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Aristotle **on Sleep** and Dreams

A Text and Translation
with Introduction, Notes and Glossary

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DE SOMNO ET VIGILIA

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453b.11 *Περὶ δὲ ὕπνου καὶ ἐγρηγόρευσεως ἐπισκεπτέον*
 τίνα τε τυγχάνει δυντα, καὶ πότερον ἴδια τῆς ψυχῆς ἢ τοῦ
 σώματος ἢ κοινά, καὶ εἰ κοινά, τίνοσ μορίων τῆς ψυχῆς ἢ
 τοῦ σώματος, καὶ διὰ τί; αἰτίαν ὑπέχει τοῖς ζώοις. καὶ
 15 πότερον ἄκρυστα κεκοινωνήκεν ἀμφοτέρων, ἢ τὰ μὲν
 θάρερον τὰ δὲ θαρτέρου μόνου, ἢ τὰ μὲν οὐδέτερον τὰ δὲ ἀμφο-
 τέρων. πρὸς δὲ ταύτοις τί ἐστὶ τὸ ἐνύπνιον, καὶ διὰ τίνα αἰτίας
 οἱ καθυδόντες ὅτῃ μὲν δειρῶταουσιν ὅτῃ δὲ οὐ, ἢ συμβαίνει
 20 μὲν αἰ τοῖς καθυδόνσιν ἐνυπνιάζειν, ἀλλ' οὐ μνημονεύουσιν,
 καὶ εἰ τοῦτο γίγνεται, διὰ τίνα αἰτίας γίγνεται. καὶ πότερον
 ἐνδέχεται τὰ μέλλουσα προορᾶν ἢ οὐκ ἐνδέχεται, καὶ τίνα
 τρόπον εἰ ἐνδέχεται. καὶ πότερον τὰ μέλλουσα ὑμ' ἀνθρώ-
 25 που πρᾶσσεσθαι μόνου, ἢ καὶ οὐ τὸ δαίμονιον ἔχει τὴν αἰ-
 τίαν, καὶ φύσει γίγνεται ἢ ἀπὸ ταύτομάτρου.

25 τοῦτο γε φανερόν, ὅτι τῷ αὐτῷ τοῦ ζώου ἢ τε ἐγρηγόρις ὑπ-
 ᾄχει καὶ ὁ ὕπνος· ἀντικείμενα γάρ, καὶ φαίνεται στέρησις τις
 ὁ ὕπνος τῆς ἐγρηγόρευσεως· αἰ γὰρ τὰ ἐναντία καὶ ἐπὶ τῶν
 πρῶτον μὲν οὖν

In notes on the text and translation references to 'Beare' and 'Heit' are to the versions of J.I. Beare in the Oxford Translation (Volume III) and W.S. Heit in the Loeb Classical Library. References to 'Ross' are to W.D. Ross's edition of the *Parva Naturalia*. A revised version of Beare's translation, based upon Ross's text, appears in Volume I of the Complete Works of Aristotle, ed. J. Barnes. Where this version differs from Beare's, reference is made to 'Barnes'. Full references for these and other sources are given in the select bibliography.

ON SLEEP AND WAKING

CHAPTER ONE

1. 453b11-24. *Survey of questions regarding (1) sleep and waking; (2) dreams; and (3) precognition based upon dreams.*

453b11. As for sleep and waking, we must consider what they are, and whether they are proper to the soul or to the body, or are common to both. If they are common, which part of the soul and the body has them, and from what cause do they belong to animals? And / do all animals partake of both, or do some partake of one only, and some of the other? Or do some partake of neither, and some of both? In addition, we must ask what a dream is, and from what cause sleepers sometimes dream but sometimes not. Or is it the case that people always dream when asleep, but do not remember? / And from what cause does this happen, if it does? Again, is it or is it not possible to have prevision of things that are going to happen? And if this is possible, in what way? Is it possible only with actions that are going to be performed by man? Or does it also cover things for which the daemonic is responsible, i.e. things that happen by nature or fortuitously?

2. 453b24-454a11. *Waking and sleep are proper neither to the soul nor to the body, but both belong to the same part of an animal, i.e. the part whereby it perceives. For (1) they are opposites, and must therefore inhere in the same subject; and (2) they are recognized by the presence or absence of a common criterion, namely, perception.*

453b24. First, then, / this much is plain: waking and sleep 25 both belong to the same part of an animal. For they are opposed to each other, and sleep is evidently a sort of privation of waking. For in natural things, as in other cases, opposites

θάλασιν καὶ ἐν τοῖς φυσικοῖς ἐν τῷ αὐτῷ δεκτικῷ φαίνεσθαι
 γινώσκοντα, καὶ τοῦ αὐτοῦ ὄντα πᾶσιν, λέγω δ' ὅτι οὐκ ὕπνιεν καὶ
 30 νόσος, καὶ κάλλος καὶ αἰσχος, καὶ ἰσχυρὸς καὶ ἀσθενής,
 καὶ ὄψις καὶ τυφλότης, καὶ ἀκοή καὶ κωφότης. ἐπι δε

454a καὶ ἐκ τῶνδε θήλων· ὃ γὰρ τὸν ἐρηγορότα γνωρίζοντες,
 τοῦτ' αὖ καὶ τὸν καθυπνοῦντα· τὸν δὲ αἰσθανόμενον ἐρηγορῆναι
 νομίζοντες, καὶ τὸν ἐρηγορότα πάντα ἢ τῶν ἐξωθέν τινας αἰ-
 σθάνεσθαι ἢ τῶν ἐν αὐτῷ κινήσεων, εἰ τοιούτ' αὖ ἐρηγορῆναι
 5 ἐν ἡγεμνίᾳ θάλασιν ἐστιν ἢ τῷ αἰσθάνεσθαι, θήλων δ' ἐπι περ αἰ-
 σθάνεσθαι, τοῦτ' αὖ καὶ ἐρηγορῆναι τὰ ἐρηγορότα καὶ καθυπνοῦ-
 ῶντα καθυπνοῦντα. ἐπι δε οὖτε τῆς ψυχῆς ἰδίῳ τὸ αἰσθάνεσθαι
 οὖτε τοῦ σώματος (οὐ γὰρ ἢ δύναμις, τοῦτου καὶ ἢ ἐνέργεια· ἢ
 10 ἡ δὲ λειτουργία αἰσθητικῆς ὡς ἐνέργεια κινήσεως τις διὰ τοῦ σώ-
 ματος τῆς ψυχῆς ἐστι), φανερόν ὡς οὖτε τῆς ψυχῆς τὸ πά-
 θος ἰδίῳ, οὐτ' ἀψυχου σώμα δύνατον αἰσθάνεσθαι.

