῆς, οἷον κέραμος, τυρός, νίτρον, ἅλες· ὅσα δ'
hot of-earth such-as pottery cheese soda salts as-many-as and
ὑπ' ἀμφοῖν, τοιαῦτα δ' ἐστὶν ὅσα ψύξει· ταῦτα δ' ἐστὶν
by both such and are as-many-as by-cooling these and are
ὅσα ἀμφοῖν στερήσει, θερμοῦ καὶ ὑγροῦ συνεξιόντος τῷ
as-many-as of-both by-privation of-heat and moist going-out-with the
θερμῷ· οἱ μὲν γὰρ ἅλες ὑγροῦ μόνου στερήσει πήγνυνται,
heat the indeed for salts of-moist alone by-privation are-solidified
καὶ ὅσα εἰλικρινῆ γῆς, ὁ δὲ κρύσταλλος θερμοῦ
and as-many-as pure of-earth the but ice of-heat

μόνου· ταῦτα δ' ἀμφοῖν. Διὸ καὶ ὑπ' ἀμφοῖν καὶ εἶχεν
alone these but of-both Wherefore also by both and they-had
ἄμφω. Ὅσων μὲν οὖν ἅπαν ἐξικμάσθη, οἷον κέραμος
both Of-as-many-as indeed then all was-dried-out such-as pottery
ἢ ἤλεκτρον· καὶ γὰρ τὸ ἤλεκτρον, καὶ ὅσα λέγεται
or amber also for the amber and as-many-as are-called
ὡς δάκρυα, ψύξει ἐστίν, οἷον σμύρνα, λιβανωτός, κόμμι.
as tears by-cooling are such-as myrrh frankincense gum
Καὶ τὸ ἤλεκτρον δὲ τούτου τοῦ γένους ἔοικε, καὶ πήγνυται·
Also the amber and of-this the kind seems and is-solidified
ἐμπεριειλημμένα γοῦν ζῷα ἐν αὐτῷ φαίνεται. Ὑπὸ
enclosed at-any-rate animals in it appear By
δὲ τοῦ ποταμοῦ τὸ θερμὸν ἐξιὸν ὥσπερ τοῦ ἑψομένου
and the river the heat going-out just-as of-the being-boiled
μέλιτος, ὅταν εἰς ὕδωρ ἀφεθῇ, ἐξατμίζει τὸ ὑγρόν. Ταῦτα
honey when into water it-be-dropped evaporates the moist These
πάντα γῆς. Καὶ τὰ μὲν ἄτηκτα καὶ ἀμάλακτα, οἷον
all of-earth And the(-ones) indeed unmeltable and unsoftenable such-as
τὸ ἤλεκτρον ἢ λίθοι ἔνιοι, ὥσπερ οἱ πῶροι οἱ ἐν τοῖς
the amber or stones some just-as the stalactites the(-ones) in the
σπηλαίοις· καὶ γὰρ οὗτοι ὁμοίως γίγνονται τούτοις, καὶ
caves also for these likewise come-about to-these and
οὐχ ὡς ὑπὸ πυρὸς ἀλλ' ὡς ὑπὸ τοῦ ψυχροῦ διεξιόντος τοῦ
not as by fire but as by the cold passing-out the
θερμοῦ, συνεξέρχεται τὸ ὑγρὸν ὑπὸ τοῦ ἐξ αὐτοῦ ἐξιόντος
heat goes-out-with the moist by the from it going-out
θερμοῦ· ἐν δὲ τοῖς ἑτέροις ὑπὸ τοῦ ἔξωθεν πυρός. Ὅσα δὲ
heat in but the others by the outside fire As-many-as and
μὴ ὅλα, γῆς μέν ἐστι μᾶλλον, μαλακτὰ δ', οἷον σίδηρος
not wholly of-earth indeed are rather softenable but such-as iron
καὶ κέρας. Λιβανωτὸς δὲ καὶ τὰ τοιαῦτα παραπλησίως τοῖς
and horn Frankincense but and the such similarly to-the

ξύλοις ἀτμίζει. Ἐπεὶ οὖν τηκτά γε θετέον, καὶ ὅσα
timbers steams Since then meltable at-least one-must-posit also as-many-as
τήκεται ὑπὸ πυρός, ταῦτ' ἐστὶν ὑδατωδέστερα, ἔνια δὲ καὶ
are-melted by fire these are more-watery some and also
κοινά, οἷον κηρός· ὅσα δὲ ὑπὸ ὕδατος, ταῦτα δὲ γῆς·
common such-as wax as-many-as and by water these and of-earth
ὅσα δὲ μηδ' ὑφ' ἑτέρου, ταῦτα ἢ γῆς ἢ ἀμφοῖν.
as-many-as and nor by either these either of-earth or of-both
Εἰ οὖν ἅπαντα μὲν ἢ ὑγρὰ ἢ πεπηγότα, τούτων δὲ τὰ
If then all indeed either liquid or solidified of-these and the(-ones)
ἐν τοῖς εἰρημένοις πάθεσι, καὶ οὐκ ἔστι μεταξύ, ἅπαντ' ἂν
in the mentioned affections and not is between all —
εἴη εἰρημένα οἷς διαγνωσόμεθα πότερον γῆς ἢ ὕδατος
would-be stated by-which we-shall-distinguish whether of-earth or of-water
ἢ πλειόνων κοινόν, καὶ πότερον ὑπὸ πυρὸς συνέστηκεν ἢ
or of-more common and whether by fire it-is-composed or
ψυχροῦ ἢ ἀμφοῖν. Χρυσὸς μὲν δὴ καὶ ἄργυρος καὶ χαλκὸς
cold or both Gold indeed indeed and silver and bronze
καὶ καττίτερος καὶ μόλυβδος καὶ ὕελος καὶ λίθοι πολλοὶ
and tin and lead and glass and stones many
ἀνώνυμοι ὕδατος· πάντα γὰρ ταῦτα τήκεται θερμῷ. Ἔτι
nameless of-water all for these are-melted by-heat Further
οἶνοι ἔνιοι καὶ οὖρον καὶ ὄξος καὶ κονία καὶ ὀρρὸς καὶ ἰχὼρ
wines some and urine and vinegar and lye and whey and serum
ὕδατος· πάντα γὰρ πήγνυται ψυχρῷ. Σίδηρος δὲ καὶ κέρας
of-water all for are-solidified by-cold Iron and and horn
καὶ ὄνυξ καὶ ὀστοῦν καὶ νεῦρον καὶ ξύλον καὶ τρίχες καὶ
and nail and bone and sinew and wood and hairs and
φύλλα καὶ φλοιὸς γῆς μᾶλλον. Ἔτι ἤλεκτρον, σμύρνα,
leaves and bark of-earth rather Further amber myrrh
λίβανος καὶ πάντα τὰ δάκρυα λεγόμενα, καὶ πῶρος, καὶ
frankincense and all the tears called and stalactite and

οἱ καρποί, οἷον τὰ χέδροπα, καὶ σῖτος· τὰ τοιαῦτα γὰρ
the fruits such-as the pulses and grain the such for
τὰ μὲν σφόδρα, τὰ δὲ ἧττον μὲν τούτων, ὅμως
the(-ones) indeed strongly the(-others) and less indeed of-these nevertheless
δὲ γῆς· τὰ μὲν γὰρ μαλακτά, τὰ δὲ θυμιατὰ καὶ
but of-earth the(-ones) indeed for softenable the(-others) and fumigable and
ψύξει γεγενημένα. Ἔτι νίτρον, ἅλες, λίθων γένη, ὅσα
by-cooling having-come-about Further soda salts of-stones kinds as-many-as
μήτε ψύξει μήτε τηκτά. Αἷμα δὲ καὶ γονὴ κοινὰ γῆς
neither by-cooling nor meltable Blood but and semen common of-earth
καὶ ὕδατος καὶ ἀέρος, τὸ μὲν ἔχον αἷμα ἶνας μᾶλλον
and water and air the indeed having blood fibers rather
γῆς, διὸ καὶ ψύξει πήγνυται καὶ ὑγρῷ τήκεται, τὰ
of-earth wherefore also by-cooling it-is-solidified and by-liquid is-melted the(-ones)
δὲ μὴ ἔχοντα ἶνας ὕδατος, διὸ καὶ οὐ πήγνυται. Γονὴ
but not having fibers of-water wherefore also not are-solidified Semen
δὲ πήγνυται ψύξει ἐξιόντος τοῦ ὑγροῦ μετὰ τοῦ θερμοῦ.
and is-solidified by-cooling going-out the moist with the heat

XI · WHICH BODIES ARE HOT OR COLD

What is of water is generally cold unless it has foreign heat, as lye or boiling water; what is of earth is hot, as lime and ash, made by heat. Matter is a kind of coldness, but blood, semen, and marrow are hot while in their nature and cold once separated. The same things can be coldest and hottest, and heated stone burns more than water.

Ποῖα δὲ θερμὰ ἢ ψυχρὰ τῶν πεπηγότων ἢ τῶν ὑγρῶν,
Which and hot or cold of-the solidified or of-the liquids
ἐκ τῶν εἰρημένων δεῖ μεταδιώκειν. Ὅσα μὲν οὖν
from the(-things) said one-must to-pursue As-many-as indeed then

ὕδατος, ὡς ἐπὶ τὸ πολὺ ψυχρά, ἐὰν μὴ ἀλλοτρίαν ἔχῃ
of-water as on the most-part cold if not foreign they-have
θερμότητα, οἷον κονία, οὖρον, οἶνος· ὅσα δὲ γῆς, ὡς
heat such-as lye urine wine as-many-as and of-earth as
ἐπὶ τὸ πολὺ θερμὰ διὰ τὴν τοῦ θερμοῦ δημιουργίαν,
on the most-part hot because-of the of-the heat fashioning
οἷον τίτανος καὶ τέφρα. Δεῖ δὲ λαβεῖν τὴν ὕλην
such-as lime and ash One-must and to-take the matter
ψυχρότητά τινα εἶναι· ἐπεὶ γὰρ τὸ ξηρὸν καὶ τὸ ὑγρὸν ὕλη
coldness a-kind to-be since for the dry and the moist matter
(ταῦτα γὰρ παθητικά), τούτων δὲ σώματα μάλιστα γῆ καὶ
these for passive of-these and bodies most earth and
ὕδωρ ἐστί, ταῦτα δὲ ψυχρότητι ὥρισται, δῆλον ὅτι πάντα
water are these and by-coldness are-defined clear that all
τὰ σώματα ὅσα ἑκατέρου ἁπλῶς τοῦ στοιχείου, ψυχρὰ
the bodies as-many-as of-each simply the element cold
μᾶλλόν ἐστιν, ἂν μὴ ἔχῃ ἀλλοτρίαν θερμότητα, οἷον
rather are if not they-have foreign heat such-as
τὸ ζέον ὕδωρ ἢ τὸ διὰ τέφρας ἠθημένον· καὶ γὰρ
the boiling water or the(-water) through ash strained also for
τοῦτο ἔχει τὴν ἐκ τῆς τέφρας θερμότητα· ἐν ἅπασι γάρ
this has the from the ash heat in all for
ἐστι θερμότης, ἢ πλείων ἢ ἐλάττων, τοῖς πεπυρωμένοις.
is heat either more or less the ignited(-things)
Διὸ καὶ ἐν τοῖς σαπροῖς ζῷα ἐγγίγνεται· ἔνεστι γὰρ
Wherefore also in the rotten animals come-to-be-in is-in for
θερμότης ἡ φθείρασα τὴν ἑκάστου οἰκείαν θερμότητα.
heat the(-heat) having-destroyed the of-each proper heat
Ὅσα δὲ κοινά, ἔχει θερμότητα· συνέστη γὰρ τὰ πλεῖστα
As-many-as and common have heat were-composed for the most
ὑπὸ θερμότητος πεψάσης. Ἔνια δὲ σῆψίς ἐστιν, οἷον τὰ
by heat having-concocted Some and rotting are such-as the

συντηκτά. Ὥστε ἔχοντα μὲν τὴν φύσιν θερμὰ καὶ αἷμα καὶ
colliquations So-that having indeed the nature hot both blood and
γονὴ καὶ μυελὸς καὶ ὀπὸς καὶ πάντα τὰ τοιαῦτα, φθειρόμενα
semen and marrow and juice and all the such being-destroyed
δὲ καὶ ἐξιστάμενα τῆς φύσεως οὐκέτι· λείπεται γὰρ ἡ ὕλη,
but and departing-from the nature no-longer remains for the matter
γῆ οὖσα ἢ ὕδωρ. Διὸ ἀμφότερα δοκεῖ τισί, καὶ οἱ
earth being or water Wherefore both they-seem to-some and the(-ones)
μὲν ψυχρὰ οἱ δὲ θερμὰ ταῦτά φασιν εἶναι, ὁρῶντες,
indeed cold the(-others) and hot these say to-be seeing
ὅταν μὲν ἐν τῇ φύσει ὦσι, θερμά, ὅταν δὲ χωρισθῶσι,
when indeed in the nature they-are hot when and they-be-separated
πηγνύμενα. Ἔχει μὲν οὖν οὕτως, ὅμως δ' ὥσπερ
solidifying Is indeed then so nevertheless but just-as
διώρισται, ἐν οἷς μὲν ἡ ὕλη ὕδατος τὸ πλεῖστον, ψυχρά
has-been-defined in which indeed the matter of-water the most cold
(ἀντίκειται γὰρ τοῦτο μάλιστα τῷ πυρί), ἐν οἷς δὲ γῆς
is-opposed for this most to-the fire in which and of-earth
ἢ ἀέρος, θερμότερα. Συμβαίνει δέ ποτε ταὐτὰ γίνεσθαι
or air hotter It-happens and sometimes the-same-things to-become
ψυχρότατα καὶ θερμότατα ἀλλοτρίᾳ θερμότητι· ὅσα γὰρ
coldest and hottest by-foreign heat as-many-as for
μάλιστα πέπηγε καὶ στερεώτατά ἐστι, ταῦτα ψυχρά τε
most are-solidified and most-solid are these cold both
μάλιστα, ἐὰν στερηθῇ θερμότητος, καὶ κάει μάλιστα, ἐὰν
most if they-be-deprived of-heat and burn most if
πυρωθῇ, οἷον ὕδωρ καπνοῦ καὶ λίθος ὕδατος κάει μᾶλλον.
they-be-ignited such-as water than-smoke and stone than-water burns more

Flesh, bone, and the other homoeomerous parts come to be by heat and cold and their motions, but each is what it is by its definition and its function: a dead man, a dead man's hand, a stone eye, or a wooden saw is so only in name. Function is plainest in face and hand, less plain in flesh, least in fire and earth, where matter is most. Next to be studied are the non-homoeomerous parts and the wholes they make, man and plant.

Ἐπεὶ δὲ περὶ τούτων διώρισται, καθ' ἕκαστον λέγωμεν
Since and about these it-has-been-determined for each let-us-say
τί σὰρξ ἢ ὀστοῦν ἢ τῶν ἄλλων τῶν ὁμοιομερῶν· ἔχομεν
what flesh or bone or of-the others of-the homoeomerous we-have
γὰρ ἐξ ὧν ἡ τῶν ὁμοιομερῶν φύσις συνέστηκε, τὰ γένη
for from which the of-the homoeomerous nature is-composed the kinds
αὐτῶν, τίνος ἕκαστον γένους, διὰ τῆς γενέσεως· ἐκ μὲν
of-them of-which each kind through the coming-to-be out-of indeed
γὰρ τῶν στοιχείων τὰ ὁμοιομερῆ, ἐκ τούτων δ' ὡς ὕλης
for the elements the homoeomerous out-of these and as matter
τὰ ὅλα ἔργα τῆς φύσεως. Ἔστι δ' ἅπαντα ὡς μὲν
the whole works of-the nature Are and all in-one-way indeed
ἐξ ὕλης ἐκ τῶν εἰρημένων, ὡς δὲ κατ' οὐσίαν
out-of matter out-of the mentioned in-another-way but as-to substance
τῷ λόγῳ. Ἀεὶ δὲ μᾶλλον δῆλον ἐπὶ τῶν ὑστέρων
by-the definition Always and more clear in-the-case-of the later(-ones)
καὶ ὅλως ὅσα οἷον ὄργανα καὶ ἕνεκά του. Μᾶλλον
and wholly as-many-as like instruments and for-the-sake-of something More
γὰρ δῆλον ὅτι ὁ νεκρὸς ἄνθρωπος ὁμωνύμως. Οὕτω τοίνυν
for clear that the dead man homonymously So therefore
καὶ χεὶρ τελευτήσαντος ὁμωνύμως, καθάπερ καὶ αὐλοὶ
also hand of-one-having-died homonymously just-as also flutes
λίθινοι λεχθείησαν· οἷον γὰρ καὶ ταῦτα ὄργανα ἄττα ἔοικεν
stone would-be-called like for also these instruments some seem

εἶναι. Ἧττον δ' ἐπὶ σαρκὸς καὶ ὀστοῦ τὰ τοιαῦτα
to-be Less and in-the-case-of flesh and bone the such-things
δῆλα. Ἔτι δ' ἐπὶ πυρὸς καὶ ὕδατος γῆς ἧττον· τὸ
clear Still and in-the-case-of fire and water earth less the
γὰρ οὗ ἕνεκα ἥκιστα ἐνταῦθα δῆλον ὅπου πλεῖστον τῆς
for of-which for-the-sake least there clear where most of-the
ὕλης· ὥσπερ γὰρ εἰ τὰ ἔσχατα ληφθείη, ἡ μὲν ὕλη οὐθὲν
matter just-as for if the extremes were-taken the indeed matter nothing
ἄλλο παρ' αὐτήν, ἡ δ' οὐσία οὐθὲν ἄλλο ἢ ὁ λόγος,
other beside itself the and substance nothing other than the definition
τὰ δὲ μεταξὺ ἀνάλογον τῷ ἐγγὺς εἶναι ἕκαστον, ἐπεὶ
the(-things) and between proportionally by-the near to-be each since
καὶ τούτων ὁτιοῦν ἐστὶν ἕνεκά του, καὶ οὐ πάντως
also of-these anything is for-the-sake-of something and not in-every-way
ἔχον ὕδωρ ἢ πῦρ, ὥσπερ οὐδὲ σὰρξ οὐδὲ σπλάγχνον.
being water or fire just-as not-even flesh nor viscera
Τούτων δ' ἔτι μᾶλλον πρόσωπον καὶ χείρ. Ἅπαντα δ'
Than-these and still more face and hand All and
ἐστὶν ὡρισμένα τῷ ἔργῳ· τὰ μὲν γὰρ δυνάμενα ποιεῖν
are defined by-the function the(-things) indeed for being-able to-do
τὸ αὐτῶν ἔργον ἀληθῶς ἐστὶν ἕκαστα, οἷον ὁ ὀφθαλμὸς εἰ
the of-them function truly are each such-as the eye if
ὁρᾷ, τὸ δὲ μὴ δυνάμενον ὁμωνύμως, οἷον ὁ τεθνεὼς
it-sees the(-thing) but not being-able homonymously such-as the dead
ἢ ὁ λίθινος· οὐδὲ γὰρ πρίων ὁ ξύλινος, ἀλλ' ἢ ὡς εἰκών.
or the stone(-one) nor for saw the wooden except — as likeness
Οὕτω τοίνυν καὶ σάρξ· ἀλλὰ τὸ ἔργον αὐτῆς ἧττον δῆλον
So therefore also flesh but the function of-it less clear
ἢ τὸ τῆς γλώττης. Ὁμοίως δὲ καὶ πῦρ· ἀλλ' ἔτι ἧττον
than the(-one) of-the tongue Likewise and also fire but still less
ἴσως δῆλον φυσικῶς ἢ τὸ τῆς σαρκὸς ἔργον. Ὁμοίως δὲ
perhaps clear physically than the of-the flesh function Likewise and

καὶ τὰ ἐν τοῖς φυτοῖς καὶ τὰ ἄψυχα, οἷον χαλκὸς καὶ
also the(-things) in the plants and the inanimate such-as bronze and
ἄργυρος· πάντα γὰρ δυνάμει τινί ἐστιν ἢ τοῦ ποιεῖν ἢ τοῦ
silver all for by-power some are either of-the to-act or of-the
πάσχειν, ὥσπερ καὶ σὰρξ καὶ νεῦρον· ἀλλ' οἱ λόγοι αὐτῶν
to-be-affected just-as also flesh and sinew but the definitions of-them
οὐκ ἀκριβεῖς. Ὥστε πότε ὑπάρχει καὶ πότε οὔ, οὐ ῥᾴδιον
not exact So-that when it-is-present and when not not easy
διιδεῖν, ἂν μὴ σφόδρα ἐξίτηλον ᾖ καὶ τὰ σχήματα μόνον ᾖ
to-discern if not very faded it-be and the shapes only be
λοιπά, οἷα καὶ τὰ τῶν παλαιουμένων νεκρῶν σώματα, ἃ
remaining such-as also the of-the aging dead bodies which
ἐξαίφνης τέφρα γίνεται ἐν ταῖς θήκαις· καὶ καρποὶ μόνον
suddenly ash become in the tombs and fruits only
τῷ σχήματι, τὴν δ' αἴσθησιν οὐ φαίνονται παλαιούμενοι
in-the shape the but perception not appear aging
σφόδρα· καὶ τὰ ἐκ τοῦ γάλακτος πηγνύμενα.
very and the(-things) from the milk solidifying
Τὰ μὲν οὖν τοιαῦτα μόρια θερμότητι καὶ ψυχρότητι καὶ
The indeed then such parts by-heat and coldness and
ταῖς τούτων κινήσεσιν ἐνδέχεται γίγνεσθαι, πηγνύμενα τῷ
by-the of-these motions it-is-possible to-come-about solidified by-the
θερμῷ καὶ τῷ ψυχρῷ· λέγω δ' ὅσα ὁμοιομερῆ, οἷον
hot and the cold I-mean and as-many-as homoeomerous such-as
σάρκα, ὀστοῦν, τρίχας, νεῦρα, καὶ ὅσα τοιαῦτα· πάντα
flesh bone hairs sinews and as-many-as such all
γὰρ διαφέρει ταῖς πρότερον εἰρημέναις διαφοραῖς, τάσει,
for differ by-the earlier mentioned differences by-tension
ἕλξει, θραύσει, σκληρότητι, μαλακότητι καὶ τοῖς ἄλλοις
ductility fragility hardness softness and the others
τοῖς τοιούτοις· ταῦτα δ' ὑπὸ ψυχροῦ καὶ θερμοῦ καὶ
the such these and by cold and hot and

τῶν κινήσεων γίνεται μιγνυμένων. Τὰ δ' ἐκ τούτων
the motions come-about being-mixed The(-things) but from these
συνεστῶτα οὐθενὶ ἂν δόξειε τὰ ἀνομοιομερῆ, οἷον κεφαλὴ
composed to-no-one — would-seem the non-homoeomerous such-as head
ἢ χεὶρ ἢ πούς, ἀλλ' ὥσπερ καὶ τοῦ χαλκὸν μὲν ἢ ἄργυρον
or hand or foot but just-as also of-the bronze indeed or silver
γενέσθαι αἰτία ψυχρότητος καὶ θερμότητος κίνησις, τοῦ
to-come-about cause of-coldness and of-heat motion of-the
δὲ πρίονα ἢ φιάλην ἢ κιβωτὸν οὐκέτι, ἀλλ' ἐνταῦθα μὲν
but saw or bowl or chest no-longer but here indeed
τέχνη, ἐκεῖ δὲ φύσις ἢ ἄλλη τις αἰτία. Ἐπεὶ οὖν ἔχομεν
art there and nature or other some cause Since then we-have
τίνος γένους ἕκαστον τῶν ὁμοιομερῶν, ληπτέον καθ'
of-what kind each of-the homoeomerous one-must-grasp for
ἕκαστον τί ἐστιν, οἷον τί αἷμα ἢ σὰρξ ἢ σπέρμα καὶ
each what it-is such-as what blood or flesh or seed and
τῶν ἄλλων ἕκαστον· οὕτω γὰρ ἴσμεν ἕκαστον διὰ τί
of-the others each so for we-know each because-of what
καὶ τί ἐστιν, ἐὰν τὴν ὕλην ἢ τὸν λόγον ἔχωμεν, μάλιστα
and what it-is if the matter or the definition we-have most
δ' ὅταν ἄμφω τῆς τε γενέσεως καὶ φθορᾶς, καὶ πόθεν
and when both of-the both coming-to-be and destruction and whence
ἡ ἀρχὴ τῆς κινήσεως. Δηλωθέντων δὲ τούτων ὁμοίως
the beginning of-the motion Having-been-shown and these likewise
τὰ μὴ ὁμοιομερῆ θεωρητέον, καὶ τέλος τὰ ἐκ τούτων
the not homoeomerous one-must-study and finally the(-things) from these
συνεστῶτα, οἷον ἄνθρωπον, φυτὸν καὶ τἆλλα τὰ τοιαῦτα.
composed such-as man plant and the-others the such

ARISTOTLE

ΠΕΡΙ ΚΟΣΜΟΥ

On the Cosmos

ΠΕΡΙ ΚΟΣΜΟΥ ΠΡΟΣ ΑΛΕΞΑΝΔΡΟΝ

I · PHILOSOPHY AND THE WHOLE

Philosophy alone has dared to view the whole: since the body could not climb to heaven, as the foolish Aloadae tried, the soul crossed over with mind as its guide, grasped the divine, and shared it with men. Those who describe one place, Ossa, Nysa, or the Corycian cave, deserve pity for marveling at small things. The writer offers Alexander an account of the whole cosmos, its nature, its position, and its motion.

Πολλάκις μὲν ἔμοιγε θεῖόν τι καὶ δαιμόνιον ὄντως
Often indeed to-me-at-least divine something and wondrous truly
χρῆμα ὦ Ἀλέξανδρε ἡ φιλοσοφία ἔδοξεν εἶναι, μάλιστα
thing O Alexander the philosophy seemed to-be most
δὲ ἐν οἷς μόνη διαραμένη πρὸς τὴν τῶν ὅλων θέαν
and in which alone having-lifted-itself toward the of-the whole contemplation
ἐσπούδασε γνῶναι τὴν ἐν αὐτοῖς ἀλήθειαν, καὶ τῶν ἄλλων
it-has-striven to-know the in them truth and the others
ταύτης ἀποστάντων διὰ τὸ ὕψος καὶ τὸ μέγεθος,
from-this having-stood-off because-of the height and the magnitude
αὕτη τὸ πρᾶγμα οὐκ ἔδεισεν οὐδ' αὑτὴν τῶν καλλίστων
it the matter not feared nor itself of-the finest-things
ἀπηξίωσεν, ἀλλὰ καὶ συγγενεστάτην ἑαυτῇ καὶ μάλιστα
deemed-unworthy but both most-akin to-itself and most
πρέπουσαν ἐνόμισεν εἶναι τὴν ἐκείνων μάθησιν. Ἐπειδὴ γὰρ
fitting considered to-be the of-those learning Since for
οὐχ οἷόν τε ἦν τῷ σώματι εἰς τὸν οὐράνιον ἀφικέσθαι
not possible — it-was for-the body to the heavenly to-arrive
τόπον καὶ τὴν γῆν ἐκλιπόντα τὸν οὐράνιον ἐκεῖνον χῶρον
place and the earth having-left the heavenly that region

κατοπτεῦσαι, καθάπερ οἱ ἀνόητοί ποτε ἐπενόουν Ἀλωάδαι,
to-spy-out just-as the foolish once purposed Aloadae
ἡ γοῦν ψυχὴ διὰ φιλοσοφίας, λαβοῦσα ἡγεμόνα
the at-any-rate soul through philosophy having-taken as-guide
τὸν νοῦν, ἐπεραιώθη καὶ ἐξεδήμησεν, ἀκοπίαστόν τινα
the mind crossed-over and went-abroad untiring some
ὁδὸν εὑροῦσα, καὶ τὰ πλεῖστον ἀλλήλων ἀφεστῶτα
road having-found and the(-things) most from-one-another standing-apart
τοῖς τόποις τῇ διανοίᾳ συνεφρόνησε, ῥᾳδίως οἶμαι
in-the places by-the thought comprehended easily I-think
τὰ συγγενῆ γνωρίσασα, καὶ θείῳ ψυχῆς ὄμματι τὰ
the akin(-things) having-recognized and with-divine of-soul eye the
θεῖα καταλαβοῦσα, τοῖς τε ἀνθρώποις προφητεύουσα.
divine(-things) having-grasped to-the both men proclaiming
Τοῦτο δ' ἔπαθε, καθ' ὅσον οἷόν τε ἦν, πᾶσιν ἀφθόνως
This and it-experienced as far-as possible — it-was to-all ungrudgingly
μεταδοῦναι βουληθεῖσα τῶν παρ' αὑτῇ τιμίων. Διὸ
to-share wishing of-the with itself precious(-things) Wherefore
καὶ τοὺς μετὰ σπουδῆς διαγράψαντας ἡμῖν ἑνὸς τόπου
also the(-ones) with zeal having-described for-us of-one place
φύσιν ἢ μιᾶς σχῆμα πόλεως ἢ ποταμοῦ μέγεθος ἢ ὄρους
nature or of-one shape city or of-river size or of-mountain
κάλλος, οἷά τινες ἤδη πεποιήκασι, φράζοντες οἱ μὲν
beauty such-as some already have-done telling the(-ones) indeed
τὴν Ὄσσαν, οἱ δὲ τὴν Νύσαν, οἱ δὲ τὸ Κωρύκιον
the Ossa the(-others) and the Nysa the(-others) and the Corycian
ἄντρον, οἱ δὲ ὁτιοῦν ἔτυχε τῶν ἐπὶ μέρους, οἰκτίσειεν
cave the(-others) and whatever chanced of-the in particular would-pity
ἄν τις τῆς μικροψυχίας, τὰ τυχόντα ἐκπεπληγμένους
— someone for-the small-mindedness the chance(-things) astounded-at
καὶ μέγα φρονοῦντας ἐπὶ θεωρίᾳ μικρᾷ. Τοῦτο δὲ πάσχουσι
and great thinking on spectacle small This and they-experience

διὰ τὸ ἀθέατοι τῶν κρειττόνων εἶναι, κόσμου λέγω καὶ
because-of the unseeing of-the better(-things) to-be of-the-cosmos I-mean and
τῶν ἐν κόσμῳ μεγίστων οὐδέποτε γὰρ ἂν τούτοις γνησίως
of-the in cosmos greatest never for — on-these genuinely
ἐπιστήσαντες ἐθαύμαζόν τι τῶν ἄλλων, ἀλλὰ
having-fixed(-their-minds) they-would-admire anything of-the others but
πάντα αὐτοῖς τὰ ἄλλα μικρὰ κατεφαίνετο ἂν καὶ οὐδενὸς
all to-them the other(-things) small would-appear — and of-nothing
ἄξια πρὸς τὴν τούτων ὑπεροχήν. Λέγωμεν δὴ ἡμεῖς, καὶ
worthy compared-to the of-these preeminence Let-us-speak then we and
καθ' ὅσον ἐφικτόν, θεολογῶμεν περὶ τούτων συμπάντων, ὡς
as far-as attainable let-us-theologize about these all-together how
ἕκαστον ἔχει φύσεως καὶ θέσεως καὶ κινήσεως. Πρέπειν δὲ
each stands in-nature and position and motion To-befit and
οἶμαί γε καὶ σοί, ὄντι ἡγεμόνων ἀρίστῳ, τὴν τῶν μεγίστων
I-think at-least also you being of-leaders best the of-the greatest
ἱστορίαν μετιέναι, φιλοσοφίᾳ τε μηδὲν μικρὸν ἐπινοεῖν,
inquiry to-pursue for-philosophy and nothing small to-intend
ἀλλὰ τοῖς τοιούτοις δώροις δεξιοῦσθαι τοὺς ἀρίστους.
but with-the such gifts to-greet the best

The cosmos is a system of heaven, earth, and what they contain, an order kept by the gods. The earth lies unmoved at the center; heaven, the gods' dwelling, full of divine bodies, revolves about two poles. The fixed stars turn with the whole, the seven planets in circles of their own; below the aether lie the fiery region and the air, where the weather arises.

Κόσμος μὲν οὖν ἐστὶ σύστημα ἐξ οὐρανοῦ καὶ γῆς καὶ
Cosmos indeed then is system from heaven and earth and
τῶν ἐν τούτοις περιεχομένων φύσεων. Λέγεται δὲ καὶ
the in these contained natures Is-called and also
ἑτέρως κόσμος ἡ τῶν ὅλων τάξις τε καὶ διακόσμησις, ὑπὸ
otherwise cosmos the of-the whole order both and arrangement by
θεῶν τε καὶ διὰ θεῶν φυλαττομένη. Ταύτης δὲ τὸ μὲν
gods both and through gods being-guarded Of-this and the indeed
μέσον, ἀκίνητόν τε ὂν καὶ ἑδραῖον, ἡ φερέσβιος εἴληχε
middle unmoved both being and steadfast the life-bearing has-obtained
γῆ, παντοδαπῶν ζῴων ἑστία τε οὖσα καὶ μήτηρ. Τὸ δ'
earth of-all-kinds animals hearth both being and mother The and
ὕπερθεν αὐτῆς πᾶν τε καὶ πάντῃ πεπερατωμένον· ἧς
above it all both and on-every-side bounded of-which
τὸ ἀνωτάτω θεῶν οἰκητήριον οὐρανὸς ὠνόμασται· πλήρης
the highest of-gods dwelling heaven has-been-named full
δὲ ὢν σωμάτων θείων, ἃ δὴ καλεῖν ἄστρα εἰώθαμεν,
and being of-bodies divine which indeed to-call stars we-are-accustomed
κινούμενος κίνησιν ἀΐδιον, μιᾷ περιαγωγῇ καὶ κύκλῳ
moving motion eternal in-one revolution and circle
συναναχορεύει πᾶσα τούτοις ἀπαύστως δι' αἰῶνος. Τοῦ
dances-around-with all with-these ceaselessly through eternity The
δὲ σύμπαντος οὐρανοῦ τε καὶ κόσμου σφαιροειδοῦς ὄντος
and whole heaven both and cosmos spherical being

καὶ κινουμένου, καθάπερ εἶπον, ἐνδελεχῶς, δύο ἀκίνητα ἐξ
and moving just-as I-said continuously two unmoved of
ἀνάγκης ἐστὶ σημεῖα, καταντικρὺ ἀλλήλων, καθάπερ τῆς
necessity are points opposite one-another just-as of-the
ἐν τόρνῳ κυκλοφορουμένης σφαίρας, στερεὰ μένοντα καὶ
in lathe revolving sphere solid remaining and
συνέχοντα τὴν σφαῖραν, περὶ ἃ ὁ πᾶς κόσμος κινεῖται.
holding-together the sphere about which the whole cosmos moves
Ὁ μὲν οὖν κόσμος ἐν κύκλῳ περιστρέφεται, καλοῦνται
The indeed then cosmos in circle revolves are-called
δ' οὗτοι πόλοι· δι' ὧν εἰ νοήσαιμεν ἐπεζευγμένην
and these poles through which if we-should-think joined
εὐθεῖαν, ἥν τινες ἄξονα καλοῦσι, διάμετρος ἔσται τοῦ
straight(-line) which some axis call diameter will-be of-the
κόσμου, μέσην μὲν ἔχουσα τὴν γῆν, τοὺς δὲ δύο πόλους
cosmos middle indeed having the earth the and two poles
πέρατα. Τῶν δὲ ἀκινήτων πόλων τούτων ὁ μὲν
ends Of-the and unmoved poles these the(-one) indeed
ἀεὶ φανερός ἐστιν ὑπὲρ κορυφὴν ὢν κατὰ τὸ βόρειον
always visible is above head being toward the northern
κλίμα, ἀρκτικὸς καλούμενος· ὁ δὲ ὑπὸ γῆν ἀεὶ
quarter arctic called the(-other) and under earth always
κατακέκρυπται, κατὰ τὸ νότιον, ἀνταρκτικὸς καλούμενος.
is-hidden toward the south antarctic called
Οὐρανοῦ δὲ καὶ ἄστρων οὐσίαν μὲν αἰθέρα καλοῦμεν, οὐχ
Of-heaven and and stars substance indeed aether we-call not
ὥς τινες διὰ τὸ πυρώδη οὖσαν αἴθεσθαι, πλημμελοῦντες
as some because-of the fiery being to-burn erring
περὶ τὴν πλεῖστον πυρὸς ἀπηλλαγμένην δύναμιν, ἀλλὰ
about the most from-fire removed power but
διὰ τὸ ἀεὶ θεῖν κυκλοφορουμένην, στοιχεῖον οὖσαν
because-of the always to-run revolving element being

ἕτερον τῶν τεττάρων, ἀκήρατόν τε καὶ θεῖον. Τῶν γε
other than-the four pure both and divine Of-the at-least
μὴν ἐμπεριεχομένων ἄστρων τὰ μὲν ἀπλανῆ τῷ
truly contained stars the(-ones) indeed fixed with-the
σύμπαντι οὐρανῷ συμπεριστρέφεται, τὰς αὐτὰς ἔχοντα
whole heaven revolve-with the same having
ἕδρας, ὧν μέσος ὁ ζῳοφόρος καλούμενος κύκλος
seats of-which through-the-middle the zodiac called circle
ἐγκάρσιος διὰ τῶν τροπικῶν διέζωσται, κατὰ μέρος
crosswise through the tropics is-girded in part
διῃρημένος εἰς δώδεκα ζῳδίων χώρας· τὰ δὲ πλανητὰ
divided into twelve of-signs regions the(-ones) but wandering
ὄντα οὔτε τοῖς προτέροις ὁμοιοταχῶς κινεῖσθαι πέφυκεν
being neither with-the former at-equal-speed to-move are-by-nature
οὔτε ἀλλήλοις, ἀλλ' ἐν ἑτέροις καὶ ἑτέροις κύκλοις, ὥστε
nor with-one-another but in different and different circles so-that
αὐτῶν τὸν μὲν προσγειότερον εἶναι τὸν δὲ ἀνώτερον.
of-them the(-one) indeed nearer-earth to-be the(-other) and higher
Τὸ μὲν οὖν τῶν ἀπλανῶν πλῆθός ἐστιν ἀνεξεύρετον
The indeed then of-the fixed(-stars) number is undiscoverable
ἀνθρώποις, καίπερ ἐπὶ μιᾶς κινουμένων ἐπιφανείας τῆς
to-men although on one moving surface the(-one)
τοῦ σύμπαντος οὐρανοῦ· τὸ δὲ τῶν πλανήτων εἰς ἑπτὰ
of-the whole heaven the(-number) but of-the planets into seven
μέρη κεφαλαιούμενον ἐν τοσούτοις ἐστὶ κύκλοις ἐφεξῆς
parts summed-up in so-many is circles in-succession
κειμένοις, ὥστε ἀεὶ τὸν ἀνωτέρω μείζω τοῦ ὑποκάτω
lying so-that always the higher greater than-the lower
εἶναι, τούς τε ἑπτὰ ἐν ἀλλήλοις περιέχεσθαι, πάντας γε
to-be the and seven in one-another to-be-contained all at-least
μὴν ὑπὸ τῆς τῶν ἀπλανῶν σφαίρας περιειλῆφθαι. Συνεχῆ
truly by the of-the fixed(-stars) sphere to-be-enclosed Continuous