διὰ τῆς
 αἰσθάνου δὲ πρότερον ἐν ἐτέροις περὶ τῶν λειτουργούντων ὡς μορῶν
 τῆς ψυχῆς, καὶ τοῦ μὲν θρησκευτικοῦ χωριζομένου τῶν θάλασιν ἐν
 τοῖς ἔχουσι σώμασι ζῴων, τῶν δ' ἄλλων οὐδενὸς δύνει τοῦτου,
 15 θήλων ὡς ὅσα μὲν αὐξήσεως καὶ φθίσεως μετέχει μόνον
 τῶν ζῴων, [ὄπι] τοῦτοις οὐκ ὑπάρχει ἕνας οὐδὲ ἐρηγορῆναι,
 οὐκ οὖν τῶν φύσιν (οὐ γὰρ ἔχουσι τὸ αἰσθητικὸν μέρος, οὖτε εἰ
 χωριστῶν ἐστιν οὖτε εἰ μὴ χωριστῶν· τῆ γὰρ δύναμις καὶ τῷ
 εἶναι χωριστῶν ἐστιν).

20 μορῶν δὲ καὶ ὅτι οὐδὲν ἐστιν ὃ καὶ ἐρηγο-
 ρῆναι καὶ αἰσθάνεσθαι, ἀλλὰ τοῖς αὐτοῖς ὑπάρχει τῶν ζῴων
 ἀμφοτέρω τὰ πᾶσιν ταῦτα. οὐ γὰρ, εἴ τι ἐστι ζῴον (μῆ) ἔχον
 αἰσθητικόν, τοῦτ' ἐνδέχεται οὖτε καθυπνοῦναι οὖτε ἐρηγορῆναι (ἐπι-
 25 φη γὰρ ἐπι τὰ πᾶσιν ταῦτα περὶ αἰσθητικῶν τοῦ πρώτου αἰ-
 σθητικοῦ).

οὐκ ἐνδέχεται δὲ οὐδὲ θάτερον τοῦτου καὶ ὑπάρχειν
 25 τῷ αὐτῷ, οὐκ ἔστι τι γένος ζῴων καθυπνοῦναι ἢ καὶ τι ἐρηγο-
 ρῆναι, ἐπεὶ ὅσον ἐστι τι ἔργον κατὰ φύσιν, ὅταν ὑπερβάλλῃ

1. The translation is based upon Ross's emended text at 454a21, which adds *μη* before *ἔχον*. Similarly Beare ad loc. Alternatively, omitting *μη*, 'For no animal which has perception can be neither asleep nor awake' (Hett). But see Beare, and Ross (255-6). Siwek (197, n.18) defends the unemended text.

2. The translation at 454a26, 'For all things ...', assumes a comma instead of a period after *ἐρηγορῆναι*, and requires either *ἔπι* (Becker) or *ἐπι* (Susemihl) for the mss' *ἐπι*, printed by Ross. Thus also Beare and Hett. Ross's text would require the translation, 'Moreover, all things ...'. But 'Moreover' would mark the sentence as starting a new argument for the conclusion that no kind of animal could be always awake. Yet no argument at all for that conclusion has yet been given. The variant reading *εἰ* for *ἐπι* in one ms (P) would give the required linkage with b24-25, with 'if instead of 'for' or 'because'. But this variant also gives very strong plausibility to *ἐπι*, which is rightly preferred by Barnes.

evidently come into being in the same recipient, and are affections of the same subject. I mean, for example, health and / sickness, beauty and ugliness, strength and weakness, sight and blindness, hearing and deafness.

453b31. Again, / the point is clear from the following. We recognize a 454a
 person as sleeping by the same mark as that by which we recognize someone as waking. It is the person who is perceiving that we consider to be awake; and we take every waking person to be / perceiving 5
 either something external or some movement within himself. If, then, the waking state consists in nothing else but perceiving, it is clear that waking things are awake, and sleeping things are asleep, with the same part as that whereby they perceive. But given that perceiving belongs neither to the soul nor to the body solely (for what owns any capacity also owns its exercise; and what is called perception, in the sense of exercise, is a certain movement of the soul by means of the / body); it is plain that the affection is not peculiar to the soul, nor is a soul-less body capable of perceiving.

3. 454a11-b9. *Neither sleep nor waking can characterize plants. Both states must characterize all animals. No animal could be always awake.*

454a11. Now we have already distinguished elsewhere what are called 'parts' of the soul. The nutrient part in bodies possessing life can exist separately from the others, whereas none of them can do so without it. Accordingly, / it is clear that neither sleep nor waking belongs to living things that partake only of growth and decay, such as plants. For they do not possess the perceptual part, whether or not it be capable of separate existence. For both as a capacity and in its being, it is separable.

454a19. It is likewise clear that there is nothing that is always awake / or always asleep. Rather, both these affections belong to the same 20
 animals. For if there is any animal that does not possess perception,¹ it is not possible that it should either sleep or wake. For both these affections have to do with perception exercised by the primary perceptual part.

454a24. Nor is it possible that one of them should always belong to / 25
 the same animal, e.g. that a certain kind of animal should be always asleep or always awake. For² all things that have a natural function must, whenever they exceed the time for which they can do a certain

τὸν χρόνον ὅπου δύναται τι ποιεῖν, ἀνάγκη δύνανται, οἷος
 ὅτου τὰ ἔμματα ὀρώτα, καὶ παύεσθαι τοῦτο ποιοῦντα, οἷος
 δὲ καὶ χεῖρα καὶ ἄλλο πᾶν οὔ ἐστι τι ἔργον. εἰ δὲ τινὸς
 30 ἔστιν ἔργον τὸ αἰσθάνεσθαι, καὶ τοῦτο, ἂν ὑπερβάλλῃ ὅσον
 ἦν χρόνον δύναμενοι αἰσθάνεσθαι συνεχῶς, δύνανται καὶ
 οὐκ ἔστι τοῦτο ποιῆσαι. εἰ τοίνυν τὸ ἐργονόμεναι ὥσπερ
 454b λυθεῖται τὴν αἰσθησιν, τῶν δ' ἐναυτίων τῶν μὲν ἀνάγκη ἔσται
 αὖτε παρῆται τῶν δ' οὔ, τῶ δ' ἐργονόμεναι τὸ καθεῦδεν ἐναυτί-
 καὶ ἀναγκαῖον ἔπαιτι ἑτέρου ὑπάξειν, ἀναγκαῖον ἂν εἴη κα-
 θεῦδεν. εἰ οὖν τὸ ταιούτου πάθος ὕπνος, τοῦτο δ' ἐστιν δύναι-
 5 μιν δὲ ὑπερβολῆν τοῦ ἐργονόμεναι, ἢ δὲ τοῦ ἐργονόμεναι
 ὑπερβολῆν ὅτε μὲν νοσώδης ὄντε δὲ ζυεὺ νόσου γλυνεται, ὥστε
 καὶ ἡ δύνανται καὶ ἡ δικάσις ὡσαύτως ἐσται, ἀνάγκη
 πᾶν τὸ ἐργονομὸς ἐνδέχεσθαι καθεῦδεν. ἀδύνατον γὰρ αὖτε
 ἐνεργεῖν.