δὲ ἔχει ἀεὶ τὴν θέσιν ταύτῃ ὁ τοῦ Φαίνοντος ἅμα
and has always the position with-this the(-circle) of-the Phainōn at-once
καὶ Κρόνου καλούμενος κύκλος, ἐφεξῆς δὲ ὁ τοῦ
and of-Cronus called circle next and the(-one) of-the
Φαέθοντος Διὸς λεγόμενος, εἶθ' ὁ Πυρόεις Ἡρακλέους τε
Phaethōn of-Zeus called then the Pyroeis of-Heracles both
καὶ Ἄρεος προσαγορευόμενος, ἑξῆς δὲ ὁ Στίλβων, ὃν
and of-Ares named next and the Stilbōn which
ἱερὸν Ἑρμοῦ καλοῦσιν ἔνιοι, τινὲς δὲ Ἀπόλλωνος· μεθ'
sacred of-Hermes call some others and of-Apollo after
ὃν ὁ τοῦ Φωσφόρου, ὃν Ἀφροδίτης, οἱ δὲ
which the(-one) of-the Phōsphoros which of-Aphrodite the(-others) and
Ἥρας προσαγορεύουσιν, εἶτα ὁ ἡλίου, καὶ τελευταῖος
of-Hera call then the(-one) of-sun and last
ὁ τῆς σελήνης μέχρι γῆς ὁρίζεται. Ὁ δὲ αἰθὴρ τά
the(-one) of-the moon as-far-as earth is-bounded The and aether the
τε θεῖα ἐμπεριέχει σώματα καὶ τὴν τῆς κινήσεως τάξιν.
both divine contains bodies and the of-the motion order
Μετὰ δὲ τὴν αἰθέριον καὶ θείαν φύσιν, ἥν τινα τεταγμένην
After and the ethereal and divine nature which — ordered
ἀποφαίνομεν, ἔτι δὲ ἄτρεπτον καὶ ἀνετεροίωτον καὶ
we-declare further and unchangeable and unalterable and
ἀπαθῆ, συνεχής ἐστιν ἡ δι' ὅλων παθητή τε καὶ
impassive continuous is the through all passive(-nature) both and
τρεπτή, καὶ τὸ σύμπαν εἰπεῖν, φθαρτή τε καὶ ἐπίκηρος.
changeable and the whole to-say perishable both and mortal
Ταύτης δὲ αὐτῆς πρώτη μέν ἐστιν ἡ λεπτομερὴς καὶ
Of-this and itself first indeed is the fine-in-parts and
φλογώδης οὐσία, ὑπὸ τῆς αἰθερίου φύσεως πυρουμένη
flaming substance by the ethereal nature being-ignited
διὰ τὸ μέγεθος αὐτῆς καὶ τὴν ὀξύτητα τῆς κινήσεως· ἐν
because-of the size of-it and the swiftness of-the motion in

δὲ τῇ πυρώδει καὶ ἀτάκτῳ λεγομένῃ τά τε σέλα διάττει
and the fiery and disordered called the both flashes dart
καὶ φλόγες ἀκοντίζονται καὶ δοκίδες τε καὶ βόθυνοι καὶ
and flames are-hurled and beams both and pits and
κομῆται λεγόμενοι στηρίζονται καὶ σβέννυνται πολλάκις.
comets called are-fixed and are-quenched often
Ἑξῆς δὲ ταύτης ὁ ἀὴρ ὑποκέχυται, ζοφώδης ὢν καὶ
Next and this the air is-spread-under dark being and
παγετώδης τὴν φύσιν· ὑπὸ δὲ κινήσεως λαμπόμενος ἅμα
icy the nature by but motion being-lit at-once
καὶ διακαιόμενος λαμπρότερός τε γίνεται καὶ ἀλεεινός.
and being-heated brighter both becomes and warm
Ἐν δὲ τούτῳ τῆς παθητῆς ὄντι καὶ αὐτῷ δυνάμεως καὶ
In and this of-the passive being also itself power and
παντοδαπῶς ἀλλοιουμένῳ νέφη τε συνίστανται καὶ ὄμβροι
in-every-way altered clouds both form and showers
καταρράσσουσι, χιόνες τε καὶ πάχναι καὶ χάλαζαι πνοαί
dash-down snows both and hoarfrosts and hails blasts
τε ἀνέμων καὶ τυφώνων, ἔτι τε βρονταὶ καὶ ἀστραπαὶ
and of-winds and of-whirlwinds further and thunders and lightnings
καὶ πτώσεις κεραυνῶν μυρίων τε γνόφων συμπληγάδες.
and falls of-thunderbolts countless and of-darkness clashings

Below the air lie earth and sea, adorned with plants, mountains, and cities. The inhabited world is one island in the Atlantic, and there may be others across the sea. The five elements lie in spheres, each held by the greater. The writer describes its seas and islands, from the Pillars of Heracles to Taprobane, and its division into Europe, Asia, and Libya.

Ἑξῆς δὲ τῆς ἀερίου φύσεως γῆ τε καὶ θάλασσα
Next and to-the airy nature earth both and sea
ἐρήρεισται, φυτοῖς βρύουσα καὶ ζῴοις πηγαῖς τε καὶ
is-set-fast with-plants teeming and animals springs both and
ποταμοῖς, τοῖς μὲν ἀνὰ γῆν ἑλιττομένοις, τοῖς δὲ
rivers the(-ones) indeed over earth winding the(-others) and
ἀνερευγομένοις εἰς θάλασσαν. Πεποίκιλται δὲ καὶ χλόαις
disgorging into sea It-is-adorned and also with-verdures
μυρίαις ὄρεσί τε ὑψηλοῖς καὶ βαθυξύλοις δρυμοῖς, καὶ
countless mountains both lofty and deep-wooded forests and
πόλεσιν, ἃς τὸ σοφὸν ζῷον ἱδρύσατο ἄνθρωπος, νήσοις
cities which the wise animal founded man islands
τε ἐναλίαις καὶ ἠπείροις. Τὴν μὲν οὖν οἰκουμένην ὁ
both sea-girt and mainlands The indeed then inhabited(-world) the
πολὺς λόγος εἵς τε νήσους καὶ ἠπείρους διεῖλεν, ἀγνοῶν
common account into both islands and continents divided not-knowing
ὅτι καὶ ἡ σύμπασα μία νῆσός ἐστιν, ὑπὸ τῆς Ἀτλαντικῆς
that also the whole one island is by the Atlantic
καλουμένης θαλάσσης περιρρεομένη. Πολλὰς δὲ καὶ ἄλλας
called sea being-flowed-around Many and also other(-ones)
εἰκὸς τῇσδε ἀντιπόρθμους ἄποθεν κεῖσθαι, τὰς μὲν
likely to-this across-the-strait far-off to-lie the(-ones) indeed
μείζους αὐτῆς, τὰς δὲ ἐλάττους, ἡμῖν δὲ πάσας πλὴν
greater than-it the(-others) and smaller to-us but all except

τῆσδε ἀοράτους· ὅπερ γὰρ αἱ παρ᾽ ἡμῖν νῆσοι πρὸς
this invisible what-very for the among us islands relative-to
ταῦτα τὰ πελάγη πεπόνθασι, τοῦτο ἥδε ἡ οἰκουμένη
these the seas stand this this the inhabited(-world)
πρὸς τὴν Ἀτλαντικὴν θάλασσαν πολλαί τε ἕτεραι πρὸς
relative-to the Atlantic sea many and others relative-to
σύμπασαν τὴν θάλασσαν· καὶ γὰρ αὗται μεγάλαι τινές
whole the sea also for these large some
εἰσι νῆσοι, μεγάλοις περικλυζόμεναι πελάγεσιν.
are islands by-great being-washed-around seas
Ἡ δὲ σύμπασα τοῦ ὑγροῦ φύσις ἐπιπολάζουσα, κατά
The and whole of-the moist nature lying-on-top at
τινας τῆς γῆς σπίλους τὰς καλουμένας ἀναπεφυκυῖα
some of-the earth reefs the(-ones) called having-brought-up
οἰκουμένας, ἑξῆς ἂν εἴη τῆς ἀερίου μάλιστα φύσεως.
inhabited(-lands) next — would-be to-the airy most nature
Μετὰ δὲ ταύτην ἐν τοῖς βυθοῖς κατὰ τὸ μεσαίτατον
After and this in the depths at the very-middle
τοῦ κόσμου συνερηρεισμένη γῆ πᾶσα καὶ πεπιεσμένη
of-the cosmos pressed-together earth all and compressed
συνέστηκεν, ἀκίνητος καὶ ἀσάλευτος· καὶ τοῦτ᾽ ἔστι τοῦ
stands unmoved and unshaken and this is of-the
κόσμου τὸ πᾶν, ὃ καλοῦμεν κάτω. Πέντε δὴ στοιχεῖα
cosmos the all which we-call below Five indeed elements
ταῦτα, ἐν πέντε χώραις σφαιρικῶς ἐγκείμενα, περιεχομένης
these in five regions spherically lying-in being-contained
ἀεὶ τῆς ἐλάττονος τῇ μείζονι (λέγω δὲ γῆς μὲν ἐν
always the smaller by-the greater I-mean and of-earth indeed in
ὕδατι, ὕδατος δὲ ἐν ἀέρι, ἀέρος δὲ ἐν πυρί, πυρὸς δὲ ἐν
water of-water and in air of-air and in fire of-fire and in
αἰθέρι) τὸν ὅλον κόσμον συνεστήσατο, καὶ τὸ μὲν ἄνω
aether the whole cosmos composed and the indeed upper

πᾶν θεῶν ἀπέδειξεν οἰκητήριον, τὸ κάτω δὲ ἐφημέρων
all of-gods appointed dwelling the lower and of-day-lived
ζῴων. Αὐτοῦ γε μὴν τούτου τὸ μὲν ὑγρόν ἐστιν, ὃ
animals Of-it at-least truly of-this the indeed moist is which
καλεῖν ποταμοὺς καὶ νάματα καὶ θαλάσσας εἰθίσμεθα, τὸ
to-call rivers and streams and seas we-are-accustomed the
δὲ ξηρόν, ὃ γῆν τε καὶ ἠπείρους καὶ νήσους ὀνομάζομεν.
and dry which earth both and continents and islands we-name
Τῶν δὲ νήσων αἱ μέν εἰσι μεγάλαι, καθάπερ ἡ
Of-the and islands the(-ones) indeed are great just-as the
σύμπασα ἥδε οἰκουμένη λέλεκται πολλαί τε ἕτεραι
whole this inhabited(-world) has-been-said many and others
μεγάλοις περιρρεόμεναι πελάγεσιν, αἱ δ' εἰσὶν
by-great being-flowed-around seas the(-others) and are
ἐλάττους, φανεραὶ δὲ ἡμῖν καὶ ἐντὸς οὖσαι. Καὶ τούτων
smaller visible and to-us and within being And of-these
αἱ μὲν ἀξιόλογοι Σικελία καὶ Σαρδὼ καὶ Κύρνος
the(-ones) indeed notable Sicily and Sardinia and Corsica
Κρήτη τε καὶ Εὔβοια καὶ Κύπρος καὶ Λέσβος· αἱ
Crete both and Euboea and Cyprus and Lesbos the(-ones)
δὲ ὑποδεέστεραι, ὧν αἱ μὲν Σποράδες, αἱ δὲ
and lesser of-which the(-ones) indeed Sporades the(-others) and
Κυκλάδες, αἱ δὲ ἄλλως ὀνομάζονται.
Cyclades the(-others) and otherwise are-named
Πέλαγος δὲ τὸ μὲν ἔξω τῆς οἰκουμένης Ἀτλαντικόν
Sea and the(-one) indeed outside the inhabited(-world) Atlantic
τε καὶ Ὠκεανὸς καλεῖται, περιρρέων ἡμᾶς. Ἐν δὲ
both and Ocean is-called flowing-around us In and
τῷ πρὸς δύσιν στενοπόρῳ διανεῳγὸς στόματι, κατὰ
the toward setting narrow-passaged having-opened mouth at
τὰς Ἡρακλείους λεγομένας στήλας, τὸν εἴσρουν εἰς τὴν
the Heraclean called pillars the inflow into the

ἔσω θάλασσαν ὡς ἂν εἰς λιμένα ποιεῖται, κατὰ μικρὸν
inner sea as — into harbor makes by little
δὲ ἐπιπλατυνόμενος ἀναχεῖται, μεγάλους περιλαμβάνων
and widening it-spreads great embracing
κόλπους ἀλλήλοις συναφεῖς, πῇ μὲν κατὰ στενοπόρους
gulfs to-one-another joined in-places indeed through narrow-passaged
αὐχένας ἀνεστομωμένος, πῇ δὲ πάλιν πλατυνόμενος.
necks opening in-places and again widening
Πρῶτον μὲν οὖν λέγεται ἐγκεκολπῶσθαι ἐν δεξιᾷ εἰσπλέοντι
First indeed then it-is-said to-have-formed-gulfs on right to-one-sailing-in
τὰς Ἡρακλείους στήλας, διχῶς, εἰς τὰς καλουμένας
the Heraclean pillars in-two into the called
Σύρτεις, ὧν τὴν μὲν μεγάλην τὴν δὲ μικράν
Syrtes of-which the(-one) indeed great the(-other) and small
καλοῦσιν· ἐπὶ θάτερα δὲ οὐκέτι ὁμοίως ἀποκολπούμενος
they-call on the-other(-side) and no-longer likewise forming-gulfs
τρία ποιεῖ πελάγη, τό τε Σαρδόνιον καὶ τὸ Γαλατικὸν
three makes seas the both Sardinian and the Gallic
καλούμενον καὶ Ἀδρίαν, ἑξῆς δὲ τούτων ἐγκάρσιον τὸ
called and Adriatic next and to-these crosswise the
Σικελικόν, μετὰ δὲ τοῦτο τὸ Κρητικόν, συνεχὲς δὲ αὐτοῦ
Sicilian after and this the Cretan continuous and with-it
τῇ μὲν τὸ Αἰγύπτιόν τε καὶ Παμφύλιον καὶ Σύριον,
on-one-side indeed the Egyptian both and Pamphylian and Syrian
τῇ δὲ τὸ Αἰγαῖόν τε καὶ Μυρτῷον.
on-the-other and the Aegean both and Myrtoan
Ἀντιπαρήκει δὲ τοῖς εἰρημένοις πολυμερέστατος ὢν ὁ
Stretches-alongside and the mentioned(-seas) most-divided being the
Πόντος, οὗ τὸ μὲν μυχαίτατον Μαιῶτις καλεῖται, τὸ δὲ
Pontus of-which the indeed innermost Maeotis is-called the and
ἔξω πρὸς τὸν Ἑλλήσποντον συνανεστόμωται τῇ καλουμένῃ
outer toward the Hellespont opens-into the called

Προποντίδι. Πρός γε μὴν ταῖς ἀνασχέσεσι τοῦ ἡλίου
Propontis At at-least truly the risings of-the sun
πάλιν εἰσρέων ὁ Ὠκεανός, τὸν Ἰνδικόν τε καὶ Περσικὸν
again flowing-in the Ocean the Indian both and Persian
διανοίξας κόλπον, ἀναφαίνει συνεχῆ τὴν Ἐρυθρὰν θάλασσαν
having-opened gulf reveals continuous the Red sea
διειληφώς. Ἐπὶ θάτερον δὲ κέρας κατὰ στενόν τε καὶ
having-taken-in On the-other and horn through narrow both and
ἐπιμήκη διήκων αὐχένα πάλιν ἀνευρύνεται, τὴν Ὑρκανίαν
long passing neck again it-widens the Hyrcanian
τε καὶ Κασπίαν ὁρίζων· τὸ δὲ ὑπὲρ ταύτην βαθὺν ἔχει
both and Caspian bounding the(-part) and beyond this deep it-has
τὸν ὑπὲρ τὴν Μαιῶτιν λίμνην τόπον. Εἶτα κατ᾽ ὀλίγον ὑπὲρ
the beyond the Maeotis lake place Then by little beyond
τοὺς Σκύθας τε καὶ Κελτικὴν σφίγγει τὴν οἰκουμένην, πρός
the Scythians both and Celtic(-land) binds the inhabited(-world) toward
τε τὸν Γαλατικὸν κόλπον καὶ τὰς προειρημένας Ἡρακλείους
both the Gallic gulf and the aforementioned Heraclean
στήλας, ὧν ἔξω περιρρέει τὴν γῆν ὁ Ὠκεανός. Ἐν
pillars of-which outside flows-around the earth the Ocean In
τούτῳ γε μὴν νῆσοι μέγισταί τε τυγχάνουσιν οὖσαι
this at-least truly islands greatest both happen being
δύο, Βρετανικαὶ λεγόμεναι, Ἄλβιον καὶ Ἰέρνη, τῶν
two British called Albion and Ierne than-the
προϊστορημένων μείζους, ὑπὲρ τοὺς Κελτοὺς κείμεναι.
previously-described greater beyond the Celts lying
Τούτων δὲ οὐκ ἐλάττους ἥ τε Ταπροβάνη πέραν Ἰνδῶν,
Than-these and not smaller the both Taprobane beyond the-Indians
λοξὴ πρὸς τὴν οἰκουμένην, καὶ ἡ Φεβὸλ καλουμένη, κατὰ
slanting toward the inhabited(-world) and the Phebol called by
τὸν Ἀραβικὸν κειμένη κόλπον. Οὐκ ὀλίγαι δὲ μικραὶ περὶ
the Arabian lying gulf Not few and small about

τὰς Βρετανικὰς καὶ τὴν Ἰβηρίαν κύκλῳ περιεστεφάνωνται
the British and the Iberia in-a-circle have-wreathed
τὴν οἰκουμένην ταύτην, ἣν δὴ νῆσον εἰρήκαμεν· ἧς
the inhabited(-world) this which indeed island we-have-called of-which
πλάτος μέν ἐστι κατὰ τὸ βαθύτατον τῆς ἠπείρου βραχὺ
breadth indeed is at the deepest(-part) of-the continent little
ἀποδέον τετρακισμυρίων σταδίων, ὥς φασιν οἱ εὖ
falling-short of-forty-thousand stades as say the(-ones) well
γεωγραφήσαντες, μῆκος δὲ περὶ ἑπτακισμυρίους μάλιστα.
having-mapped length and about seventy-thousand approximately
Διαιρεῖται δὲ εἴς τε Εὐρώπην καὶ Ἀσίαν καὶ Λιβύην.
It-is-divided and into both Europe and Asia and Libya
Εὐρώπη μὲν οὖν ἐστὶν ἧς ὅροι κύκλῳ στῆλαί τε
Europe indeed then is of-which bounds around pillars both
Ἡρακλέους καὶ μυχοὶ Πόντου θάλαττά τε Ὑρκανία, καθ'
of-Heracles and recesses of-Pontus sea and Hyrcanian along
ἣν στενώτατος ἰσθμὸς εἰς τὸν Πόντον διήκει· τινὲς δὲ ἀπὸ
which narrowest isthmus to the Pontus extends some and from
τοῦ ἰσθμοῦ Τάναϊν ποταμὸν εἰρήκασιν. Ἀσία δ' ἐστὶ τὸ
the isthmus Tanais river have-said Asia and is the(-part)
ἀπὸ τοῦ εἰρημένου ἰσθμοῦ τοῦ τε Πόντου καὶ τῆς Ὑρκανίας
from the mentioned isthmus of-the both Pontus and of-the Hyrcanian
θαλάσσης μέχρι θατέρου ἰσθμοῦ, ὃς μεταξὺ κεῖται τοῦ τε
sea as-far-as the-other isthmus which between lies the both
Ἀραβικοῦ κόλπου καὶ τῆς ἔσω θαλάσσης, περιεχόμενος ὑπό
Arabian gulf and the inner sea being-enclosed by
τε ταύτης καὶ τοῦ πέριξ Ὠκεανοῦ· τινὲς δὲ τὸ ἀπὸ
both this and the surrounding Ocean some and the(-part) from
Τανάϊδος μέχρι Νείλου στομάτων τίθενται τὸν τῆς Ἀσίας
Tanais as-far-as of-Nile mouths set the of-the Asia
ὅρον. Λιβύη δὲ τὸ ἀπὸ τοῦ Ἀραβικοῦ ἰσθμοῦ ἕως
bound Libya and the(-part) from the Arabian isthmus to

Ἡρακλέους στηλῶν· οἱ δὲ ἀπὸ τοῦ Νείλου φασὶν ἕως
of-Heracles pillars the(-others) and from the Nile say to
ἐκείνων. Τὴν δὲ Αἴγυπτον, ὑπὸ τῶν τοῦ Νείλου στομάτων
those The and Egypt by the of-the Nile mouths
περιρρεομένην, οἱ μὲν τῇ Ἀσίᾳ οἱ δὲ τῇ Λιβύῃ
being-flowed-around the(-ones) indeed to-the Asia the(-others) and to-the Libya
προσάπτουσι, καὶ τὰς νήσους οἱ μὲν ἐξαιρέτους ποιοῦσιν
attach and the islands the(-ones) indeed separate make
οἱ δὲ προσνέμουσι ταῖς γείτοσιν ἀεὶ μοίραις.
the(-others) and assign to-the neighboring each-time portions
Γῆς μὲν δὴ καὶ θαλάττης φύσιν καὶ θέσιν, ἥν τινα
Of-earth indeed indeed and sea nature and position which —
καλεῖν εἰώθαμεν οἰκουμένην, τοιάνδε τινὰ ἱστορήκαμεν.
to-call we-are-accustomed inhabited(-world) such a-kind we-have-described

IV · AIR, EARTH, AND SEA

Two exhalations rise from the earth: the moist makes mist, dew, frost, clouds, rain, snow, and hail; the dry makes the winds, each named for its quarter, with squalls, thunder, and thunderbolts. Rainbows and rods are reflections; comets are real fires. Within the earth are springs, vents, and earthquakes of many kinds; the sea has its chasms and tides. The mixing of the elements makes and unmakes the parts and keeps the whole indestructible.

Περὶ δὲ τῶν ἀξιολογωτάτων ἐν αὐτῇ καὶ περὶ αὐτὴν
About and the most-notable in it and about it
παθῶν νῦν λέγωμεν, αὐτὰ τὰ ἀναγκαῖα κεφαλαιούμενοι.
affections now let-us-speak themselves the necessary(-points) summarizing
Δύο γὰρ δή τινες ἀπ' αὐτῆς ἀναθυμιάσεις ἀναφέρονται
Two for indeed certain from it exhalations are-carried-up
συνεχῶς εἰς τὸν ὑπὲρ ἡμᾶς ἀέρα, λεπτομερεῖς καὶ ἀόρατοι
continuously into the above us air fine-in-parts and invisible

παντάπασιν, εἴ τι μὴ κατὰ τὰς ἑῴας ἐστίν· αἵ τε
altogether if somewhat not at the dawn(-hours) it-is which both
διὰ ποταμῶν τε καὶ ναμάτων ἀναφερόμεναι θεωροῦνται.
along rivers both and streams being-carried-up are-seen
Τούτων δὲ ἡ μέν ἐστι ξηρὰ καὶ καπνώδης, ἀπὸ τῆς
Of-these and the(-one) indeed is dry and smoky from the
γῆς ἀπορρέουσα, ἡ δὲ νοτερὰ καὶ ἀτμώδης, ἀπὸ
earth flowing-off the(-other) and damp and vaporous from
τῆς ὑγρᾶς ἀναθυμιωμένη φύσεως. Γίνονται δὴ ἀπὸ μὲν
the moist exhaling nature Come-about indeed from indeed
ταύτης ὁμίχλαι καὶ δρόσοι καὶ πάγων ἰδέαι, νέφη τε καὶ
this mists and dews and of-frosts forms clouds both and
ὄμβροι καὶ χιόνες καὶ χάλαζαι, ἀπὸ δὲ τῆς ξηρᾶς ἄνεμοί
showers and snows and hails from and the dry winds
τε καὶ πνευμάτων διαφοραί, βρονταί τε καὶ ἀστραπαὶ καὶ
both and of-breaths varieties thunders both and lightnings and
πρηστῆρες καὶ κεραυνοὶ καὶ τἆλλα ἃ δὴ τούτοις
fire-winds and thunderbolts and the-other(-things) which indeed with-these
ἐστὶ σύμφυλα. Ἔστι δὲ ὁμίχλη μὲν ἀτμώδης ἀναθυμίασις
are akin Is and mist indeed vaporous exhalation
ἄγονος ὕδατος, ἀέρος μὲν παχυτέρα, νέφους δὲ ἀραιοτέρα·
barren of-water than-air indeed thicker than-cloud and thinner
γίνεται δὲ ἤτοι ἐξ ἀρχῆς νέφους ἢ ἐξ ὑπολείμματος.
it-comes-about and either from beginning of-cloud or from remnant
Ἀντίπαλος δὲ αὐτῇ λέγεται καὶ ἔστιν αἰθρία, οὐδὲν ἄλλο
Opposite and to-it is-said and is clear-sky nothing other
οὖσα πλὴν ἀὴρ ἀνέφελος καὶ ἀνόμιχλος. Δρόσος δ'
being than air cloudless and mistless Dew and
ἐστὶν ὑγρὸν ἐξ αἰθρίας κατὰ σύστασιν λεπτὸν φερόμενον,
is moisture from clear-sky in consistency fine falling
κρύσταλλος δὲ ἀθρόον ὕδωρ ἐξ αἰθρίας πεπηγός, πάχνη δὲ
ice and massed water from clear-sky frozen hoarfrost and

δρόσος πεπηγυῖα, δροσοπάχνη δὲ ἡμιπαγὴς δρόσος. Νέφος
dew frozen dew-frost and half-frozen dew Cloud
δ' ἐστὶ πάχος ἀτμῶδες συνεστραμμένον, γόνιμον ὕδατος.
and is thickness vaporous compressed productive of-water
Ὄμβρος δὲ γίνεται μὲν κατ' ἐκπιεσμὸν νέφους εὖ μάλα
Shower and comes-about indeed by squeezing-out of-cloud well very
πεπαχυσμένου, διαφορὰς δὲ ἴσχει τοσάσδε ὅσας καὶ ἡ
thickened varieties and it-has so-many as-many-as also the
τοῦ νέφους θλίψις· ἠπία μὲν γὰρ οὖσα μαλακὰς ψακάδας
of-the cloud pressure gentle indeed for being soft drops
διασπείρει, σφοδρὰ δὲ ἀδροτέρας· καὶ τοῦτο καλοῦμεν ὑετόν,
it-scatters violent but bigger and this we-call rain
ὄμβρου μείζω καὶ συνεχῆ συστρέμματα ἐπὶ γῆς φερόμενα.
than-shower greater and continuous masses onto earth carried
Χιὼν δὲ γίνεται κατὰ νεφῶν πεπυκνωμένων ἀπόθραυσιν πρὸ
Snow and comes-about by of-clouds condensed breaking-off before
τῆς εἰς ὕδωρ μεταβολῆς ἀνακοπέντων· ἐργάζεται δὲ ἡ μὲν
the into water change having-been-checked produces and the indeed
κοπὴ τὸ ἀφρῶδες καὶ ἔκλευκον, ἡ δὲ σύμπηξις τοῦ ἐνόντος
breaking the foamy and very-white the and freezing of-the being-within
ὑγροῦ τὴν ψυχρότητα οὔπω χυθέντος οὐδὲ ἠραιωμένου.
moisture the coldness not-yet having-been-poured nor rarefied
Σφόδρα δὲ αὕτη καὶ ἀθρόα καταφερομένη νιφετὸς
Heavily and this and massed falling snowstorm
ὠνόμασται. Χάλαζα δὲ γίνεται νιφετοῦ συστραφέντος καὶ
has-been-named Hail and comes-about snowstorm having-been-compacted and
βρῖθος ἐκ πιλήματος εἰς καταφορὰν ταχυτέραν λαβόντος·
weight from compression for descent swifter having-taken
παρὰ δὲ τὰ μεγέθη τῶν ἀπορρηγνυμένων θραυσμάτων οἵ
according-to and the sizes of-the breaking-off fragments the

τε ὄγκοι μείζους αἵ τε φοραὶ γίνονται βιαιότεραι. Ταῦτα
both masses greater the and descents become more-violent These
μὲν οὖν ἐκ τῆς ὑγρᾶς ἀναθυμιάσεως πέφυκε συνεκπίπτειν.
indeed then from the moist exhalation are-by-nature to-fall-out-together
Ἐκ δὲ τῆς ξηρᾶς ὑπὸ ψύχους μὲν ὠσθείσης ὥστε ῥεῖν
From and the dry by cold indeed having-been-pushed so-as to-flow
ἄνεμος ἐγένετο· οὐδὲν γάρ ἐστιν οὗτος πλὴν ἀὴρ πολὺς ῥέων
wind came-about nothing for is this except air much flowing
καὶ ἀθρόος· ὅστις ἅμα καὶ πνεῦμα λέγεται. Λέγεται δὲ καὶ
and massed which at-once also breath is-called Is-called and also
ἑτέρως πνεῦμα ἥ τε ἐν φυτοῖς καὶ ζῴοις καὶ διὰ πάντων
otherwise breath the both in plants and animals and through all
διήκουσα ἔμψυχός τε καὶ γόνιμος οὐσία, περὶ ἧς νῦν λέγειν
pervading animate both and generative substance about which now to-speak
οὐκ ἀναγκαῖον. Τὰ δὲ ἐν ἀέρι πνέοντα πνεύματα καλοῦμεν
not necessary The and in air blowing breaths we-call
ἀνέμους, αὔρας δὲ τὰς ἐξ ὑγροῦ φερομένας ἐκπνοάς.
winds breezes and the from moist carried exhalations
Τῶν δ' ἀνέμων οἱ μὲν ἐκ νενοτισμένης γῆς πνέοντες
Of-the and winds the(-ones) indeed from moistened earth blowing
ἀπόγειοι λέγονται, οἱ δὲ ἐκ κόλπων διεξάττοντες
land-winds are-called the(-ones) and from gulfs rushing-out
ἐγκολπίαι· τούτοις δὲ ἀνάλογόν τι ἔχουσιν οἱ
gulf-winds to-these and analogous something have the(-ones)
ἐκ ποταμῶν καὶ λιμνῶν. Οἱ δὲ κατὰ ῥῆξιν νέφους
from rivers and lakes The(-ones) and by bursting of-cloud
γινόμενοι καὶ ἀνάλυσιν τοῦ πάχους πρὸς ἑαυτοὺς ποιούμενοι
coming-about and dissolution of-the thickness toward themselves making
ἐκνεφίαι καλοῦνται· μεθ' ὕδατος δὲ ἀθρόως ῥαγέντος
hurricanes are-called with water and all-at-once having-burst
ἐξυδρίαι λέγονται. Καὶ οἱ μὲν ἀπ' ἀνατολῆς συνεχεῖς
rain-winds are-called And the(-ones) indeed from sunrise continuous

εὖροι κέκληνται, βορέαι δὲ οἱ ἀπὸ ἄρκτου, ζέφυροι
east-winds are-called north-winds and the(-ones) from north west-winds
δὲ οἱ ἀπὸ δύσεως, νότοι δὲ οἱ ἀπὸ μεσημβρίας.
and the(-ones) from setting south-winds and the(-ones) from south
Τῶν γε μὴν εὔρων καικίας μὲν λέγεται ὁ ἀπὸ τοῦ
Of-the at-least truly east-winds kaikias indeed is-called the(-one) from the
περὶ τὰς θερινὰς ἀνατολὰς τόπου πνέων ἄνεμος, ἀπηλιώτης
about the summer risings region blowing wind apēliōtēs
δὲ ὁ ἀπὸ τοῦ περὶ τὰς ἰσημερινάς, εὖρος δὲ ὁ
and the(-one) from the(-region) about the equinoctial(-risings) euros and the(-one)
ἀπὸ τοῦ περὶ τὰς χειμερινάς. Καὶ τῶν ἐναντίων ζεφύρων
from the(-region) about the winter(-risings) And of-the opposite west-winds
ἀργέστης μὲν ὁ ἀπὸ τῆς θερινῆς δύσεως, ὅν τινες
argestēs indeed the(-one) from the summer setting whom some
καλοῦσιν ὀλυμπίαν, οἱ δὲ ἰάπυγα· ζέφυρος δὲ ὁ
call olympias the(-others) and iapyx zephyros and the(-one)
ἀπὸ τῆς ἰσημερινῆς, λὶψ δὲ ὁ ἀπὸ τῆς χειμερινῆς.
from the equinoctial(-setting) lips and the(-one) from the winter(-setting)
Καὶ τῶν βορεῶν ἰδίως ὁ μὲν ἐξῆς τῷ καικίᾳ καλεῖται
And of-the north-winds properly the(-one) indeed next to-the kaikias is-called
βορέας, ἀπαρκτίας δὲ ὁ ἐφεξῆς ἀπὸ τοῦ πόλου κατὰ
boreas aparktias and the(-one) next from the pole along
τὸ μεσημβρινὸν πνέων, θρασκίας δὲ ὁ ἑξῆς πνέων τῷ
the meridian blowing thraskias and the(-one) next blowing to-the
ἀργέστῃ, ὃν ἔνιοι καικίαν καλοῦσιν. Καὶ τῶν νότων ὁ
argestēs whom some kaikias call And of-the south-winds the(-one)
μὲν ἀπὸ τοῦ ἀφανοῦς πόλου φερόμενος ἀντίπαλος τῷ
indeed from the invisible pole carried opposite to-the
ἀπαρκτίᾳ καλεῖται νότος, εὐρόνοτος δὲ ὁ μεταξὺ εὔρου
aparktias is-called notos euronotos and the(-one) between euros

καὶ νότου· τὸν δ' ἐπὶ θάτερα μεταξὺ λιβὸς καὶ νότου
and notos the(-one) and on the-other(-side) between lips and notos
οἱ μὲν λιβόνοτον οἱ δὲ λιβοφοίνικα καλοῦσιν.
the(-ones) indeed libonotos the(-others) and libophoinix call
Τῶν δὲ ἀνέμων οἱ μέν εἰσιν εὐθύπνοοι, ὁπόσοι
Of-the and winds the(-ones) indeed are straight-blowing as-many-as
διεκπνέουσι πρόσω κατ' εὐθεῖαν, οἱ δὲ ἀνακαμψίπνοοι,
blow-through forward along straight the(-others) and back-blowing
καθάπερ ὁ καικίας λεγόμενος. Καὶ οἱ μὲν χειμῶνος,
just-as the kaikias called And the(-ones) indeed of-winter
ὥσπερ οἱ νότοι, δυναστεύοντες, οἱ δὲ θέρους, ὡς οἱ
just-as the south-winds prevailing the(-others) and of-summer as the
ἐτησίαι λεγόμενοι, μίξιν ἔχοντες τῶν τε ἀπὸ τῆς ἄρκτου
etesians called mixture having of-the both from the north
φερομένων καὶ ζεφύρων· οἱ δὲ ὀρνιθίαι καλούμενοι,
carried and west-winds the(-ones) and bird-winds called
ἐαρινοί τινες ὄντες ἄνεμοι, βορέαι εἰσὶ τῷ γένει. Τῶν
spring some being winds north-winds are in-the kind Of-the
γε μὴν βιαίων πνευμάτων καταιγὶς μέν ἐστι πνεῦμα
at-least truly violent breaths squall indeed is breath
ἄνωθεν τύπτον ἐξαίφνης, θύελλα δὲ πνεῦμα βίαιον καὶ
from-above striking suddenly storm and breath violent and
ἄφνω προσαλλόμενον, λαῖλαψ δὲ καὶ στρόβιλος πνεῦμα
suddenly leaping-upon tempest and and eddy-wind breath
εἱλούμενον κάτωθεν ἄνω, ἀναφύσημα δὲ γῆς πνεῦμα ἄνω
rolling from-below upward blowing-up and of-earth breath upward
φερόμενον κατὰ τὴν ἐκ βυθοῦ τινὸς ἢ ῥήγματος ἀνάδοσιν·
carried by the from depth some or rift discharge
ὅταν δὲ εἱλούμενον πολὺ φέρηται, πρηστὴρ χθόνιός ἐστιν.
when and rolling much it-is-carried fire-wind of-earth it-is
Εἰληθὲν δὲ πνεῦμα ἐν νέφει παχεῖ τε καὶ νοτερῷ, καὶ
Rolled-up and breath in cloud thick both and damp and

ἔξωθεν δι᾽ αὐτοῦ βιαίως ῥηγνύον τὰ συνεχῆ πιλήματα τοῦ
outward through it violently bursting the continuous compressions of-the
νέφους, βρόμον καὶ πάταγον μέγαν ἀπειργάσατο, βροντὴν
cloud roar and crash great produces thunder
λεγόμενον, ὥσπερ ἐν ὕδατι πνεῦμα σφοδρῶς ἐλαυνόμενον.
called just-as in water breath violently driven
Κατὰ δὲ τὴν τοῦ νέφους ἔκρηξιν πυρωθὲν τὸ πνεῦμα καὶ
In and the of-the cloud bursting-out ignited the breath and
λάμψαν ἀστραπὴ λέγεται· ὃ δὴ πρότερον τῆς βροντῆς
having-flashed lightning is-called which indeed earlier than-the thunder
προσέπεσεν, ὕστερον γενόμενον, ἐπεὶ τὸ ἀκουστὸν ὑπὸ
strikes later having-come-about since the audible by
τοῦ ὁρατοῦ πέφυκε φθάνεσθαι, τοῦ μὲν καὶ πόρρωθεν
the visible is-by-nature to-be-outstripped the(-one) indeed even from-afar
ὁρωμένου, τοῦ δὲ ἐπειδὰν ἐμπελάσῃ τῇ ἀκοῇ, καὶ μάλιστα
being-seen the(-other) but when it-approaches the hearing and most
ὅταν τὸ μὲν τάχιστον ᾖ τῶν ὄντων, λέγω δὲ τὸ πυρῶδες,
when the(-one) indeed swiftest be of-the beings I-mean and the fiery
τὸ δὲ ἧττον ταχύ, ἀερῶδες ὄν, ἐν τῇ πλήξει πρὸς
the(-other) and less swift airy being in the striking upon
ἀκοὴν ἀφικνούμενον. Τὸ δὲ ἀστράψαν ἀναπυρωθέν, βιαίως
hearing arriving The and flashing(-breath) ignited violently
ἄχρι τῆς γῆς διεκθέον, κεραυνὸς καλεῖται· ἐὰν δὲ ἡμίπυρον
as-far-as the earth rushing-through thunderbolt is-called if but half-fiery
ᾖ, σφοδρὸν δὲ ἄλλως καὶ ἀθρόον, πρηστήρ· ἐὰν δὲ ἄπυρον
it-be violent but otherwise and massed fire-wind if and fireless
ᾖ παντελῶς, τυφών. Ἕκαστον δὲ τούτων κατασκῆψαν
it-be altogether whirlwind Each and of-these having-struck-down
εἰς τὴν γῆν σκηπτὸς ὀνομάζεται. Τῶν δὲ κεραυνῶν οἱ
onto the earth bolt is-named Of-the and thunderbolts the(-ones)
μὲν αἰθαλώδεις ψολόεντες λέγονται, οἱ δὲ ταχέως
indeed sooty smoky are-called the(-others) and swiftly