10 ὅποιος δὲ οὐδὲ καθεῦδεν οὐδὲν δεῖ ἐνδέχεσθαι. ὁ γὰρ
 ἄκλυτος, ὅστι' ἀνάγκη πᾶν τὸ καθεῦδον ἔχειν τὸ αἰσθητικὸν με-
 ἔνεργεῖν δὲ τῆ αἰσθήσει κυρίως καὶ ἀπλῶς ἀδύνατον καθ-
 εῦδον εἶναι. διὸ ἀναγκαῖον ὕπνου πάντα ἐνεργεῖν εἶναι.

15 οὖν ἄλλα σπεῖδον ἔπαιτα δῆλα κοινωνοῦσι ὕπνου, καὶ πᾶν
 καὶ πῆνα καὶ μελά. καὶ γὰρ τὰ τῶν ἰχθύων γένη πάντα
 καὶ τὰ τῶν μαλακίων ὄπται καθεῦδοντα, καὶ τᾶλλα πάντα
 ὄσπερ ἔχει φθαλαμίους. καὶ γὰρ τὰ σκηνοδόλαια φα-
 νερά καὶ τὰ ἔντομα κοιμώμενα. βραχύνοτα δὲ τὰ τοιαῦτα
 20 πάντα, διὸ καὶ λάθοι εἰ τινα πολλακίς ποτερον μετέχουσι
 τοῦ καθεῦδεν ἢ οὔ. τῶν δ' ὄσπερ ἀκοσμητῶν κατὰ μὲν τὴν αἰσθη-
 σιν οὐδὲ πᾶ γέρονε φανερὸν εἰ καθεῦδουσιν. εἰ δὲ τῶ πῆθας
 ὁ λαχθεῖς λόγος, τοῦτο πεισθήσεται.

ὅτι μὲν οὖν ὕπνου κοι-
 νωνεῖ τὰ ζῶα πάντα, φανερὸν ἐκ τούτων, τῶ γὰρ αἰσθησιν

3. The translation follows Ross's text at 454b1-2, based on the reading of EM. Hett reads with LSU τὸ μὲν ἀνάγκη παρῆται τὸ δ' οὔ, translating 'if of two contraries one must be present and the other not'. But the contrast required is not between two members of a single pair of opposites. The generalization in Hett's version does not hold true for all opposites, since it does not hold for 'contraries', which were distinguished from 'contradictories' on this very point by Aristotle himself. The required contrast is rather between those pairs of opposites for which the generalization does hold true and those for which it does not. Aristotle's argument is that if sleeping and waking are opposites of the latter kind, then sleeping must be necessary. See the notes of Ross (256) and Beare ad loc.

4. Reading ἐνεργεῖν εἶναι (454b14), misprinted in Ross.

5. Reading τούτου at 454b23, with Bywater, Beare, Hett, and Ross. Keeping the mss' τούτου, we must translate, 'if anyone has found the foregoing argu- ment persuasive, he will be persuaded by this'. But since 'this' can refer only to 'the foregoing argument', the mss' text makes the sentence tautologous.

thing, lose their capacity and cease from doing it, e.g. the eyes from seeing. Likewise the hand, and everything else that has a function. So if / perceiving is the function of some part, then this part too, should it exceed the due time for which it is capable of perceiving continuously, will lose its capacity and will do so no longer. If, therefore, being awake is defined by the / freeing of perception; and if for some op- 454b posites it must always be true that one of the pair is present, while for others this is not so,³ and if sleeping is opposite to waking, and one of this pair must belong to every animal, then sleeping would have to be necessary. If, then, such an affection is sleep, and this is an incapacita- tion / due to excess of waking; and if an excess of waking is sometimes 5 unhealthy but sometimes occurs without illness, so that both the in- capacitation and the dissolution will be similar; then, necessarily, everything that wakes must be capable of sleeping. For it is unable to be active at all times.

4. 454b9-455a3. *Nor could anything be always asleep. Sleep is observ- able in almost every animal species, including fish and insects. It must be universal in animals, by contrast with plants.*

454b9. It is likewise impossible for anything to be always sleeping. For / sleep is a certain affection, a sort of 'fettering' or immobilization of the perceptual part. Consequently, everything that sleeps must be possessed of the perceptual part. But it is what can actively exercise perception that is perceptual. And it is impossible for anything to be actively exercising perception in the chief and unqualified sense, while sleeping at the same time. Hence all sleep must be subject to awaken- 4 ing.

454b14. Now / almost all other animals are observed to partake of 15 sleep, aquatic, winged, and terrestrial creatures alike. For every kind of fish and the soft-shelled species have been seen sleeping, as has every other creature that has eyes. For it is plain that even hard-eyed creatures take repose, although all such things have short spells of sleep, / so that it could often escape one whether they partake of sleep or not. For testaceans, direct observation has not yet made it plain whether they do sleep. But anyone who has found the foregoing argument convincing will be persuaded of 5 this.

454b23. That all animals partake of sleep, then, is plain from these considerations. It is by its possession of perception / that an animal 25

25 ἔχειν ὀρισταί τὸ ζῶον, τῆς δ' αἰσθήσεως τρόπον τινα τὴν μὲν
 ἀκίνησιάν καὶ οἷον δεξιῶν τὸν ἦπνον εἶναι φάμεν, τὴν δὲ
 λύσιμ καὶ τὴν ἀνεσίμ ἐρήγοσιμ. τῶν δὲ φύτων οὐδὲν οἷον τε
 κοινανεῖν οὐδετέρου τοῦτων τῶν παθημάτων· ἀνευ μὲν γὰρ αἰ-
 σθήσεως οὐκ ἔστιν αἰσθῆναι οὔτε ἐρήγοσιμ· οἷς δ' αἰ-
 σθήσεως ἔστιν αἰσθῆναι, καὶ τὸ λυπεῖσθαι καὶ τὸ χαίρειν· οἷς δὲ
 ταῦτα, καὶ ἐπιθυμῆναι· τοῖς δὲ φύτοις οὐδὲν ἔστιν αἰσθῆναι
 30 τῶν, σημεῖον δ' ὅτι καὶ τὸ ἐργον τὸ αὐτοῦ ποιεῖ τὸ θηρι-
 455a κὸν μέριον ἐν τῷ καθεσθῆναι μάλλον ἢ ἐν τῷ ἐρηγοῦναι.
 τρέφεται γὰρ καὶ αὐξάνεται τότε μάλλον, ὡς οὐδὲν προσ-
 δεόμενα πρὸς ταῦτα τῆς αἰσθήσεως.