διάττοντες ἀργῆτες, ἑλικίαι δὲ οἱ γραμμοειδῶς
darting bright(-ones) zigzag(-ones) and the(-ones) linewise
φερόμενοι, σκηπτοὶ δὲ ὅσοι κατασκήπτουσιν εἴς τι.
carried bolts and as-many-as strike-down onto something
Συλλήβδην δὲ τῶν ἐν ἀέρι φαντασμάτων τὰ μέν ἐστι
In-sum and of-the in air appearances the(-ones) indeed are
κατ᾽ ἔμφασιν τὰ δὲ καθ᾽ ὑπόστασιν, κατ᾽ ἔμφασιν μὲν
by reflection the(-others) and by substance by reflection indeed
ἴριδες καὶ ῥάβδοι καὶ τὰ τοιαῦτα, καθ᾽ ὑπόστασιν δὲ σέλα τε
rainbows and rods and the such by substance and flashes both
καὶ διάττοντες καὶ κομῆται καὶ τὰ τούτοις παραπλήσια.
and shooting-stars and comets and the(-things) to-these similar
Ἶρις μὲν οὖν ἐστὶν ἔμφασις ἡλίου τμήματος ἢ σελήνης,
Rainbow indeed then is reflection of-sun segment or of-moon
ἐν νέφει νοτερῷ καὶ κοίλῳ καὶ συνεχεῖ πρὸς φαντασίαν ὡς
in cloud damp and hollow and continuous in appearance as
ἐν κατόπτρῳ θεωρουμένη κατὰ κύκλου περιφέρειαν. Ῥάβδος
in mirror seen along of-circle circumference Rod
δ᾽ ἐστὶν ἴριδος ἔμφασις εὐθεῖα. Ἅλως δ᾽ ἐστὶν ἔμφασις
and is of-rainbow reflection straight Halo and is reflection
λαμπρότητος ἄστρου περίαυγος· διαφέρει δὲ ἴριδος, ὅτι
of-brightness of-star shining-around it-differs and from-rainbow because
ἡ μὲν ἶρις ἐξ ἐναντίας φαίνεται ἡλίου καὶ σελήνης,
the indeed rainbow from opposite appears sun and moon
ἡ δὲ ἅλως κύκλῳ παντὸς ἄστρου. Σέλας δ᾽ ἐστὶ πυρὸς
the but halo around every star Flash and is of-fire
ἀθρόου ἔξαψις ἐν ἀέρι. Τῶν δὲ σελάων ἃ μὲν ἀκοντίζεται
massed kindling in air Of-the and flashes some indeed are-hurled
ἃ δὲ στηρίζεται. Ὁ μὲν οὖν ἐξακοντισμός ἐστι πυρὸς
others and are-fixed The indeed then hurling is of-fire
γένεσις ἐκ παρατρίψεως, ἐν ἀέρι φερομένου ταχέως καὶ
generation from friction in air carried swiftly and

φαντασίαν μήκους ἐμφαίνοντος διὰ τὸ τάχος· ὁ δὲ
appearance of-length showing because-of the speed the and
στηριγμός ἐστι χωρὶς φορᾶς προμήκης ἔκτασις καὶ οἷον
fixing is without movement elongated extension and as-it-were
ἄστρου ῥῦσις· πλατυνομένη δὲ κατὰ θάτερον κομήτης
of-star flowing broadening and at one(-end) comet
καλεῖται. Πολλάκις δὲ τῶν σελάων τὰ μὲν ἐπιμένει
is-called Often and of-the flashes the(-ones) indeed persist
πλείονα χρόνον, τὰ δὲ παραχρῆμα σβέννυται. Πολλαὶ
longer time the(-others) and at-once are-quenched Many
δὲ καὶ ἄλλαι φαντασμάτων ἰδέαι θεωροῦνται, λαμπάδες
and also other of-appearances forms are-seen torches
τε καλούμεναι καὶ δοκίδες καὶ πίθοι καὶ βόθυνοι, κατὰ τὴν
both called and beams and jars and pits by the
πρὸς ταῦτα ὁμοιότητα ὧδε προσαγορευθεῖσαι. Καὶ τὰ
to these likeness so named And the(-ones)
μὲν τούτων ἑσπέρια τὰ δὲ ἑῷα τὰ δὲ ἀμφιφαῆ
indeed of-these in-the-evening the(-others) and at-dawn the(-others) and at-both
θεωρεῖται, σπανίως δὲ βόρεια καὶ νότια. Πάντα δὲ
are-seen rarely and northern and southern All and
ἀβέβαια· οὐδέποτε γάρ τι τούτων ἀεὶ φανερὸν ἱστόρηται
unstable never for any of-these always visible is-recorded
κατεστηριγμένον. Τὰ μὲν τοίνυν ἀέρια τοιαῦτα.
fixed The(-things) indeed then airy such
Ἐμπεριέχει δὲ καὶ ἡ γῆ πολλὰς ἐν αὑτῇ, καθάπερ
Contains and also the earth many in itself just-as
ὕδατος, οὕτω καὶ πνεύματος καὶ πυρὸς πηγάς. Τούτων δὲ
of-water so also of-breath and of-fire springs Of-these and
αἱ μὲν ὑπὸ γῆν εἰσὶν ἀόρατοι, πολλαὶ δὲ ἀναπνοὰς
the(-ones) indeed under earth are invisible many and vents
ἔχουσι καὶ ἀναφυσήσεις, ὥσπερ Λιπάρα τε καὶ Αἴτνη καὶ
have and blowings-up just-as Lipara both and Etna and

τὰ ἐν Αἰόλου νήσοις· αἱ δὲ καὶ ῥέουσι πολλάκις
the(-ones) in of-Aeolus islands the(-ones) and also flow often
ποταμοῦ δίκην, καὶ μύδρους ἀναρριπτοῦσι διαπύρους. Ἔνιαι
of-river like and lumps fling-up red-hot Some
δὲ ὑπὸ γῆν οὖσαι πλησίον πηγαίων ὑδάτων θερμαίνουσι
and under earth being near of-spring waters heat
ταῦτα, καὶ τὰ μὲν χλιαρὰ τῶν ναμάτων ἀνιᾶσι,
these and the(-ones) indeed lukewarm of-the streams send-up
τὰ δὲ ὑπέρζεστα, τὰ δὲ εὖ ἔχοντα κράσεως.
the(-others) and boiling-over the(-others) and well having of-mixture
Ὁμοίως δὲ καὶ τῶν πνευμάτων πολλὰ πολλαχοῦ γῆς
Likewise and also of-the breaths many in-many-places of-earth
στόμια ἀνέῳκται, ὧν τὰ μὲν ἐνθουσιᾶν ποιεῖ τοὺς
mouths are-opened of-which the(-ones) indeed to-be-inspired make the(-ones)
ἐμπελάζοντας, τὰ δὲ ἀτροφεῖν, τὰ δὲ χρησμῳδεῖν,
approaching the(-others) and to-waste-away the(-others) and to-chant-oracles
ὥσπερ τὰ ἐν Δελφοῖς καὶ Λεβαδίᾳ· τὰ δὲ καὶ
just-as the(-ones) at Delphi and Lebadea the(-others) and even
παντάπασιν ἀναιρεῖ, καθάπερ τὸ ἐν Φρυγίᾳ. Πολλάκις
altogether destroy just-as the(-one) in Phrygia Often
δὲ καὶ συγγενὲς πνεῦμα εὔκρατον ἐν γῇ παρεξωσθὲν
and also kindred breath well-tempered in earth forced-aside
εἰς μυχίους σήραγγας αὐτῆς, ἔξεδρον γενόμενον ἐκ τῶν
into inmost caverns of-it displaced having-become from the
οἰκείων τόπων, πολλὰ μέρη συνεκράδανεν.
proper places many parts shook
Πολλάκις δὲ πολὺ γενόμενον ἔξωθεν ἐγκατειλήθη τοῖς
Often and much having-become from-outside was-shut-in in-the
ταύτης κοιλώμασι, καὶ ἀποκλεισθὲν ἐξόδου μετὰ βίας αὐτὴν
of-this hollows and shut-off from-exit with force it
συνετίναξε, ζητοῦν ἔξοδον ἑαυτῷ, καὶ ἀπειργάσατο πάθος
shook seeking exit for-itself and produced affection

τοῦτο ὃ καλεῖν εἰώθαμεν σεισμόν. Τῶν δὲ σεισμῶν
this which to-call we-are-accustomed earthquake Of-the and earthquakes
οἱ μὲν εἰς πλάγια σείοντες κατ᾽ ὀξείας γωνίας
the(-ones) indeed toward sides shaking at acute angles
ἐπικλίνται καλοῦνται, οἱ δὲ ἄνω ῥιπτοῦντες καὶ κάτω
tilters are-called the(-ones) and upward tossing and downward
κατ᾽ ὀρθὰς γωνίας βράσται, οἱ δὲ συνιζήσεις ποιοῦντες
at right angles heavers the(-ones) and settlings making
εἰς τὰ κοῖλα χασματίαι· οἱ δὲ χάσματα ἀνοίγοντες
into the hollows sinkers the(-ones) and chasms opening
καὶ γῆν ἀναρρηγνύντες ῥῆκται καλοῦνται. Τούτων δὲ
and earth tearing-up breakers are-called Of-these and
οἱ μὲν καὶ πνεῦμα προσαναβάλλουσιν, οἱ δὲ
the(-ones) indeed also breath throw-up-besides the(-ones) and
πέτρας, οἱ δὲ πηλόν, οἱ δὲ πηγὰς φαίνουσι τὰς
rocks the(-ones) and mud the(-ones) and springs reveal the(-ones)
πρότερον οὐκ οὔσας. Τινὲς δὲ ἀνατρέποντες κατὰ μίαν
before not being Some and overturning by one
πρόωσιν, οὓς καλοῦσιν ὤστας. Οἱ δὲ ἀναπάλλοντες
thrust whom they-call thrusters The(-ones) and swinging-up
καὶ ταῖς εἰς ἑκάτερον ἐγκλίσεσι καὶ ἀναπάλσεσι διορθοῦντες
and by-the to each(-side) tiltings and swings righting
ἀεὶ τὸ σειόμενον παλματίαι λέγονται, τρόμῳ πάθος
always the(-thing) shaken quiverers are-called to-tremor affection
ὅμοιον ἀπεργαζόμενοι. Γίνονται δὲ καὶ μυκητίαι σεισμοί,
like producing Come-about and also bellowing earthquakes
σείοντες τὴν γῆν μετὰ βρόμου. Πολλάκις δὲ χωρὶς
shaking the earth with roar Often and without
σεισμοῦ γίνεται μύκημα γῆς, ὅταν τὸ πνεῦμα σείειν μὲν
earthquake comes-about bellowing of-earth when the breath to-shake indeed
μὴ ᾖ αὔταρκες, ἐνειλούμενον δ᾽ ἐν αὐτῇ κόπτηται μετὰ
not be sufficient rolling-within but in it be-beaten with

ῥοθίου βίας. Συσσωματοποιεῖται δὲ τὰ εἰσιόντα πνεύματα
rushing force Are-embodied and the entering breaths
καὶ ὑπὸ τῶν ἐν τῇ γῇ ὑγρῶν κεκρυμμένων.
also by the in the earth moistures hidden
Τὰ δὲ ἀνάλογον συμπίπτει τούτοις καὶ ἐν θαλάσσῃ·
The(-things) and analogous happen to-these also in sea
χάσματά τε γὰρ γίνεται θαλάσσης καὶ ἀναχωρήματα
chasms both for come-about of-sea and retreats
πολλάκις, καὶ κυμάτων ἐπιδρομαί, ποτὲ μὲν ἀντανακοπὴν
often and of-waves inrushes at-times indeed recoil
ἔχουσαι, ποτὲ δὲ πρόωσιν μόνον, ὥσπερ ἱστορεῖται περὶ
having at-times but forward-thrust only just-as is-recorded about
Ἑλίκην τε καὶ Βούραν. Πολλάκις δὲ καὶ ἀναφυσήματα
Helice both and Bura Often and also blowings-up
γίνεται πυρὸς ἐν τῇ θαλάσσῃ, καὶ πηγῶν ἀναβλύσεις
come-about of-fire in the sea and of-springs gushings
καὶ ποταμῶν ἐκβολαὶ καὶ δένδρων ἐκφύσεις, ῥοαί τε
and of-rivers outpourings and of-trees growths currents both
καὶ δῖναι ταῖς τῶν πνευμάτων ἀνάλογον, αἱ μὲν
and eddies to-the(-ones) of-the breaths analogous the(-ones) indeed
ἐν μέσοις πελάγεσιν, αἱ δὲ κατὰ τοὺς εὐρίπους
in mid seas the(-others) and at the narrows
τε καὶ πορθμούς. Πολλαί τε ἀμπώτεις λέγονται καὶ
both and straits Many and ebbs are-said and
κυμάτων ἄρσεις συμπεριοδεύειν ἀεὶ τῇ σελήνῃ κατά τινας
of-waves risings to-go-round-with always the moon at some
ὡρισμένους καιρούς. Ὡς δὲ τὸ πᾶν εἰπεῖν, τῶν στοιχείων
fixed times As and the all to-say the elements
ἐγκεκραμένων ἀλλήλοις, ἐν ἀέρι τε καὶ γῇ καὶ θαλάσσῃ
being-mixed with-one-another in air both and earth and sea
κατὰ τὸ εἰκὸς αἱ τῶν παθῶν ὁμοιότητες συνίστανται,
according-to the likely the of-the affections likenesses arise

τοῖς μὲν ἐπὶ μέρους φθορὰς καὶ γενέσεις φέρουσαι,
to-the(-things) indeed in part destructions and comings-to-be bringing
τὸ δὲ σύμπαν ἀνώλεθρόν τε καὶ ἀγένητον φυλάττουσαι.
the but whole indestructible both and ungenerated preserving

V · ONE HARMONY FROM OPPOSITES

One may wonder how a cosmos made of opposites has not perished, as one may wonder how a city of rich and poor endures. Nature makes concord from opposites, male with female, as painting mixes colors, music notes, and writing vowels and consonants; as Heraclitus says, from all things one and from one all. One harmony, the equal balance of the elements, preserves the whole. Nothing surpasses the cosmos in order and power, all life comes from it, and its storms, earthquakes, floods, and fires keep it indestructible forever.

Καίτοι γέ τις ἐθαύμασε πῶς ποτέ, εἰ ἐκ τῶν ἐναντίων
And-yet at-least someone has-wondered how ever if from the opposite
ἀρχῶν συνέστηκεν ὁ κόσμος, λέγω δὴ ξηρῶν τε καὶ
principles is-composed the cosmos I-mean indeed dry both and
ὑγρῶν ψυχρῶν τε καὶ θερμῶν, οὐ πάλαι διέφθαρται καὶ
moist cold both and hot not long-ago it-has-been-destroyed and
ἀπόλωλεν, ὡς κἂν εἰ πόλιν τινὲς θαυμάζοιεν, ὅπως διαμένει
perished as even if city some should-wonder how it-endures
συνεστηκυῖα ἐκ τῶν ἐναντίων ἐθνῶν, πενήτων λέγω καὶ
composed from the opposite classes poor I-mean and
πλουσίων, νέων γερόντων, ἀσθενῶν ἰσχυρῶν, πονηρῶν
rich young old weak strong bad
χρηστῶν. Ἀγνοοῦσι δὲ ὅτι τοῦτ' ἦν πολιτικῆς ὁμονοίας τὸ
good They-are-ignorant but that this was of-civic concord the
θαυμασιώτατον, λέγω δὲ ὅτι ἐκ πολλῶν μίαν καὶ ὁμοίαν ἐξ
most-wonderful(-thing) I-mean and that from many one and like from

ἀνομοίων ἀποτελεῖ διάθεσιν, ὑποδεχομένη πᾶσαν καὶ φύσιν
unlike it-produces disposition admitting every both nature
καὶ τύχην. Ἴσως δὲ καὶ τῶν ἐναντίων ἡ φύσις γλίχεται,
and fortune Perhaps and also for-the opposites the nature longs
καὶ ἐκ τούτων ἀποτελεῖ τὸ σύμφωνον, οὐκ ἐκ τῶν ὁμοίων,
and from these produces the concordant not from the like
ὥσπερ ἀμέλει τὸ ἄρρεν συνήγαγε πρὸς τὸ θῆλυ καὶ οὐχ
just-as of-course the male it-joined to the female and not
ἑκάτερον πρὸς τὸ ὁμόφυλον, καὶ τὴν πρώτην ὁμόνοιαν διὰ
each to the same-kind and the first concord through
τῶν ἐναντίων συνῆψεν, οὐ διὰ τῶν ὁμοίων. Ἔοικε δὲ καὶ ἡ
the opposites it-joined not through the like Seems and also the
τέχνη τὴν φύσιν μιμουμένη τοῦτο ποιεῖν· ζωγραφία μὲν γὰρ
art the nature imitating this to-do painting indeed for
λευκῶν τε καὶ μελάνων ὠχρῶν τε καὶ ἐρυθρῶν χρωμάτων
of-white both and black yellow both and red colors
ἐγκερασαμένη φύσεις τὰς εἰκόνας τοῖς προηγουμένοις
having-mixed natures the images with-the originals
ἀπετέλεσε συμφώνους, μουσικὴ δὲ ὀξεῖς ἅμα καὶ βαρεῖς
made concordant music and high at-once and low
μακρούς τε καὶ βραχεῖς φθόγγους μίξασα ἐν διαφόροις
long both and short notes having-mixed in different
φωναῖς μίαν ἀπετέλεσεν ἁρμονίαν, γραμματικὴ δὲ ἐκ
voices one produced harmony grammar and from
φωνηέντων καὶ ἀφώνων γραμμάτων κρᾶσιν ποιησαμένη τὴν
vowels and mute letters mixture having-made the
ὅλην τέχνην ἀπ᾽ αὐτῶν συνεστήσατο. Ταὐτὸ δὲ τοῦτο ἦν καὶ
whole art from them composed The-same and this was also
τὸ παρὰ τῷ σκοτεινῷ λεγόμενον Ἡρακλείτῳ “συνάψειας
the(-thing) by the obscure said Heraclitus you-should-join

οὖλα καὶ οὐχὶ οὖλα, συμφερόμενον καὶ διαφερόμενον,
wholes and not wholes converging and diverging
συνᾷδον καὶ διᾷδον· καὶ ἐκ πάντων ἕν, καὶ ἐξ ἑνὸς πάντα.”
consonant and dissonant and from all one and from one all
Οὕτως οὖν καὶ τὴν τῶν ὅλων σύστασιν, οὐρανοῦ λέγω καὶ
So then also the of-the whole structure of-heaven I-mean and
γῆς τοῦ τε σύμπαντος κόσμου, διὰ τῆς τῶν ἐναντιωτάτων
of-earth the and whole cosmos through the of-the most-opposite
ἀρχῶν κράσεως μία διεκόσμησεν ἁρμονία· ξηρὸν γὰρ ὑγρῷ,
principles mixture one ordered harmony dry for with-moist
θερμὸν δὲ ψυχρῷ βαρεῖ τε κοῦφον μιγέν, καὶ ὀρθὸν
hot and with-cold with-heavy and light mixed and straight
περιφερεῖ, γῆν τε πᾶσαν καὶ θάλασσαν αἰθέρα τε καὶ ἥλιον
with-curved earth both all and sea aether both and sun
καὶ σελήνην καὶ τὸν ὅλον οὐρανὸν διεκόσμησε μία ἡ διὰ
and moon and the whole heaven ordered one the through
πάντων διήκουσα δύναμις, ἐκ τῶν ἀμίκτων καὶ ἑτεροίων,
all pervading power from the unmixed and different
ἀέρος τε καὶ γῆς καὶ πυρὸς καὶ ὕδατος, τὸν σύμπαντα
air both and earth and fire and water the whole
κόσμον δημιουργήσασα καὶ μιᾷ διαλαβοῦσα σφαίρας
cosmos having-fashioned and in-one having-enclosed of-sphere
ἐπιφανείᾳ, τάς τε ἐναντιωτάτας ἐν αὐτῷ φύσεις ἀλλήλαις
surface the and most-opposite in it natures with-one-another
ἀναγκάσασα ὁμολογῆσαι, καὶ ἐκ τούτων μηχανησαμένη
having-compelled to-agree and from these having-contrived
τῷ παντὶ σωτηρίαν. Αἰτία δὲ ταύτης μὲν ἡ τῶν
for-the whole preservation Cause and of-this indeed the of-the
στοιχείων ὁμολογία, τῆς δὲ ὁμολογίας ἡ ἰσομοιρία καὶ τὸ
elements agreement of-the and agreement the equal-sharing and the
μηδὲν αὐτῶν πλέον ἕτερον ἑτέρου δύνασθαι· τὴν γὰρ ἴσην
nothing of-them more one than-another to-be-able the for equal

ἀντίστασιν ἔχει τὰ βαρέα πρὸς τὰ κοῦφα καὶ τὰ θερμὰ πρὸς
resistance have the heavy to the light and the hot to
τὰ θάτερα, τῆς φύσεως ἐπὶ τῶν μειζόνων διδασκούσης
the other(-ones) the nature in-the-case-of the greater teaching
ὅτι τὸ ἴσον σωστικόν πώς ἐστιν ὁμονοίας, ἡ δὲ ὁμόνοια
that the equal preservative somehow is of-concord the and concord
τοῦ πάντων γενετῆρος καὶ περικαλλεστάτου κόσμου.
of-the of-all begetter and most-beautiful cosmos
Τίς γὰρ ἂν εἴη φύσις τοῦδε κρείττων; Ἣν γὰρ ἂν
What for — would-be nature than-this better Which for —
εἴποι τις, μέρος ἐστὶν αὐτοῦ. Τό τε καλὸν πᾶν ἐπώνυμόν
would-name someone part is of-it The both fine all named
ἐστι τούτου, καὶ τὸ τεταγμένον, ἀπὸ τοῦ κόσμου λεγόμενον
is after-this and the ordered from the cosmos called
κεκοσμῆσθαι. Τίς δὲ τῶν ἐπὶ μέρους δύναιτ' ἂν ἐξισωθῆναι
to-be-adorned What and of-the in part could — be-made-equal
τῇ κατ' οὐρανὸν τάξει τε καὶ φορᾷ τῶν ἄστρων ἡλίου
to-the in heaven order both and course of-the stars sun
τε καὶ σελήνης, κινουμένων ἐν ἀκριβεστάτοις μέτροις ἐξ
both and moon moving in most-exact measures from
αἰῶνος εἰς ἕτερον αἰῶνα. Τίς δὲ γένοιτ' ἂν ἀψεύδεια τοιάδε,
age to another age What and could-be — reliability such
ἥν τινα φυλάττουσιν αἱ καλαὶ καὶ γόνιμοι τῶν ὅλων ὧραι,
which — keep the fine and fruitful of-the whole seasons
θέρη τε καὶ χειμῶνας ἐπάγουσαι τεταγμένως, ἡμέρας τε
summers both and winters bringing-on in-order days both
καὶ νύκτας, εἰς μηνὸς ἀποτέλεσμα καὶ ἐνιαυτοῦ; Καὶ μὴν
and nights to of-month completion and of-year And truly
μεγέθει μὲν ὁ αὐτὸς πανυπέρτατος, κινήσει δὲ ὀξύτατος,
in-size indeed the same supreme in-motion and swiftest
λαμπρότητι δὲ εὐαυγέστατος, δυνάμει δὲ ἀγήρως τε καὶ
in-brightness and most-radiant in-power and ageless both and

ἄφθαρτος. Οὗτος ἐναλίων ζῴων καὶ πεζῶν καὶ ἀερίων
indestructible This of-sea animals and of-land and of-air
φύσεις ἐχώρισε καὶ βίους ἐμέτρησε ταῖς ἑαυτοῦ κινήσεσιν.
natures separated and lives measured by-the of-itself motions
Ἐκ τούτου πάντα ἐμπνεῖ τε καὶ ψυχὴν ἴσχει τὰ ζῷα.
From this all breathe both and soul have the animals
Τούτου καὶ αἱ παράδοξοι νεοχμώσεις τεταγμένως
Of-this also the unexpected innovations in-order
ἀποτελοῦνται, συναραττόντων μὲν ἀνέμων παντοίων,
are-accomplished clashing-together indeed winds of-all-sorts
πιπτόντων δὲ ἐξ οὐρανοῦ κεραυνῶν, ῥηγνυμένων δὲ
falling and from heaven thunderbolts bursting and
χειμώνων ἐξαισίων. Διὰ δὲ τούτων τὸ νοτερὸν ἐκπιεζόμενον
storms extraordinary Through and these the moist being-squeezed-out
τό τε πυρῶδες διαπνεόμενον εἰς ὁμόνοιαν ἄγει τὸ πᾶν
the and fiery being-dispersed into concord brings the whole
καὶ καθίστησιν. Ἥ τε γῆ φυτοῖς κομῶσα παντοδαποῖς,
and settles The and earth with-plants leafy of-all-kinds
νάμασί τε περιβλύζουσα καὶ περιοχουμένη ζῴοις, κατὰ
with-streams and bubbling-over and being-ridden-over with-animals in
καιρὸν ἐκφύουσά τε πάντα καὶ τρέφουσα καὶ δεχομένη,
season producing both all and nourishing and receiving
μυρίας τε φέρουσα ἰδέας καὶ πάθη, τὴν ἀγήρω φύσιν ὁμοίως
countless and bearing forms and affections the ageless nature likewise
τηρεῖ, καίτοι καὶ σεισμοῖς τινασσομένη καὶ πλημυρίσιν
keeps although both by-earthquakes being-shaken and by-floods
ἐπικλυζομένη, πυρκαϊαῖς τε κατὰ μέρος φλογιζομένη. Ταῦτα
being-inundated by-fires and in part being-burned These
δὲ πάντα ἔοικεν αὐτῇ πρὸς ἀγαθοῦ γινόμενα τὴν δι᾽
and all seem for-it for good happening the through
αἰῶνος σωτηρίαν παρέχειν· σειομένης τε γὰρ διεξάττουσιν
eternity preservation to-provide being-shaken and for rush-out

αἱ τῶν πνευμάτων παρεμπτώσεις κατὰ τὰ ῥήγματα τὰς
the of-the breaths intrusions through the rifts the
ἀναπνοὰς ἴσχουσαι, καθὼς ἄνω λέλεκται, καθαιρομένη τε
vents having as above has-been-said being-cleansed and
ὄμβροις ἀποκλύζεται πάντα τὰ νοσώδη, περιπνεομένη
by-showers is-washed-off all the diseased(-things) being-blown-around
δὲ αὔραις τά τε ὑπ᾽ αὐτὴν καὶ τὰ ὑπὲρ αὐτὴν
and by-breezes the(-things) both under it and the(-things) above it
εἰλικρινεῖται. Καὶ μὴν αἱ φλόγες μὲν τὸ παγετῶδες
are-purified And truly the flames indeed the icy
πιαίνουσιν, οἱ πάγοι δὲ τὰς φλόγας ἀνιᾶσιν. Καὶ τῶν ἐπὶ
soften the frosts and the flames slacken And of-the in
μέρους τὰ μὲν γίνεται, τὰ δὲ ἀκμάζει, τὰ δὲ
part the(-ones) indeed come-to-be the(-others) and flourish the(-others) and
φθείρεται· καὶ αἱ μὲν γενέσεις ἐπαναστέλλουσι τὰς φθοράς,
perish and the indeed comings-to-be check the destructions
αἱ δὲ φθοραὶ κουφίζουσι τὰς γενέσεις. Μία δὲ ἐκ πάντων
the and destructions lighten the comings-to-be One and from all
περαινομένη σωτηρία διὰ τέλους, ἀντιπερισταμένων
being-accomplished preservation through end interchanging
ἀλλήλοις καὶ τοτὲ μὲν κρατούντων τοτὲ δὲ
with-one-another and at-one-time indeed prevailing at-another but
κρατουμένων, φυλάττει τὸ σύμπαν ἄφθαρτον δι᾽ αἰῶνος.
being-overcome keeps the whole indestructible through eternity

God preserves and begets all, not toiling but using an untiring power from the highest heaven. Like the Persian king in Susa, served by guards, runners, and beacons, he does nothing with his own hands; like a puppeteer or a chorus leader, he moves all by one simple motion, each thing after its own nature. Invisible, he is seen in his works, dwelling in the pure heaven, which never changes while the earth suffers earthquakes, floods, and fires. He is to the cosmos what law is to a city.

Λοιπὸν δὲ δὴ περὶ τῆς τῶν ὅλων συνεκτικῆς αἰτίας
Remaining and indeed about the of-the whole cohesive cause
κεφαλαιωδῶς εἰπεῖν, ὃν τρόπον καὶ περὶ τῶν ἄλλων·
summarily to-speak in-which manner also about the others
πλημμελὲς γὰρ περὶ κόσμου λέγοντας, εἰ καὶ μὴ δι᾽
amiss for about cosmos speaking if even not with
ἀκριβείας, ἀλλ᾽ οὖν γε ὡς εἰς τυπώδη μάθησιν, τὸ τοῦ
precision but then at-least as for outline learning the of-the
κόσμου κυριώτατον παραλιπεῖν. Ἀρχαῖος μὲν οὖν τις
cosmos most-sovereign(-thing) to-leave-out Ancient indeed then some
λόγος καὶ πάτριός ἐστι πᾶσιν ἀνθρώποις ὡς ἐκ θεοῦ πάντα
account and ancestral is to-all men that from god all
καὶ διὰ θεοῦ ἡμῖν συνέστηκεν, οὐδεμία δὲ φύσις αὐτὴ
and through god for-us are-composed no and nature itself
καθ᾽ ἑαυτήν ἐστιν αὐτάρκης, ἐρημωθεῖσα τῆς ἐκ τούτου
by itself is self-sufficient bereft of-the from him
σωτηρίας. Διὸ καὶ τῶν παλαιῶν εἰπεῖν τινὲς προήχθησαν
preservation Wherefore also of-the ancients to-say some were-led
ὅτι πάντα ταῦτά ἐστι θεῶν πλέα τὰ καὶ δι᾽ ὀφθαλμῶν
that all these are of-gods full the(-things) both through eyes
ἐνδαλλόμενα ἡμῖν καὶ δι᾽ ἀκοῆς καὶ πάσης αἰσθήσεως,
appearing to-us and through hearing and every sense
τῇ μὲν θείᾳ δυνάμει πρέποντα καταβαλλόμενοι λόγον, οὐ
to-the indeed divine power fitting setting-forth account not

μὴν τῇ γε οὐσίᾳ. Σωτὴρ μὲν γὰρ ὄντως ἁπάντων ἐστὶ
truly to-the at-least substance Preserver indeed for truly of-all is
καὶ γενέτωρ τῶν ὁπωσδήποτε κατὰ τόνδε τὸν κόσμον
and begetter of-the(-things) in-whatever-way in this the cosmos
συντελουμένων ὁ θεός, οὐ μὴν αὐτουργοῦ καὶ ἐπιπόνου
being-accomplished the god not truly self-working and toiling
ζῴου κάματον ὑπομένων, ἀλλὰ δυνάμει χρώμενος ἀτρύτῳ,
creature labor enduring but power using untiring
δι᾽ ἧς καὶ τῶν πόρρω δοκούντων εἶναι περιγίνεται.
through which even of-the(-things) far seeming to-be he-prevails-over
Τὴν μὲν οὖν ἀνωτάτω καὶ πρώτην ἕδραν αὐτὸς ἔλαχεν,
The indeed then highest and first seat he-himself obtained
ὕπατός τε διὰ τοῦτο ὠνόμασται, καὶ κατὰ τὸν
highest and because-of this he-has-been-named and according-to the
ποιητὴν ἀκροτάτῃ κορυφῇ τοῦ σύμπαντος ἐγκαθιδρυμένος
poet on-the-topmost peak of-the whole seated
οὐρανοῦ· μάλιστα δέ πως αὐτοῦ τῆς δυνάμεως ἀπολαύει
heaven most and somehow of-him the power enjoys
τὸ πλησίον αὐτοῦ σῶμα, καὶ ἔπειτα τὸ μετ᾽ ἐκεῖνο, καὶ
the near him body and then the(-one) after that and
ἐφεξῆς οὕτως ἄχρι τῶν καθ᾽ ἡμᾶς τόπων. Διὸ γῇ
in-succession so as-far-as the around us places Wherefore earth
τε καὶ τὰ ἐπὶ τῆς γῆς ἔοικεν ἐν ἀποστάσει πλείστῃ
both and the(-things) on the earth seem in distance greatest
τῆς ἐκ θεοῦ ὄντα ὠφελείας ἀσθενῆ καὶ ἀκατάλληλα
from-the from god being benefit weak and incoherent
εἶναι καὶ πολλῆς μεστὰ ταραχῆς· οὐ μὴν ἀλλὰ καὶ καθ᾽
to-be and much full of-confusion not truly but also as
ὅσον ἐπὶ πᾶν διικνεῖσθαι πέφυκεν τὸ θεῖον, καὶ τὰ
far-as to all to-reach is-by-nature the divine both the(-things)
καθ᾽ ἡμᾶς ὁμοίως συμβαίνει· τά τε ὑπὲρ ἡμᾶς
around us likewise happen the(-things) and above us

κατὰ τὸ ἔγγιόν τε καὶ πορρωτέρω θεοῦ εἶναι μᾶλλόν
according-to the nearer both and farther from-god to-be more
τε καὶ ἧττον ὠφελείας μεταλαμβάνοντα. Κρεῖττον οὖν
both and less of-benefit partaking Better then
ὑπολαβεῖν, ὃ καὶ πρέπον ἐστὶ καὶ θεῷ μάλιστα ἁρμόζον,
to-suppose which both fitting is and to-god most suiting
ὡς ἡ ἐν οὐρανῷ δύναμις ἱδρυμένη καὶ τοῖς πλεῖστον
that the in heaven power seated also to-the(-things) most
ἀφεστηκόσιν, ὡς ἔνι γε εἰπεῖν, καὶ σύμπασιν αἰτία
standing-away as is-possible at-least to-say and to-all cause
γίνεται σωτηρίας, μᾶλλον ἢ ὡς διήκουσα καὶ φοιτῶσα
becomes of-preservation rather than as pervading and going
ἔνθα μὴ καλὸν μηδὲ εὔσχημον αὐτουργεῖ τὰ ἐπὶ γῆς.
where not fine nor seemly it-works-itself the(-things) on earth
Τοῦτο μὲν γὰρ οὐδὲ ἀνθρώπων ἡγεμόσιν ἁρμόττει, παντὶ
This indeed for not-even of-men for-leaders suits every
καὶ τῷ τυχόντι ἐφίστασθαι ἔργῳ, οἷον στρατιᾶς ἄρχοντι ἢ
and the chance to-oversee task such-as of-army to-a-commander or
πόλεως ἢ οἴκου καὶ εἰ χρεὼν στρωματόδεσμον εἴη δῆσαι,
of-city or of-house even if need bedding-bundle there-were to-tie
καὶ εἴ τι φαυλότερον ἀποτελεῖν ἔργον, ὃ ἐπὶ τοῦ
and if any meaner to-accomplish task which in-the-case-of the
μεγάλου βασιλέως οὐκ ἂν τὸ τυχὸν ἀνδράποδον ποιήσειεν·
great king not — the chance slave would-do
ἀλλ' οἷον ἱστορεῖτο Καμβύσου Ξέρξου τε καὶ Δαρείου
but as was-recorded of-Cambyses of-Xerxes both and of-Darius
πρόσχημα, εἰς σεμνότητος καὶ ὑπεροχῆς ὕψος μεγαλοπρεπῶς
state to of-majesty and of-preeminence height magnificently
διεκεκόσμητο. Αὐτὸς μὲν γάρ, ὡς λόγος, ἵδρυτο ἐν
was-arranged He-himself indeed for as story was-seated in
Σούσοις ἢ Ἐκβατάνοις, παντὶ ἀόρατος, θαυμαστὸν ἐπέχων
Susa or Ecbatana to-everyone invisible wondrous occupying

βασίλειον οἶκον καὶ περίβολον χρυσῷ καὶ ἠλέκτρῳ καὶ
royal house and enclosure with-gold and electrum and
ἐλέφαντι ἀστράπτοντα· πυλῶνες δὲ πολλοὶ καὶ συνεχεῖς,
ivory flashing gateways and many and successive
πρόθυρά τε συχνοῖς εἰργόμενα σταδίοις ἀπ᾽ ἀλλήλων θύραις
porches and by-many shut-off stades from one-another with-doors
τε χαλκαῖς καὶ τείχεσι μεγάλοις ὠχύρωτο· ἔξω δὲ τούτων
both bronze and walls great were-fortified outside and these
ἄνδρες οἱ πρῶτοι καὶ δοκιμώτατοι διεκεκόσμηντο, οἱ
men the first and most-esteemed were-arranged the(-ones)
μὲν ἀμφ᾽ αὐτὸν βασιλέα, δορυφόροι τε καὶ θεράποντες,
indeed around himself king bodyguards both and attendants
οἱ δὲ ἑκάστου περιβόλου φύλακες, πυλωροί τε καὶ
the(-others) and of-each enclosure guards gatekeepers both and
ὠτακουσταὶ λεγόμενοι, ὡς ἂν ὁ βασιλεὺς αὐτὸς δεσπότης
listeners called so-that — the king himself master
καὶ θεὸς ὀνομαζόμενος πάντα μὲν βλέποι, πάντα δ᾽ ἀκούοι.
and god named all indeed might-see all and might-hear
Χωρὶς δὲ τούτων ἄλλοι καθεστήκεσαν προσόδων ταμίαι,
Apart and from-these others had-been-appointed of-revenues stewards
καὶ στρατηγοὶ πολέμων καὶ κυνηγεσίων, δώρων τε
and generals of-wars and of-hunts of-gifts and
ἀποδεκτῆρες, τῶν τε λοιπῶν ἔργων ἕκαστοι κατὰ τὰς
receivers of-the and remaining tasks each according-to the
χρείας ἐπιμεληταί. Τὴν δὲ σύμπασαν ἀρχὴν τῆς Ἀσίας,
needs overseers The and whole empire of-the Asia
περατουμένην Ἑλλησπόντῳ μὲν ἐκ τῶν πρὸς ἑσπέραν
bounded by-Hellespont indeed from the toward west
μερῶν, Ἰνδῷ δὲ ἐκ τῶν πρὸς ἕω, διειλήφεσαν κατὰ ἔθνη
parts by-Indus and from the toward east had-divided by nations
στρατηγοὶ καὶ σατράπαι καὶ βασιλεῖς δοῦλοι τοῦ μεγάλου
generals and satraps and kings slaves of-the great

βασιλέως, ἡμεροδρόμοι τε καὶ σκοποὶ καὶ ἀγγελιαφόροι
king day-runners both and watchmen and messengers
φρυκτωριῶν τε ἐποπτῆρες. Τοσοῦτος δὲ ἦν ὁ κόσμος, καὶ
of-beacons and overseers So-great and was the order and
μάλιστα τῶν φρυκτωριῶν, κατὰ διαδοχὰς πυρσευουσῶν
most of-the beacons in successions signaling
ἀλλήλαις ἐκ περάτων τῆς ἀρχῆς μέχρι Σούσων καὶ
to-one-another from ends of-the empire as-far-as Susa and
Ἐκβατάνων, ὥστε τὸν βασιλέα γινώσκειν αὐθημερὸν πάντα
Ecbatana so-that the king to-know the-same-day all
τὰ ἐν τῇ Ἀσίᾳ καινουργούμενα. Νομιστέον δὴ τὴν τοῦ
the(-things) in the Asia being-innovated One-must-consider indeed the of-the
μεγάλου βασιλέως ὑπεροχὴν πρὸς τὴν τοῦ τὸν κόσμον
great king preeminence compared-to the(-one) of-the the cosmos
ἐπέχοντος θεοῦ τοσοῦτον καταδεεστέραν ὅσον τῆς
holding god so-much inferior as-much-as than-the
ἐκείνου τὴν τοῦ φαυλοτάτου τε καὶ ἀσθενεστάτου ζῴου,
of-that-one the(-one) of-the meanest both and weakest creature
ὥστε εἴπερ ἄσεμνον ἦν αὐτῷ αὐτὸν δοκεῖν Ξέρξην αὐτουργεῖν
so-that if-indeed unbecoming was for-him himself to-seem Xerxes to-work-himself
ἅπαντα καὶ ἐπιτελεῖν ἃ βούλοιτο καὶ ἐφιστάμενον διοικεῖν,
all and to-accomplish what he-wished and overseeing to-administer
πολὺ μᾶλλον ἀπρεπὲς ἂν εἴη θεῷ· σεμνότερον δὲ καὶ
much more unfitting — would-be for-god more-majestic but and
πρεπωδέστερον αὐτὸν μὲν ἐπὶ τῆς ἀνωτάτω χώρας ἱδρῦσθαι,
more-fitting himself indeed in the highest region to-be-seated
τὴν δὲ δύναμιν διὰ τοῦ σύμπαντος κόσμου διήκουσαν ἥλιόν
the and power through the whole cosmos pervading sun
τε κινεῖν καὶ σελήνην, καὶ τὸν πάντα οὐρανὸν περιάγειν,
both to-move and moon and the whole heaven to-turn
αἴτιόν τε γίνεσθαι τοῖς ἐπὶ τῆς γῆς σωτηρίας.
cause and to-become for-the(-things) on the earth of-preservation