Διὰ τί δὲ καθεσθῆναι καὶ ἐρηγοῦναι καὶ διὰ ποῖαν τινα
 5 αἰσθῆσιν ἡ ποῖας, εἰ διὰ πλείους, οκτανέων. ἐπεὶ δ' ἔνια μὲν
 τῶν ζῴων ἔχει τὰς αἰσθήσεις πάσας, ἔνια δ' οὐκ ἔχει, οἷον
 ὄψιν, τὴν δ' ἀφῆν καὶ τὴν γεῦσιν ἀπαντα ἔχει, πᾶσιν εἴ τι
 τῶν ζῴων ἀρεαῖς (εἴρηται δὲ περὶ αὐτῶν ἐν τοῖς Περὶ ψυ-
 χῆς), ἀδύνατον δ' ἔστιν ἀπλῶς ὁμοιωθῆναι αἰσθῆσιν αἰσθῆσθαι
 10 τὸ καθεσθῆναι ζῶον, φανερόν ὅτι πάσας ἀναγκαῖον ἔχειν
 τὸ αὐτὸ πάθος ἐν τῷ καθεσθῆναι ἦναι· εἰ γὰρ τῆ μὲν, τῆ δὲ
 μὴ, ταύτη καθεσθῆναι αἰσθῆσθαι, τοῦτο δ' ἀδύνατον.

ἐπεὶ δ'
 ἔστιν αἰσθῆσθαι καὶ ἐρηγοῦναι τὸ μὲν τι ἴδιον, τὸ δὲ τι κοινόν,
 15 καὶ ταῖς ἀλλοδαῖς ἐκαστῇ κατὰ τὸν αὐτὸν τρόπον, ἔστι δὲ τις καὶ
 κοινὴ δύναμις ἀκολουθεῖσα πάσας, ἡ καὶ ὅτι ὁρᾷ καὶ ἀκούει
 αἰσθῆσθαι (οὐ γὰρ δὴ τῆ γε ὁρᾷ ὁρᾷ, καὶ κριβεῖ

6. Alternatively, reading πᾶσιν at 455a10 with several mss, 'the same affection must belong to all [sc. animals]'. Thus Hett. cf. also the conclusion drawn at 455a26-27. But the hypothesis to be rejected at 411-12 is that one sense is affected, but another not (τῆ μὲν, τῆ δὲ μὴ). The rejection of this hypothesis warrants the conclusion that the same affection belongs to all of the senses.

is defined as such. And we maintain that sleep is, in a certain way, an immobilization or 'fettering' of perception; whereas its liberation or release is waking. By contrast, no plant can partake of either of these affections. For neither sleep nor waking belongs to anything without perception; whereas things to which / perception belongs can also have pain and pleasure. And what can have these can also have appetite. But none of these belongs to plants. Proof of this is the fact that the nutrient / part performs its function more during the sleeping than the waking state. For more nutrition and growth take place at that time, suggesting that nothing is needed from perception to further those ends. 455a

CHAPTER TWO

5. 455a4-12. *To which sense-faculty are sleep and waking due? All of the special senses must be similarly affected in sleep. For it is impossible to be perceiving with one sense during sleep but not with another.*

455a4. We must now consider why it is that one sleeps or wakes, and to what sort of / sense (or what sorts, if more than one) those states are due. Now, given that some animals possess all of the senses, while others do not possess, e.g. sight, yet all possess touch and taste—apart from any animal that is imperfect (and these have been discussed in our work on the soul); given also that an animal, / while sleeping, cannot be experiencing any perception at all in an unqualified way; it is plain that during the state called sleep the same affection must belong to all of the senses.⁶ For if it belongs to one sense but not to another, then an animal will perceive with the latter while sleeping. But that is impossible.

6. 455a12-b2. *There must be a capacity common to all of the special senses, a single sense-faculty with its own organ. This will serve as a master sense-organ, upon whose functioning that of the special senses depends.*

455a12. Now to every sense there belongs something special to it, and also something common. Thus, seeing is special to the sense of sight, and hearing to that of hearing, / and so on for the other senses severally. But all are attended also by a certain common faculty, whereby one perceives that one is seeing or hearing. For it is not sight, after all, whereby one sees that one is seeing. Nor is it taste or

δη και δυναται κρινειν οτι ετερα τα γλυκα των λευκων ουτε γευσει ουτε οψει ουτε αμφοιν, αλλα τιμι κοινω μοριω 20 των αισθητηριων απαντων. εστι μεν γαρ μια αισθησις, και το κρισιον αισθητηριου ειναι, το δ' ειναι αισθησει του γενουσ εκαστου ετερου, οτω ψοφου και χρωματος), τουτο δ' εια τω απρικω μαλιστα υπαρχει (τουτο μεν γαρ κριζεταιαι των 25 περι αυτων εν τοις περι ψυχης θεωρημασι), φανερον τοιουνυ οτι τουτου εστι παθος η ερηγοροσις και ο υνος. διω και πασιν υπαρχει τοις ζωοις. και γαρ η φηη μωνη πασιν.

γαρ τω πασας τι μενουθεναι τας αισθησεις εγλυετο το καθ- ει ευδελν, ετοπου ει αις ουτε ανγκη ουτε δυνατον τροπου τινα 30 ενεργειν εμα, ταυτας αναγκαιον δογειν εμα και κλινητλιζειν τουναντιου γαρ ευλογωτερου συνεβαινευ αν αυταις, το μη εμα ηρεμειν. ως δε νυν λεγομεν, ευλογως εχει και περι τουτων, του γαρ κυριου των ελλων παντων αισθητηριου, και προς ο συνετεινει τελλα, μενουθωτος τι συμπασχειν αν- 455b ανακαιον και τα λοιπα παντα, εκειων δε τινος ανυνατου-τος ουκ ανγκη τουτ' ανυνατειν.