Οὐδὲν γὰρ ἐπιτεχνήσεως αὐτῷ δεῖ καὶ ὑπηρεσίας τῆς
Nothing for of-contrivance for-him is-needed and of-service the(-one)
παρ᾽ ἑτέρων, ὥσπερ τοῖς παρ᾽ ἡμῖν ἄρχουσι τῆς πολυχειρίας
from others just-as for-the among us rulers the many-handedness
διὰ τὴν ἀσθένειαν· ἀλλὰ τοῦτο ἦν τὸ θειότατον,
because-of the weakness but this was the most-divine
τὸ μετὰ ῥᾳστώνης καὶ ἁπλῆς κινήσεως παντοδαπὰς
the(-thing) with ease and simple motion of-all-kinds
ἀποτελεῖν ἰδέας, ὥσπερ ἀμέλει δρῶσιν οἱ μεγαλότεχνοι,
to-produce forms just-as of-course do the master-craftsmen
διὰ μιᾶς ὀργάνου σχαστηρίας πολλὰς καὶ ποικίλας
through one of-machine release many and various
ἐνεργείας ἀποτελοῦντες. Ὁμοίως δὲ καὶ οἱ νευροσπάσται
operations producing Likewise and also the puppeteers
μίαν μήρινθον ἐπισπασάμενοι ποιοῦσι καὶ αὐχένα κινεῖσθαι
one string having-pulled make both neck to-move
καὶ χεῖρα τοῦ ζῴου καὶ ὦμον καὶ ὀφθαλμόν, ἔστι δὲ ὅτε
and hand of-the figure and shoulder and eye it-is and when
πάντα τὰ μέρη, μετά τινος εὐρυθμίας. Οὕτως οὖν καὶ ἡ
all the parts with some grace So then also the
θεία φύσις ἀπό τινος ἁπλῆς κινήσεως τοῦ πρώτου τὴν
divine nature from some simple motion of-the first the
δύναμιν εἰς τὰ ξυνεχῆ δίδωσι, καὶ ἀπ᾽ ἐκείνων πάλιν εἰς τὰ
power to the adjacent gives and from those again to the
πορρωτέρω, μέχρι ἂν διὰ τοῦ παντὸς διεξέλθῃ· κινηθὲν
farther until — through the whole it-pass moved
γὰρ ἕτερον ὑφ᾽ ἑτέρου καὶ αὐτὸ πάλιν ἐκίνησεν ἄλλο σὺν
for one by another also itself again moved another in
κόσμῳ, δρώντων μὲν πάντων οἰκείως ταῖς σφετέραις
order acting indeed all properly to-the own
κατασκευαῖς, οὐ τῆς αὐτῆς δὲ ὁδοῦ πᾶσιν οὔσης, ἀλλὰ
constitutions not the same but road for-all being but

διαφόρου καὶ ἑτεροίας, ἔστι δὲ οἷς καὶ ἐναντίας, καίτοι
different and dissimilar it-is and for-some even opposite although
τῆς πρώτης οἷον ἐνδόσεως εἰς κίνησιν μίαν γενομένης,
the first as-it-were impulse to motion one having-come-about
ὥσπερ ἂν εἴ τις ἐξ ἀγγους ὁμοῦ ῥίψειε σφαῖραν
just-as — if someone from vessel together should-throw sphere
καὶ κύβον καὶ κῶνον καὶ κύλινδρον· ἕκαστον γὰρ αὐτῶν
and cube and cone and cylinder each for of-them
κατὰ τὸ ἴδιον κινηθήσεται σχῆμα· ἢ εἴ τις ὁμοῦ ζῷον
according-to the own will-be-moved shape or if someone together animal
ἔνυδρόν τε καὶ χερσαῖον καὶ πτηνὸν ἐν τοῖς κόλποις ἔχων
aquatic both and terrestrial and winged in the fold having
ἐκβάλοι· δῆλον γὰρ ὅτι τὸ μὲν νηκτὸν ἁλλόμενον
should-throw-out clear for that the(-one) indeed swimming leaping
εἰς τὴν ἑαυτοῦ δίαιταν ἐκνήξεται, τὸ δὲ χερσαῖον εἰς
into the of-itself habitat will-swim-off the and terrestrial to
τὰ σφέτερα ἤθη καὶ νομοὺς διεξερπύσει, τὸ δὲ ἀέριον
the own haunts and pastures will-creep-off the and aerial
ἐξαρθὲν ἐκ γῆς μετάρσιον οἰχήσεται πετόμενον, μιᾶς τῆς
having-risen from earth aloft will-go flying one the
πρώτης αἰτίας πᾶσιν ἀποδούσης τὴν οἰκείαν εὐμάρειαν.
first cause to-all having-given the proper ease
Οὕτως ἔχει καὶ ἐπὶ κόσμου· διὰ γὰρ ἁπλῆς
So it-is also in-the-case-of cosmos through for simple
τοῦ σύμπαντος οὐρανοῦ περιαγωγῆς ἡμέρᾳ καὶ νυκτὶ
of-the whole heaven revolution in-day and night
περατουμένης ἀλλοῖαι πάντων διέξοδοι γίνονται, καίτοι ὑπὸ
completed different of-all courses come-about although by
μιᾶς σφαίρας περιεχομένων, τῶν μὲν θᾶττον τῶν δὲ
one sphere being-contained the(-ones) indeed faster the(-others) and
σχολαιότερον κινουμένων παρά τε τὰ τῶν διαστημάτων
more-slowly moving because-of both the of-the intervals

μήκη καὶ τὰς ἰδίας ἑκάστων κατασκευάς. Σελήνη μὲν γὰρ
lengths and the own of-each constitutions Moon indeed for
ἐν μηνὶ τὸν ἑαυτῆς διαπεραίνεται κύκλον, αὐξομένη τε καὶ
in month the of-itself completes circle waxing both and
μειουμένη καὶ φθίνουσα, ἥλιος δὲ ἐν ἐνιαυτῷ καὶ οἱ τούτου
waning and dying-away sun and in year and the of-this
ἰσόδρομοι, ὅ τε Φωσφόρος καὶ ὁ Ἑρμῆς λεγόμενος, ὁ
equal-runners the both Phōsphoros and the Hermes called the
δὲ Πυρόεις ἐν διπλασίονι τούτων χρόνῳ, ὁ δὲ Διὸς
and Pyroeis in double than-these time the(-one) and of-Zeus
ἐν ἑξαπλασίονι τούτου, καὶ τελευταῖος ὁ τοῦ Κρόνου
in sixfold than-this and last the(-one) of-the Cronus
λεγόμενος ἐν διπλασίονι καὶ ἡμίσει τοῦ ὑποκάτω. Μία
called in double and half than-the(-one) below One
δὲ ἐκ πάντων ἁρμονία συνᾳδόντων καὶ χορευόντων κατὰ
and from all harmony singing-together and dancing in
τὸν οὐρανὸν ἐξ ἑνός τε γίνεται καὶ εἰς ἓν ἀπολήγει, κόσμον
the heaven from one both comes-about and into one ends cosmos
ἐτύμως τὸ σύμπαν ἀλλ᾽ οὐκ ἀκοσμίαν ὀνομάσασα. Καθάπερ
truly the whole but not disorder having-named Just-as
δὲ ἐν χορῷ κορυφαίου κατάρξαντος συνεπηχεῖ πᾶς ὁ
and in chorus leader having-begun sings-in-answer all the
χορὸς ἀνδρῶν, ἔσθ᾽ ὅτε καὶ γυναικῶν, ἐν διαφόροις φωναῖς
chorus of-men it-is when also of-women in different voices
ὀξυτέραις καὶ βαρυτέραις μίαν ἁρμονίαν ἐμμελῆ κεραννύντων,
higher and lower one harmony tuneful mixing
οὕτως ἔχει καὶ ἐπὶ τοῦ τὸ σύμπαν διέποντος θεοῦ·
so it-is also in-the-case-of the the whole governing god
κατὰ γὰρ τὸ ἄνωθεν ἐνδόσιμον ὑπὸ τοῦ φερωνύμως
according-to for the from-above signal by the(-one) aptly-named
ἂν κορυφαίου προσαγορευθέντος κινεῖται μὲν τὰ ἄστρα
— leader called move indeed the stars

ἀεὶ καὶ ὁ σύμπας οὐρανός, πορεύεται δὲ διττὰς πορείας
always and the whole heaven travels and double courses
ὁ παμφαὴς ἥλιος, τῇ μὲν ἡμέραν καὶ νύκτα διορίζων
the all-shining sun by-the(-one) indeed day and night dividing
ἀνατολῇ καὶ δύσει, τῇ δὲ τὰς τέσσαρας ὥρας ἄγων
by-rising and setting by-the(-other) and the four seasons leading
τοῦ ἔτους, πρόσω τε βόρειος καὶ ὀπίσω νότιος διεξέρπων.
of-the year forward both northward and back southward creeping
Γίνονται δὲ ὑετοὶ κατὰ καιρὸν καὶ ἄνεμοι καὶ δρόσοι, τά
Come-about and rains in season and winds and dews the
τε πάθη τὰ ἐν τῷ περιέχοντι συμβαίνοντα, διὰ
and affections the(-ones) in the surrounding happening because-of
τὴν πρώτην καὶ ἀρχαιόγονον αἰτίαν. Ἕπονται δὲ τούτοις
the first and primeval cause Follow and these
ποταμῶν ἐκροαί, θαλάσσης ἀνοιδήσεις, δένδρων ἐκφύσεις,
of-rivers outflows of-sea swellings of-trees growths
καρπῶν πεπάνσεις, γοναὶ ζῴων, ἐκτροφαί τε πάντων καὶ
of-fruits ripenings births of-animals rearings and of-all and
ἀκμαὶ καὶ φθίσεις, συμβαλλομένης πρὸς ταῦτα καὶ τῆς
primes and decays contributing to these also the
ἑκάστου κατασκευῆς, ὡς ἔφην. Ὅταν οὖν ὁ πάντων ἡγεμών
of-each constitution as I-said When then the of-all ruler
τε καὶ γενέτωρ, ἀόρατος ὢν ἄλλῳ πλὴν λογισμῷ, σημήνῃ
both and begetter invisible being to-other except reason gives-signal
πάσῃ φύσει μεταξὺ οὐρανοῦ τε καὶ γῆς φερομένῃ, κινεῖται
to-every nature between heaven both and earth moving it-moves
πᾶσα ἐνδελεχῶς ἐν κύκλοις καὶ πέρασιν ἰδίοις, ποτὲ μὲν
all continuously in circles and limits own at-times indeed
ἀφανιζομένη ποτὲ δὲ φαινομένη, μυρίας ἰδέας ἀναφαίνουσά
vanishing at-times but appearing countless forms revealing
τε καὶ πάλιν ἀποκρύπτουσα ἐκ μιᾶς ἀρχῆς. Ἔοικε δὲ
both and again hiding from one source Resembles and

κομιδῇ τὸ δρώμενον τοῖς ἐν πολέμου καιροῖς μάλιστα
very-much the(-thing) done the(-things) in of-war times most
γινομένοις, ἐπειδὰν ἡ σάλπιγξ σημήνῃ τῷ στρατοπέδῳ·
happening when the trumpet gives-signal to-the camp
τότε γὰρ τῆς φωνῆς ἕκαστος ἀκούσας ὁ μὲν ἀσπίδα
then for the sound each having-heard the(-one) indeed shield
ἀναιρεῖται, ὁ δὲ θώρακα ἐνδύεται, ὁ δὲ κνημῖδας ἢ
takes-up the(-other) and breastplate puts-on the(-other) and greaves or
κράνος ἢ ζωστῆρα περιτίθεται· καὶ ὁ μὲν ἵππον χαλινοῖ,
helmet or belt puts-around and the(-one) indeed horse bridles
ὁ δὲ συνωρίδα ἀναβαίνει, ὁ δὲ σύνθημα παρεγγυᾷ·
the(-other) and chariot mounts the(-other) and watchword passes-on
καθίσταται δὲ εὐθέως ὁ μὲν λοχαγὸς εἰς λόχον, ὁ δὲ
takes-position and at-once the indeed captain into company the and
ταξίαρχος εἰς τάξιν, ὁ δὲ ἱππεὺς ἐπὶ κέρας, ὁ δὲ ψιλὸς
taxiarch into rank the and horseman to wing the and light-armed
εἰς τὴν ἰδίαν ἐκτρέχει χώραν· πάντα δὲ ὑφ' ἕνα σημάντορα
into the own runs-out place all and under one signaler
δινεῖται κατὰ πρόσταξιν τοῦ τὸ κράτος ἔχοντος ἡγεμόνος.
is-whirled according-to command of-the the power having commander
Οὕτω χρὴ καὶ περὶ τοῦ σύμπαντος φρονεῖν· ὑπὸ γὰρ
So one-must also about the whole to-think by for
μιᾶς ῥοπῆς ὀτρυνομένων ἁπάντων γίνεται τὰ οἰκεῖα,
one impulse being-stirred all comes-about the proper(-things)
καὶ ταύτης ἀοράτου καὶ ἀφανοῦς. Ὅπερ οὐδαμῶς ἐστὶν
and this invisible and unseen Which-very in-no-way is
ἐμπόδιον οὔτε ἐκείνῃ πρὸς τὸ δρᾶν οὔτε ἡμῖν πρὸς τὸ
hindrance neither to-it for the to-act nor to-us for the
πιστεῦσαι· καὶ γὰρ ἡ ψυχή, δι' ἣν ζῶμέν τε καὶ οἴκους
to-believe also for the soul because-of which we-live both and houses
καὶ πόλεις ἔχομεν, ἀόρατος οὖσα τοῖς ἔργοις αὐτοῖς ὁρᾶται·
and cities have invisible being in-the works themselves is-seen

πᾶς γὰρ ὁ τοῦ βίου διάκοσμος ὑπὸ ταύτης εὕρηται καὶ
all for the of-the life order by this has-been-found and
διατέτακται καὶ συνέχεται, γῆς ἀρόσεις καὶ φυτεύσεις,
arranged and is-held-together of-earth plowings and plantings
τέχνης ἐπίνοιαι, χρήσεις νόμων, κόσμος πολιτείας, ἔνδημοι
of-art inventions uses of-laws order of-polity domestic
πράξεις, ὑπερόριος πόλεμος, εἰρήνη. Ταῦτα χρὴ καὶ περὶ
affairs foreign war peace These one-must also about
θεοῦ διανοεῖσθαι, δυνάμει μὲν ὄντος ἰσχυροτάτου, κάλλει
god to-think in-power indeed being strongest in-beauty
δὲ εὐπρεπεστάτου, ζωῇ δὲ ἀθανάτου, ἀρετῇ δὲ κρατίστου,
and most-comely in-life and immortal in-virtue and best
διότι πάσῃ θνητῇ φύσει γενόμενος ἀθεώρητος ἀπ᾽ αὐτῶν
because to-every mortal nature having-become unseen from very
τῶν ἔργων θεωρεῖται. Τὰ γὰρ πάθη, καὶ τὰ δι᾽
the works he-is-seen The for affections and the(-things) through
ἀέρος ἅπαντα καὶ τὰ ἐπὶ γῆς καὶ τὰ ἐν ὕδατι,
air all and the(-things) on earth and the(-things) in water
θεοῦ λέγοιτ᾽ ἂν ὄντως ἔργα εἶναι τοῦ τὸν κόσμον
of-god would-be-said — truly works to-be of-the(-one) the cosmos
ἐπέχοντος· ἐξ οὗ κατὰ τὸν φυσικὸν Ἐμπεδοκλέα
holding from whom according-to the natural-philosopher Empedocles

πάνθ᾽ ὅσα τ᾽ ἦν ὅσα τ᾽ ἐστὶν
all as-many-as — were as-many-as — are
ὅσα τ᾽ ἔσται ὀπίσσω,
as-many-as — will-be hereafter
δένδρεά τ᾽ ἐβλάστησε καὶ ἀνέρες ἠδὲ γυναῖκες
trees and sprouted and men and women
θῆρές τ᾽ οἰωνοί τε καὶ ὑδατοθρέμμονες ἰχθῦς.
beasts both birds both and water-nurtured fish

Ἔοικε δὲ ὄντως, εἰ καὶ μικρότερον, παραβάλλειν τὸν
It-seems and truly if even smaller to-compare the
κόσμον τοῖς ὀμφαλοῖς λεγομένοις τοῖς ἐν ταῖς ψαλῖσι
cosmos to-the navels called the(-ones) in the vaults
λίθοις, οἳ μέσοι κείμενοι κατὰ τὴν εἰς ἑκάτερον μέρος
stones which middle lying by the toward each part
ἔνδεσιν ἐν ἁρμονίᾳ τηροῦσι καὶ ἐν τάξει τὸ πᾶν σχῆμα τῆς
binding in harmony keep and in order the whole shape of-the
ψαλίδος καὶ ἀκίνητον. Φασὶ δὲ καὶ τὸν ἀγαλματοποιὸν
vault and unmoved They-say and also the sculptor
Φειδίαν κατασκευαζόμενον τὴν ἐν ἀκροπόλει Ἀθηνᾶν ἐν μέσῃ
Phidias making the on acropolis Athena in middle
τῇ ταύτης ἀσπίδι τὸ ἑαυτοῦ πρόσωπον ἐντυπώσασθαι, καὶ
the of-this shield the of-himself face to-have-stamped and
συνδῆσαι τῷ ἀγάλματι διά τινος ἀφανοῦς δημιουργίας,
to-have-bound to-the statue through some hidden workmanship
ὥστε ἐξ ἀνάγκης, εἴ τις βούλοιτο αὐτὸ περιαιρεῖν, τὸ
so-that of necessity if someone should-wish it to-remove the
σύμπαν ἄγαλμα λύειν τε καὶ συγχεῖν. Τοῦτον οὖν ἔχει
whole statue to-undo both and to-confound This then has
τὸν λόγον ὁ θεὸς ἐν κόσμῳ, συνέχων τὴν τῶν ὅλων
the relation the god in cosmos holding-together the of-the whole
ἁρμονίαν τε καὶ σωτηρίαν, πλὴν οὔτε μέσος ὤν, ἔνθα ἡ
harmony both and preservation except neither middle being where the
γῆ τε καὶ ὁ θολερὸς τόπος οὗτος, ἀλλ' ἄνω καθαρὸς
earth both and the turbid place this but above pure
ἐν καθαρῷ χώρῳ βεβηκώς, ὃν ἐτύμως καλοῦμεν οὐρανὸν
in pure region having-stepped which truly we-call ouranos
μὲν ἀπὸ τοῦ ὅρον εἶναι τῶν ἄνω, ὄλυμπον δὲ
indeed from the boundary to-be of-the upper(-things) olympos and
οἷον ὁλολαμπῆ καὶ παντὸς ζόφου καὶ ἀτάκτου κινήματος
as-it-were all-shining and from-all gloom and disordered motion

κεχωρισμένον, οἷα γίνεται παρ᾽ ἡμῖν διὰ χειμῶνος καὶ
separated such-as come-about among us through storm and
ἀνέμων βίας, ὥσπερ ἔφη καὶ ὁ ποιητὴς Ὅμηρος
of-winds force just-as said also the poet Homer

Οὔλυμπόνδ᾽, ὅθι φασὶ θεῶν ἕδος ἀσφαλὲς αἰεί
to-Olympus where they-say of-gods seat secure ever
ἔμμεναι. Οὔτ᾽ ἀνέμοισι τινάσσεται οὔτε ποτ᾽ ὄμβρῳ
to-be Neither by-winds it-is-shaken nor ever by-shower
δεύεται, οὔτε χιὼν ἐπιπίλναται, ἀλλὰ μάλ᾽ αἴθρη
is-wetted nor snow comes-near but very clear-sky
πέπταται ἀννέφελος, λευκὴ δ᾽ ἀναδέδρομεν αἴγλη.
is-spread cloudless white and has-run-over radiance