φανερον δε εκ πολλων οτι ουκ εν τω τας αισθησεις δογειν και μη χρησθαι αυταις ο υνος, ουδ' εν τω μη δυνασθαι αισθανεσθαι (και γαρ εν ταις 5 λειπομυκταις τουουτου τι συμβαλνει, ανυνατλια γαρ αισθησεως η λειπομυκτια, γιγνυνται δε και εκυοικαι τινες τουουται. ετι δ' οι τας εν τω ανγκηι φλεβας καταλαμβαυομενοι ανυ-σθητοι γιγνυνται), αλλα' οταν η ανυνατλια της χρηςσεως μητ' εν τω τυχευσι αισθητηριω, μητε δ'ι' ην ετυχευ αιτιαν, αλλα, 10 καθαμερ ειρηται νυν, εν τω πρωτω φ αισθανεται παντων. οταν μεν γαρ τουτ' ανυνατησ, ανγκη και τοις αισθητηριοις πασιν ανυνατειν αισθανεσθαι, οταν δ' εκειων τι, ουκ ανγκη τουουτ'.

sight, or both, whereby one judges, or can judge, that sweet things differ from white ones. One does so, rather, with some part that is common / to all the sense-organs. For there exists a single sense-faculty, 20 and the master sense-organ is single, though its being differs for the perception of each kind of thing, e.g. of sound or color. At the same time this belongs especially to the sense of touch. For this can exist separately from the other sense-organs, whereas the others are inseparable from it. These points have been discussed / in our studies on 25 the soul. Given these things, it must plainly follow that waking and sleep are an affection of this. That is why they belong to all animals. For it is only touch that belongs to all of them.

455a27. For if the sleeping state occurred because of some affection of all the senses, it would be odd that capacities that need not, and in a certain way cannot, / be exercised simultaneously, should necessarily be inactive and immobilized simultaneously. For just the opposite would be a more logical outcome, i.e. that they should not be simultaneously at rest. But on our present theory, a logical account can be given of them too. For when the sense-organ that controls all the others, and upon which the others converge, has undergone some affection, then / all the rest must be affected with it; whereas if any one 455b of the latter is disabled, the former need not be disabled as well.

7. 455b2-13. *Sleep does not consist simply in loss of sensory awareness. For that occurs in several other states as well. Sleep is not the incapacitation of this or that special sense, but the disabling of the primary sense-organ.*

455b2. It is plain, though, from many considerations that sleep does not consist merely in the senses being inactive and unused. Nor even in the incapacity to experience perception. For something similar happens in / fainting spells. For fainting is an incapacitation of perception. Certain unconscious states also take that form. Again, people who have pressure applied to the veins in the neck become insensible. Sleep occurs, rather, when the incapacity for use happens not in just any sense-organ, nor from just any cause, but, / as was just said, when it happens in the primary sense-organ whereby one perceives everything. For when that is disabled, then all of the sense-organs must be unable to perceive as well; whereas when one of the latter is disabled, the former need not be.

δι' ἣν δὲ αἰτίαν συμβαίνει τὸ καθεύδειν, καὶ ποῖόν τι τὸ πάθος ἐστί, λεκτέον. ἐπεὶ δὲ πρόποι πλείους τῆς αἰτίας 15 (καὶ γὰρ τὸ τινοῦ ἔνεκεν, καὶ θεῖν ἢ ἀρχὴ τῆς κινήσεως, καὶ τὴν ὕλην καὶ τὸν λόγον αἰτίου εἶναι φάμεν), πρῶτον μὲν οὖν ἐπειδὴ λέγομεν τὴν φύσιν εἶναι τοῦ ποιεῖν, τοῦτο δὲ ἀγαθόν τι, τὴν δὲ ἀναπαύσει παντὶ τῷ πεφυκότι κινεῖσθαι, μὴ δυναμένῳ δὲ δεῖ καὶ συνεχῶς κινεῖσθαι μεθ' ἡδονῆς, ἀναπαύσει καὶ ἀφελίμων, τῷ δὲ ὕπνῳ αὐτῆ τῆ ἀνη- 20 ὄστε προσάπτουσι τὴν μεταφορὰν ταύτην ὡς ἀναπαύσει ὄντι- ὄστε σωτηρίας ἔνεκα τῶν ζῶων ὑπάρχει. ἢ δὲ ἐρηθροῖς τέλῳσ'. τὸ γὰρ αἰσθάνεσθαι καὶ τὸ φρονεῖν πᾶσι τέλῳσ' οἷς ὑπάρχει ἄτατον αὐτῶν. βέλτιστα γὰρ ταῦτα, τὸ δὲ τέλῳσ' 25 βέλτιστον, ὡστε ἀναγκάσιον ἐκαστῷ τῶν ζῶων ὑπάρχειν τὸν ὕπνον. λέγω δὲ ἐξ ὑποθέσεως τὴν ἀνάγκην. ὅτι εἰ ζῶον ἔσται ἔχον τὴν αὐτοῦ φύσιν, ἐξ ἀνάγκης τινα ὑπάρχειν αὐτῷ· δεῖ, καὶ τούτων ὑπαρχόντων ἕτερα ὑπάρχειν.

εἶτι δὲ ποίας κινήσεως καὶ πράξεως ἐν τοῖς σώμασι γιγνομένης συμβαίνει τὸ 30 τὲ ἐρηθροῦναι καὶ τὸ καθεύδειν τοῖς ζῶοις, μετὰ ταῦτα λεκτέον. τοῖς μὲν οὖν ἄλλοις ζῶοις καθάπερ τοῖς ἐναίμοις ὑποληπτέον εἶναι τὰ αἴτια τοῦ πάθους ἢ ταῦτὰ ἢ τὰ ἀνά- λόγον, τοῖς δὲ ἐναίμοις ἀπερ τοῖς ἀνθρώποις. ὡστε ἐκ τούτων πάντα θεωρητέον.

ὅτι μὲν οὖν ἡ τῆς αἰσθήσεως ἀρχὴ γίνεσθαι 456a ἀπὸ τοῦ αὐτοῦ μέρους τοῖς ζῶοις ἀφ' οὗπερ καὶ ἡ τῆς κινήσεως, διώριστα πρότερον ἐν ἑτέροις. αὐτῆ δὲ ἐστί τριῶν διωρισμάτων

7. The text and exact sense at 455b20-21 are uncertain. The translation reads *μεταφορὰν* with Ross. Reading *καταφορὰν* with E, there is no reference to 'metaphor', but only to the 'downward movement' that causes or constitutes sleep (456b24-32). The sense of αὐτῆ τῆ ἀνηθεία is unclear. Beare gives 'taught by experience'; Hett, in the light of the facts; Barnes, 'taught by truth itself'. The present translation, 'reflects the literal truth', takes the point to be that the use of ἀναπαύσει as a metaphor for sleep is *well suited* to the fact that sleep involves cessation from movement or activity. In a somewhat similar way, the English 'rest' signifies absence of movement or activity, and although not synonymous with 'sleep', is used in a special way of animals. They are capable of 'resting' in a way that billiard balls, for instance, are not.

8. Ross's text gives no definite article at 455b23 before τέλῳσ', although several mss read τὸ τέλῳσ'. Whatever the correct text, translators have rightly understood the waking state, and the perceiving or thinking that occurs in it, not merely as *an* end but as *the* end. Thus Beare, 'the highest end'; Hett, 'the proper end'; Barnes, 'the goal'. Perceiving and thinking are *the* end for which the animal exists, since they are 'best' (b24), constitutive of its being the kind of animal that it is. Its waking state is called the 'end', in that its self-realization through perceiving and thinking must occur while it is in that state.

9. The translation assumes that a comma or semicolon should be placed after

8. 455b13-34. *What accounts for this? Four kinds of explanatory factor are recognized: (1) the 'for the sake of something'; (2) the 'source of change'; (3) the 'material'; and (4) the 'account'. Sleep occurs for the sake of preserving the animal, by enabling it to exercise its capacities for perception and thought. If the animal is to exist as such, sleep is necessary for it to do so.*

455b13. We must next give the explanation of sleeping, and say what kind of affection it is. Now there are several types of explanatory factor. / For we take as explanatory the 'for the sake of something', the 'source of change', the 'material', and the 'account'. First, then, given our claim that nature acts for the sake of something, and that that is a good, and that rest is both necessary and beneficial for everything that moves by nature, yet cannot move all the time and continuously with pleasure; / given also that 20 metaphorical talk of sleep as 'rest' reflects the literal truth,⁷ it follows that sleep is for the sake of animal preservation. Waking, on the other hand, is the end.⁸ For perceiving and thinking are the end of all creatures to which either of them belongs. For they are best, and the end is / what is best. Hence⁹ it is necessary for sleep to 25 belong to every animal. I refer to 'conditional necessity', meaning that if there is to be an animal possessing its own nature, then certain things must belong to it of necessity; and if those are to belong, then so must certain others.

455b28. It must next be stated, moreover, from what kind of movement or action occurring in their bodies / waking and sleeping arise in animals. It must be assumed that the factors explaining the affection in other animals are the same as, or analogous to, those for sanguineous ones; and the same for sanguineous ones as for man. Hence all cases must be studied in the light of these.

9. 455b34-456a24. *The 'source of change' lies in the central organ of perception and movement. For sanguineous animals, this is the heart. Sleep and waking must therefore originate from there.*

455b34. Now it has already been determined in other works that perception in animals originates / from the same part as does movement. Of three areas that have been determined, this is the one that lies midway between the head and the lower abdomen. In sanguineous animals, this is the region about the heart. For all san- 456a

τόμων ὁ μέσος κεφαλῆς καὶ τῆς κάτω κοιλίας. τοῖς μὲν οὖν ἐναίμοις τοῦτ' ἐστὶ τὸ περὶ τὴν καρδίαν μέρος. πάντως γὰρ τὰ ἐναίμα καρδίας ἔχει, καὶ ἡ ἀρχὴ τῆς κινήσεως καὶ τῆς αἰσθήσεως τῆς κυρίας ἐντεῦθεν ἐστίν. τῆς μὲν οὖν κινήσεως φανερόν ἐστι καὶ τὸ πνεύματος ἀρχὴ καὶ ὅλως ἡ τῆς καταψύξεως ἐστὶν ἐνταῦθα, καὶ τὸ ἀναπνεῖν τε καὶ τὸ ὑγρῶ καταψύχεται πρὸς γε τὴν σωτηρίαν τοῦ ἐν τούτῳ μορίῳ θερμοῦ ἢ φύσις περὶοικεῖ. βηθήσεται δὲ περὶ αὐτῆς ὕστερον καθ' αὐτήν. τοῖς δὲ ἀναίμοις καὶ τοῖς ἐντόμοις καὶ μὴ δεχομένοις πνεύμα ἐν τῷ ἀνάλογον τὸ συμπύκνωμα πνεύμα ἀναφυσόμενον καὶ συνιζάνον φαίνεται. δῆλον δὲ τούτῳ ἐπὶ τῶν ὀστέρων, οἷον σφηκῶν καὶ μελιτῶν, καὶ ἐν ταῖς μυελιαῖς καὶ ὅσα τοιαῦτα.

15 ἐπεὶ δὲ κινεῖν μὲν τι ἢ ποιεῖν ἄνευ ἰσχύος ἄδύνατον, ἰσχύου δὲ ποιεῖ ἢ τοῦ πνεύματος κἀβέβης, τοῖς μὲν εἰσφερομένοις ἢ θύραθεν, τοῖς δὲ μὴ ἀναπνεύουσιν ἢ συμπύκνωτος (διὸ καὶ βομβοῦντα φαίνεται τὰ πτερωτά, ὅταν κινῶνται, τῇ τριβῇ τοῦ πνεύματος προσπίπτουτος πρὸς τὸ ὑπόζωμα. 20 τῶν δ' ὀστέων), κινεῖται δὲ πᾶν αἰσθησέως τινος γενομένης, ἢ οικείας ἢ ἀλλοτριᾶς, ἐν τῷ πρώτῳ αἰσθητηρίῳ—εἰ δὲ ἐστὶν ὁ ὕμνος καὶ ἡ ἐρηγοροῖς πάθη τοῦ μορίου τούτου, ἐν ᾧ μὲν τόπῳ καὶ ἐν ᾧ μορίῳ πρώτῳ γίνεταὶ ὁ ὕμνος καὶ ἡ ἐρηγοροῖς, φανερόν.

κινουῦνται δ' ἐνίοι καθ' ἑαυτοὺς καὶ ποιοῦσι 25 πολλὰ ἐρηγορικά, οὐ μὲντοι ἄνευ φαντάσματος καὶ αἰσθησέως τινος—τὸ γὰρ ἐνύπνιον ἐστὶν αἰσθημα τῶνον τινα. λεκτέον δὲ περὶ αὐτῶν ὕστερον. διὸτι δὲ τὰ μὲν ἐνύπνια μνημονεύουσιν ἐρεθίσματα, τὰς δ' ἐρηγορικάς πράξεις ἀμνημονοῦσιν, ἐν τοῖς Προβληματικοῖς εἴρηται.

30 Ἐχόμενον δὲ τῶν εἰρηγημένων ἐστὶν ἐμελεῖν τινων γίγνομένων καὶ πόθεν ἡ ἀρχὴ τοῦ πάθους γίνεταί, τοῦ τ' ἐρηγορεῖν καὶ τοῦ καθεύδειν, φανερόν δὲ ἐπὶ ἐμελὶ ἀναγκαστοῦ τῷ ζῴῳ, ὅταν αἰσθησῶν ἔχη, τότε πρώτον τροφήν τε λαμβάνειν καὶ αὔξασθαι, τροφήν δ' ἐστὶ πᾶσιν ἢ ἐσχάτη τοῖς μὲν βέλτιον at 455b25, and that ὅσπερ should be read rather than ἔτι δὲ (Ross). Thus also Beare and Heit. The effect of this is to make the whole passage b22-28 a continuous exposition of the final cause of sleep: b22-26 explains why 'it is necessary for sleep to belong to every animal', and b26-28 explains what kind of necessity is relevant. With Ross's text, we must translate b25-26, 'Moreover, it is necessary for sleep to belong to every animal', and take the sentence as providing an additional argument for what has preceded it. Thus, Barnes gives 'Again, sleep belongs to each animal'. But the sentence does not provide any new argument for the thesis that sleep is for the sake of animal preservation.