Συνεπιμαρτυρεῖ δὲ καὶ ὁ βίος ἅπας, τὴν ἄνω χώραν
Bears-witness-too and also the life all the upper region
ἀποδοὺς θεῷ· καὶ γὰρ πάντες οἱ ἄνθρωποι ἀνατείνομεν
having-assigned to-god also for all the men we-stretch-up
τὰς χεῖρας εἰς τὸν οὐρανὸν εὐχὰς ποιούμενοι. Καθ᾽ ὃν
the hands to the heaven prayers making By which
λόγον οὐ κακῶς κἀκεῖνο ἀναπεφώνηται
reasoning not badly that-too has-been-proclaimed

Ζεὺς δ᾽ ἔλαχ᾽ οὐρανὸν εὐρὺν ἐν αἰθέρι καὶ νεφέλῃσιν.
Zeus and got heaven wide in aether and clouds

Διὸ καὶ τῶν αἰσθητῶν τὰ τιμιώτατα τὸν αὐτὸν ἐπέχει
Wherefore also of-the perceptibles the most-honored the same occupy
τόπον, ἄστρα τε καὶ ἥλιος καὶ σελήνη. Μόνα τε τὰ
place stars both and sun and moon Alone and the
οὐράνια διὰ τοῦτο ἀεὶ τὴν αὐτὴν σώζοντα τάξιν
heavenly(-things) because-of this always the same keeping order

διακεκόσμηται, καὶ οὔ ποτε ἀλλοιωθέντα μετεκινήθη,
are-arranged and not ever having-been-altered were-moved
καθάπερ τὰ ἐπὶ γῆς εὔτρεπτα ὄντα πολλὰς ἑτεροιώσεις
just-as the(-things) on earth changeable being many alterations
καὶ πάθη ἀναδέδεκται· σεισμοί τε γὰρ ἤδη βίαιοι πολλὰ
and affections have-undergone earthquakes both for already violent many
μέρη τῆς γῆς ἀνέρρηξαν, ὄμβροι τε κατέκλυσαν ἐξαίσιοι
parts of-the earth tore-up showers and flooded extraordinary
καταρραγέντες, ἐπιδρομαί τε κυμάτων καὶ ἀναχωρήσεις
having-burst-down inrushes and of-waves and retreats
πολλάκις καὶ ἠπείρους ἐθαλάττωσαν καὶ θαλάττας
often both mainlands made-sea and seas
ἠπείρωσαν, βίαι τε πνευμάτων καὶ τυφώνων ἔστιν ὅτε
made-land forces and of-breaths and of-whirlwinds it-is when
πόλεις ὅλας ἀνέτρεψαν, πυρκαϊαί τε καὶ φλόγες αἱ μὲν
cities whole overturned conflagrations both and flames the(-ones) indeed
ἐξ οὐρανοῦ γενόμεναι πρότερον, ὥσπερ φασίν, ἐπὶ
from heaven having-come-about formerly just-as they-say in-the-time-of
Φαέθοντος τὰ πρὸς ἕω μέρη κατέφλεξαν, αἱ δὲ πρὸς
Phaethon the toward east parts burned-up the(-others) and toward
ἑσπέραν ἐκ γῆς ἀναβλύσασαι καὶ ἐκφυσήσασαι, καθάπερ
west from earth having-gushed-up and having-blown-out just-as
τῶν ἐν Αἴτνῃ κρατήρων ἀναρραγέντων καὶ ἀνὰ τὴν γῆν
of-the in Etna craters having-burst-open and over the earth
φερομένων χειμάρρου δίκην. Ἔνθα καὶ τὸ τῶν εὐσεβῶν
carried of-torrent like Where also the of-the pious
γένος ἐξόχως ἐτίμησε τὸ δαιμόνιον, περικαταληφθέντων
race especially honored the divinity having-been-overtaken
ὑπὸ τοῦ ῥεύματος διὰ τὸ βαστάζειν γέροντας ἐπὶ τῶν
by the stream because-of the to-carry old on the
ὤμων γονεῖς καὶ σώζειν· πλησίον γὰρ αὐτῶν γενόμενος
shoulders parents and to-save near for them having-come

ὁ τοῦ πυρὸς ποταμὸς ἐξεσχίσθη, παρέτρεψέ τε τοῦ
the of-the fire river was-split turned-aside and of-the
φλογμοῦ τὸ μὲν ἔνθα τὸ δ' ἔνθα, καὶ ἐτήρησεν
blaze the(-part) indeed here the(-part) and there and kept
ἀβλαβεῖς ἅμα τοῖς γονεῦσι τοὺς νεανίσκους.
unharmed together with-the parents the youths
Καθόλου δέ, ὅπερ ἐν νηῒ μὲν κυβερνήτης, ἐν ἅρματι δὲ
In-general and what-very in ship indeed helmsman in chariot and
ἡνίοχος, ἐν χορῷ δὲ κορυφαῖος, ἐν πόλει δὲ νόμος, ἐν
charioteer in chorus and leader in city and law in
στρατοπέδῳ δὲ ἡγεμών, τοῦτο θεὸς ἐν κόσμῳ, πλὴν καθ'
camp and commander this god in cosmos except as
ὅσον τοῖς μὲν καματηρὸν τὸ ἄρχειν πολυκίνητόν τε
far-as for-the(-ones) indeed toilsome the to-rule full-of-motion both
καὶ πολυμέριμνον, τῷ δὲ ἄλυπον ἄπονόν τε καὶ
and full-of-care for-the(-one) but painless toilless both and
πάσης κεχωρισμένον σωματικῆς ἀσθενείας· ἐν ἀκινήτῳ
from-all separated bodily weakness in unmoved(-place)
γὰρ ἱδρυμένος πάντα κινεῖ καὶ περιάγει, ὅπου βούλεται καὶ
for seated all he-moves and turns where he-wishes and
ὅπως, ἐν διαφόροις ἰδέαις τε καὶ φύσεσιν, ὥσπερ ἀμέλει
how in different forms both and natures just-as of-course
καὶ ὁ τῆς πόλεως νόμος ἀκίνητος ὢν ἐν ταῖς τῶν
also the of-the city law unmoved being in the of-the(-ones)
χρωμένων ψυχαῖς πάντα οἰκονομεῖ τὰ κατὰ τὴν
using(-it) souls all manages the(-things) in the
πολιτείαν· ἐφεπόμενοι γὰρ αὐτῷ δῆλον ὅτι ἐξίασιν ἄρχοντες
polity following for it clear that go-out magistrates
μὲν ἐπὶ τὰ ἀρχεῖα, θεσμοθέται δὲ εἰς τὰ οἰκεῖα δικαστήρια,
indeed to the offices thesmothetae and to the proper courts
βουλευταὶ δὲ καὶ ἐκκλησιασταὶ εἰς συνέδρια τὰ προσήκοντα,
councilors and and assemblymen to meetings the fitting

καὶ ὁ μέν τις εἰς τὸ πρυτανεῖον βαδίζει σιτησόμενος,
and the indeed one to the prytaneum walks to-dine
ὁ δὲ πρὸς τοὺς δικαστὰς ἀπολογησόμενος, ὁ
the(-other) and to the judges to-defend-himself the(-other)
δὲ εἰς τὸ δεσμωτήριον ἀποθανούμενος. Γίνονται δὲ καὶ
and to the prison to-die Come-about and also
δημοθοινίαι νόμιμοι καὶ πανηγύρεις ἐνιαύσιοι, θεῶν τε
public-feasts lawful and festivals yearly of-gods and
θυσίαι καὶ ἡρώων θεραπεῖαι καὶ χοαὶ κεκμηκότων·
sacrifices and of-heroes worships and libations of-the-dead
ἄλλα δὲ ἄλλοις ἐνεργούμενα κατὰ μίαν πρόσταξιν
other(-things) and by-others being-done according-to one command
ἢ νόμιμον ἐξουσίαν σώζει τὸ τοῦ ποιήσαντος ὄντως
or lawful authority preserves the of-the(-one) having-made truly

πόλις δ' ὁμοῦ μὲν θυμιαμάτων γέμει,
city and together indeed with-incense is-full
ὁμοῦ δὲ παιάνων τε καὶ στεναγμάτων.
together and with-paeans both and groans

Οὕτως ὑπολεπτέον καὶ ἐπὶ τῆς μείζονος πόλεως,
So one-must-suppose also in-the-case-of the greater city
λέγω δὲ τοῦδε τοῦ κόσμου· νόμος μὲν γὰρ ἡμῖν ἰσοκλινὴς
I-mean and this the cosmos law indeed for to-us evenly-balanced
ὁ θεός, οὐδεμίαν ἐπιδεχόμενος διόρθωσιν ἢ μετάθεσιν,
the god no admitting correction or change
κρείττων δέ, οἶμαι, καὶ βεβαιότερος τῶν ἐν ταῖς
better and I-think and more-stable than-the(-ones) on the
κύρβεσιν ἀναγεγραμμένων. Ἡγουμένου δὲ ἀεικινήτως
tablets inscribed Leading and in-ceaseless-motion
αὐτοῦ καὶ ἐμμελῶς ὁ σύμπας διοικονομεῖται διάκοσμος
him and harmoniously the whole is-administered order

οὐρανοῦ καὶ γῆς, μεμερισμένος κατὰ τὰς φύσεις πάσας
of-heaven and earth divided according-to the natures all
διὰ τῶν οἰκείων σπερμάτων εἴς τε τὰ φυτὰ καὶ ζῷα,
through the proper seeds into both the plants and animals
κατὰ γένη τε καὶ εἴδη· καὶ γὰρ ἄμπελοι καὶ φοίνικες
according-to genera both and species also for vines and palms
καὶ περσέαι συκαῖ τε γλυκεραὶ καὶ ἐλαῖαι, ὥς φησιν ὁ
and persea-trees figs and sweet and olives as says the
ποιητής, τὰ δὲ ἄκαρπα μὲν ἄλλας δὲ παρεχόμενα
poet the(-ones) and fruitless indeed other but providing
χρείας, πλάτανοι καὶ πίτυες καὶ πύξοι
uses plane-trees and pines and box-trees

κλήθρη τ' αἴγειρός τε καὶ εὐώδης κυπάρισσος,
alder and poplar both and fragrant cypress

αἵ τε καρπὸν ὀπώρης ἡδὺν ἄλλως δὲ δυσθησαύριστον
the(-ones) and fruit of-autumn sweet otherwise but hard-to-store
φέρουσαι,
bearing

ὄχναι καὶ ῥοιαὶ καὶ μηλέαι ἀγλαόκαρποι,
pears and pomegranates and apple-trees bright-fruited

τῶν τε ζῴων τά τε ἄγρια καὶ ἥμερα, τά τε ἐν ἀέρι
of-the and animals the both wild and tame the(-ones) both in air
καὶ ἐπὶ γῆς καὶ ἐν ὕδατι βοσκόμενα, γίνεται καὶ ἀκμάζει
and on earth and in water feeding come-to-be and flourish
καὶ φθείρεται τοῖς τοῦ θεοῦ πειθόμενα θεσμοῖς· πᾶν γὰρ
and perish to-the of-the god obeying ordinances every for
ἑρπετὸν τὴν γῆν νέμεται, ὥς φησιν Ἡράκλειτος.
creeping-thing the earth grazes as says Heraclitus

God is one but has many names, called after everything he brings about: Zeus as the one through whom we live, son of Cronus and of time, god of lightning and rain, of fruits and cities, of kin, friendship, guests, and freedom. The Orphic verses call Zeus first and last, head and middle. Necessity, Destiny, Fate, Nemesis, Adrasteia, and the three Fates are his names too; as Plato says, he holds beginning, end, and middle, and Justice follows him.

Εἷς δὲ ὢν πολυώνυμός ἐστι, κατονομαζόμενος τοῖς πάθεσι
One and being many-named he-is being-named-after the affections
πᾶσιν ἅπερ αὐτὸς νεοχμοῖ. Καλοῦμεν δὲ αὐτὸν καὶ
all which-very he-himself brings-about We-call and him both
Ζῆνα καὶ Δία, παραλλήλως χρώμενοι τοῖς ὀνόμασιν, ὡς
Zena and Dia side-by-side using the names as
ἂν εἰ λέγοιμεν δι᾽ ὃν ζῶμεν. Κρόνου δὲ παῖς καὶ
— if we-should-say because-of whom we-live of-Cronus and son and
χρόνου λέγεται διήκων ἐξ αἰῶνος ἀτέρμονος εἰς ἕτερον
of-time he-is-called extending from age endless to another
αἰῶνα· ἀστραπαῖός τε καὶ βρονταῖος καὶ αἴθριος καὶ
age lightener both and thunderer and of-clear-sky and
αἰθέριος κεραύνιός τε καὶ ὑέτιος ἀπὸ τῶν ὑετῶν καὶ
of-the-aether of-thunderbolts both and of-rain from the rains and
κεραυνῶν καὶ τῶν ἄλλων καλεῖται. Καὶ μὴν ἐπικάρπιος
thunderbolts and the others he-is-called And truly fruit-giver
μὲν ἀπὸ τῶν καρπῶν, πολιεὺς δὲ ἀπὸ τῶν πόλεων
indeed from the fruits city-guardian and from the cities
ὀνομάζεται, γενέθλιός τε καὶ ἕρκειος καὶ ὁμόγνιος καὶ
he-is-named of-birth both and of-the-courtyard and of-kin and
πάτριος ἀπὸ τῆς πρὸς ταῦτα κοινωνίας, ἑταιρεῖός τε καὶ
ancestral from the toward these fellowship of-comrades both and
φίλιος καὶ ξένιος καὶ στράτιος καὶ τροπαιοῦχος καθάρσιός
of-friends and of-guests and of-armies and trophy-holder purifier

τε καὶ παλαμναῖος καὶ ἱκέσιος καὶ μειλίχιος, ὥσπερ οἱ
both and avenger and of-suppliants and gracious just-as the
ποιηταὶ λέγουσι, σωτήρ τε καὶ ἐλευθέριος ἐτύμως, ὡς δὲ
poets say savior both and of-freedom truly as and
τὸ πᾶν εἰπεῖν, οὐράνιός τε καὶ χθόνιος, πάσης ἐπώνυμος
the all to-say heavenly both and earthly of-every named-after
ὢν φύσεώς τε καὶ τύχης ἅτε πάντων αὐτὸς αἴτιος
being nature both and fortune inasmuch-as of-all himself cause
ὤν. Διὸ καὶ ἐν τοῖς Ὀρφικοῖς οὐ κακῶς λέγεται
being Wherefore also in the Orphic(-poems) not badly it-is-said

Ζεὺς πρῶτος γένετο, Ζεὺς ὕστατος ἀργικέραυνος·
Zeus first was-born Zeus last bright-bolted
Ζεὺς κεφαλή, Ζεὺς μέσσα· Διὸς δ' ἐκ πάντα τέτυκται.
Zeus head Zeus middle of-Zeus and from all is-made
Ζεὺς ὁ πυθμὴν γαίης τε καὶ οὐρανοῦ ἀστερόεντος.
Zeus the base of-earth both and of-heaven starry
Ζεὺς ὁ ἄρσην γένετο, Ζεὺς ἄμβροτος ἔπλετο νύμφη.
Zeus the male was-born Zeus immortal was bride
Ζεὺς πνοιὴ πάντων, Ζεὺς ἀκαμάτου πυρὸς ὁρμή.
Zeus breath of-all Zeus of-tireless fire rush
Ζεὺς πόντου ῥίζα, Ζεὺς ἥλιος ἠδὲ σελήνη.
Zeus of-sea root Zeus sun and moon
Ζεὺς βασιλεύς, Ζεὺς ἀρχὸς ἁπάντων ἀργικέραυνος·
Zeus king Zeus ruler of-all bright-bolted
πάντας γὰρ κρύψας αὖθις φάος ἐς πολυγηθές
all for having-hidden again light into joyful
ἐξ ἱερῆς κραδίης ἀνενέγκατο, μέρμερα ῥέζων.
from holy heart he-brought-up wondrous-things doing

Οἶμαι δὲ καὶ τὴν ἀνάγκην οὐκ ἄλλο τι λέγεσθαι πλὴν
I-think and also the necessity not other anything to-be-called than
τοῦτον, οἱονεὶ ἀνίκητον οὐσίαν ὄντα, εἱμαρμένην δὲ διὰ
him as-it-were unconquerable substance being destiny and because-of
τὸ εἴρειν τε καὶ χωρεῖν ἀκωλύτως, πεπρωμένην
the to-string-together both and to-proceed unhindered fate
δὲ διὰ τὸ πεπερατῶσθαι πάντα καὶ μηδὲν ἐν τοῖς
and because-of the to-have-been-bounded all and nothing in the
οὖσιν ἄπειρον εἶναι, καὶ μοῖραν ἀπὸ τοῦ μεμερίσθαι,
beings unbounded to-be and portion from the to-have-been-apportioned
Νέμεσιν δὲ ἀπὸ τῆς ἑκάστῳ διανεμήσεως, Ἀδράστειαν
Nemesis and from the to-each distribution Adrasteia
δὲ ἀναπόδραστον αἰτίαν οὖσαν κατὰ φύσιν, αἶσαν
and inescapable cause being according-to nature aisa
δὲ ἀεὶ οὖσαν. Τά τε περὶ τὰς μοίρας καὶ τὸν
and always being The(-things) and about the fates and the
ἄτρακτον εἰς τοῦτό πως νεύει· τρεῖς μὲν γὰρ οἱ μοῖραι
spindle to this somehow tend three indeed for the fates
κατὰ τοὺς χρόνους μεμερισμέναι, νῆμα δὲ ἀτράκτου
according-to the times divided thread and of-spindle
τὸ μὲν ἐξειργασμένον, τὸ δὲ μέλλον, τὸ δὲ
the(-part) indeed finished the(-part) and to-come the(-part) and
περιστρεφόμενον· τέτακται δὲ κατὰ μὲν τὸ γεγονὸς μία
turning is-assigned and to indeed the past one
τῶν μοιρῶν, Ἄτροπος, ἐπεὶ τὰ παρελθόντα πάντα
of-the fates Atropos since the(-things) past all
ἄτρεπτά ἐστιν, κατὰ δὲ τὸ μέλλον Λάχεσις (εἰς πάντα γὰρ
unturnable are to and the future Lachesis to all for
ἡ κατὰ φύσιν μένει λῆξις), κατὰ δὲ τὸ ἐνεστὸς Κλωθώ,
the according-to nature awaits allotment to and the present Clotho
συμπεραίνουσά τε καὶ κλώθουσα ἑκάστῳ τὰ οἰκεῖα.
completing both and spinning for-each the proper(-things)

Περαίνεται δὲ καὶ ὁ μῦθος οὐκ ἀτάκτως. Ταῦτα δὲ
Is-completed and also the myth not without-order These and
πάντα ἐστὶν οὐκ ἄλλο τι πλὴν ὁ θεός, καθάπερ καὶ
all is not other anything than the god just-as also
ὁ γενναῖος Πλάτων φησίν. Ὁ μὲν δὴ θεός, ὥσπερ ὁ
the noble Plato says The indeed indeed god just-as the
παλαιὸς λόγος, ἀρχήν τε καὶ τελευτὴν καὶ μέσα τῶν ὄντων
ancient account beginning both and end and middle of-the beings
ἁπάντων ἔχων, εὐθείᾳ περαίνει κατὰ φύσιν πορευόμενος·
all holding straight accomplishes according-to nature proceeding
τῷ δὲ ἀεὶ ξυνέπεται δίκη, τῶν ἀπολειπομένων τοῦ
him and always follows justice of-the(-ones) falling-short of-the
θείου νόμου τιμωρός, ἧς ὁ εὐδαιμονήσειν μέλλων
divine law avenger of-which the(-one) to-be-happy about
μακάριός τε καὶ εὐδαίμων ἐξ ἀρχῆς εὐθὺς μέτοχος εἴη.
blessed both and happy from beginning straightway partaker may-be