10. Alternatively, reading τὰ ἀναπνεύοντα τε καὶ τὰ... καταψυχόμενα in 456a8-9, and περὶοικε in 10, 'it is with a view to the conservation of the heat in this part that nature has formed as she has both the animals which respire and those which cool themselves by moisture' (Beare).

guineous / animals possess a heart, and both movement and perception 5 in the full sense originate from there. As for movement, it is plain that breathing, and the cooling process in general, originate there; and that nature has provided both respiration and cooling by moisture¹⁰ with a view to conservation / of heat in that part. We shall discuss that subject later in its own right. But in bloodless animals and insects, and in those that do not respire, their naturally inherent breath can be seen inflating and contracting in the region analogous to the heart. This is clear in the case of whole-winged insects, such as wasps and bees as well as in flies / and all such. 15

456a15. Now, given that without strength it is impossible to move anything or to do anything, and the holding of breath produces strength (for things that inhale, holding of breath from outside; but for things that do not respire, holding of their inherent breath—which is why the winged insects of the whole-winged species can be heard buzzing when they move, because of the friction of breath impinging on their diaphragm); / and given that it is upon the occurrence of some perception, either internal or external, in the primary sense-organ, that every animal moves; then, if sleep and waking are indeed affections of that part, the location and the bodily part in which sleep and waking first develop will be evident.

10. 456a24-29. *Movements in sleep and dreams will be discussed later.*

456a24. Some sleepers move and perform / many actions akin to 25 waking ones, although not without some appearance (*phantasma*) or perception. For a dream is, in a certain way, a sense-impression. But those matters we must discuss later. Why it is that on being awakened people remember their dreams, but do not remember the actions akin to waking ones they have done, has been stated in the *Problems*.

CHAPTER THREE

11. 456a30-b28. *Sleep arises from the intake of food. Ingested matter undergoes exhalation, and rises in a dense mass, making the head heavy. Sleep ensues upon its return downward.*

456a30. Following upon what has been said, it remains to consider, for 30 both waking and sleeping, what developments give rise to the affection, and whence it has its origin. Now since it is when an animal possesses perception that it must first take in food and gain growth; and since for all / sanguineous animals food in its ultimate form is the 35

ἐν αἵμοις ἢ τοῦ αἵματος φύσις, τοῖς δ' ἀναίμοις τὸ ἀνάλογον, 456b
τόπος δὲ τοῦ αἵματος αἰ φάσεις, τούτων δ' ἀρχὴ ἡ καρδία
(φανερόν δὲ τὸ λεχθῆν ἐκ τῶν ἀνατομῶν)—τῆς μὲν οὖν ὑπάθεον
τροπῆς εἰσιουσις εἰς τοὺς δεκτικούς τόπους γίνεσθαι ἢ ἀνα-
θυλάσις εἰς τὰς φάσεις, ἐκεῖ δὲ μεταβάλλουσα ἐλαττω-
5 τούται καὶ πορεύεται ἐπὶ τῆν ἀρχήν, εἴρηται δὲ περὶ τούτων
ἐν τοῖς περὶ τροπῆς. νῦν δὲ ἀναληπτέου ὑπέρ αὐτῶν τούτου
ῥάριον, ὅπως τὰς ἀρχὰς τῆς κινήσεως θεωρήσωμεν, καὶ τὴν
πρόσχωτον τοῦ μορίου τοῦ αἰσθητικοῦ συμβαίνει ἡ ἐπιτήροσις
καὶ ὁ ὕπνος. οὐ γὰρ ἔστιν ὁ ὕπνος ἡτιςοῦν ἀδυναμία τοῦ αἰ-
10 σθητικοῦ, καθάπερ εἴρηται, καὶ γὰρ ἔκνοια καὶ πνευμαὸς τις
καὶ λειποψυχία ποιεῖ τὴν τοιαύτην ἀδυναμίαν. ἥδη δὲ γε-
γένηται τίσι καὶ φαντασία λειποψυχίασιν ἰσχυρῶς.

μὲν οὖν ἔχει τινὰ ἀπορίαν· εἰ γὰρ ἐνδέχεται καταδαρθεῖν
τὸν λειποψυχίασιν, ἐνδέχοιτ' ἂν ἐνύπνοι εἶναι καὶ τὸ
15 φαντασασθαι. πολλὰ δ' ἔστιν ἂν λέγουσιν οἱ σφόδρα λειπο-
ψυχίασιν καὶ δόξαντες τεθῆναι· περὶ αὐτῶν λόγον
ὑποληπτέον εἶναι πάντων.

ἀλλὰ γάρ, ὅσπερ εἴπομεν, οὐκ
ἔστιν ὁ ὕπνος ἀδυναμία πάσα τοῦ αἰσθητικοῦ, ἀλλ' ἐκ τῆς
περὶ τὴν τροπὴν ἀναθυμιάσεως γίνεσθαι τὸ πάθος τοῦτο.
20 ἀνάγκη γὰρ τὸ ἀναθυμιάσιν μέχρι τοῦ ἀθεῖσθαι, εἴτ'
ἀντιστρέφειν καὶ μεταβάλλειν καθάπερ εὔριπον. τὸ δὲ θερ-
μὸν ἐκέρσιν τῶν ζῴων πρὸς τὸ ἀνα πύφικε φέρεσθαι. ὅταν
δ' ἐν τοῖς ἀνω τόποις γένηται, ἀέρου πάλιν ἀντιστρέφει
καὶ καταφέρεται. διὸ μάλιστα γίνονται ὕπνοι ἀπὸ τῆς τρο-
25 πῆς· ἀέρου γὰρ πολλὸν τὸ τε ὑγρὸν καὶ τὸ συμπυκνωθεὶς ἀνα-
φέρεται. ἰσχυρῶς μὲν οὖν βαρύνει καὶ ποιεῖ νυστάζειν· ὅταν
δὲ πέψη κέρτα καὶ ἀντιστρέψαν ἀμώση τὸ θερμὸν, τότε γί-
γνεται ὁ ὕπνος καὶ τὸ ζῴων καθέρδει.

σημείον δὲ τούτων καὶ
τὰ ὑπνωτικά· πάντα γὰρ καρδιαία ποιεῖ, καὶ τὰ ποτὰ
30 καὶ τὰ βρωτά, μῆκων, μαυροχόρας, οἴνος, αἶραι. καὶ
καταφερόμενοι καὶ νυστάζοντες τοῦτο δοκοῦσι πάσχειν, καὶ

11. Or perhaps, at 456b12, 'some persons in a profound trance' (Beare).
Similarly, at b15-16 below, Beare gives 'Persons, too, who have fallen into a
deep trance'.

12. 'For if it is possible for one who has fainted to have fallen asleep' (456b13-
14). This translation takes the aorist infinitive καταδαρθεῖν, matching the
aorist participle λειποψυχίασιν, to refer to falling asleep as supposedly
identical (or at least concomitant) with fainting, rather than as ensuing upon
that state. Beare gives 'if it were conceivable that one who has swooned should
in *this state* fall asleep' (italics added). Heir: 'if it is possible for one who has
fainted to fall asleep'. But there would be no reason for Aristotle to
hypothesize that a subject who had fainted might subsequently fall asleep.
What he needs to hypothesize is that someone who has fainted *has already*
ipso facto fallen asleep. On that hypothesis it would be plausible to regard his

natural substance blood, and its counterpart for bloodless ones; / and 456b
since blood is located in the veins, and these originate in the heart (a
point that is clear from the dissections); it is clear that upon entry of
food from an outside source into the parts fitted to receive it, the ex-
halation proceeds into the veins; and on undergoing change there, it
is transformed into / blood, and travels to their point of origin. These 5
matters have been discussed in our work on nutrition. We must now
review them, for the purpose of studying the sources of change, and
seeing what affection of the perceptual part gives rise to waking and
sleep. For, as has been said, sleep is not just any incapacitation of the
perceptual / part: unconsciousness, choking of a certain sort, and 10
fainting produce such incapacitation also. And fantasy (*phantasia*)
also has been known to occur in some people when they have fainted
profoundly.¹¹

456b12. This point actually contains a certain difficulty. For if it is pos-
sible for one who has fainted to have fallen asleep,¹² it could also be
that the appearance (*phantasma*) was a / dream. Many things, too, 15
are uttered by those who have gone into a deep faint and have
seemed dead. One must assume that the same account applies to all
those cases.

456b17. Yet, as we have said, sleep is not any and every incapacitation
of the perceptual part. Rather, this affection develops from the ex-
halation attendant upon nutrition. / For as the matter is exhaled, it has 20
to be driven to a certain point, and must then turn back and change
direction, like the tide in a narrow channel. Now in every animal the
hot matter tends naturally to move upwards. But when it has reached
the upper areas, it turns back again, and comes down in a mass. That
is why spells of sleep follow especially upon the intake of food: / it is 25
because the moist and solid matter are rising in a dense mass. This,
while static, weighs one down and causes nodding. But when it has de-
scended again, and by returning has repelled the hot matter, then
sleep ensues and the animal falls asleep.

12. 456b28-457a3. *Soporific agents have the same effect, as do fatigue
and certain illnesses.*

456b28. Soporific agents are a further proof of this. For all of them,
liquid / and solid alike (poppy, mandragora, wine, darnel), produce 30
heaviness of the head. And people seem to be affected in that way
when sinking into sleep or nodding off: they are unable to hold up

ἀδυνατοῦσιν αἰρεῖν τὴν κεφαλὴν καὶ τὰ βᾶθρα. καὶ μετὰ
τὰ σιτία μάλιστα τοιοῦτος ὁ ὕπνος· πολλὰ γὰρ ἢ ἀπὸ τῶν
σιτίων ἀναθυμιάσις. ἔτι δ' ἐκ κόπων ἐπιών· ὁ μὲν γὰρ κόπος
συντηκτικόν, τὸ δὲ σύντηγμα γίγνεται ὡστερ τροφή ἔ-
457a πικτος, ἀν μὴ ψυχρὸν ἦ. καὶ νόσοι δὲ τινας δὲ αὐτὸ τοῦτο πολ-
οῦσιν, ὅσαι ἀπὸ περιττώματος ὑποῦ καὶ θερμῶ, οἷον συμ-
βαίνει τοῖς πυρεττοῦσι καὶ ἐν τοῖς ληθέργοις.

ἔτι δ' ἡ πρῶ-
τη ἡλικία· τὰ γὰρ παιδία καθεύδει σφόδρα διὰ τὸ τὴν
5 τροφήν ἔνυ φέρεσθαι πᾶσαν. σημείον δὲ τὸ ὑπερβάλλειν
τὸ μέγεθος τῶν ἔνυ πρὸς τὰ κάτω κατὰ τὴν πρῶτην ἡλι-
κίαν, διὰ τὸ ἐπι ταῦτα γίγνεσθαι τὴν αἴτησιν. διὰ ταύτην
δὲ τὴν αἴτησιν καὶ ἐπιληπτικὰ γίγνεται· ὅμοιον γὰρ ὁ ὕπνος
ἐπιλήθει, καὶ ἔστιν τρόπου τιμὴ ὁ ὕπνος ἐπιλήψις. διὸ καὶ
10 συμβαίνει τισιν ἡ δόχη τοῦτου τοῦ πάθους καθεύδουσιν,
καὶ καθεύδουτες μὲν ἀλίσκουται, ἐρηγορότες δ' οὔ· ὅταν
γὰρ πολὺ φερίται τὸ πνεῦμα ἔνυ, καταβαίνον πάλιν τὰς
φλέβας ἄγκοι, καὶ συνθλίβει τὸν πόρον δι' οὗ ἡ ἀνανοῆ
γίγνεται. διὸ τοῖς παιδίοις οὐ συμβέβηκεν οἱ οἷνοι, οὐδέ ταις
15 τίτθαις (δικάφεται γὰρ ἴσως οὐδὲν αὐτὰ πνεῖν ἢ τὰς τίτθαις),
ἀλλὰ δεῖ πνεῖν ὑδαρὴ καὶ ὀλίγον· πνευματώδες γὰρ ὁ οἶ-
νος καὶ τοῦτου μᾶλλον ὁ μέλας. οὔτω δὲ τὰ ἔνυ πάθη
τροφῆς τοῖς παιδίοις, ὥστε πέντε μηνῶν οὐδὲ στρέφουσι
τὸν αὐχένα· ὡστερ γὰρ τοῖς σφόδρα μεθύουσιν, ὑπόπτως
20 ἀναφέρεται πολλὰ. εὐλόγον δὲ τοῦτ' εἶναι τὸ πάθος αἴτιον
καὶ τοῦ ἠρημεῖν ἐν ταῖς μήτραις τὰ ἔμβρυα τὸ πρῶτον.

καὶ
τὸ ὄλον δὲ φιλύπνοι οἱ ἀνηρόφθαλμοι καὶ οἱ ναυάδες καὶ
οἱ μεγάλοκέφαλοι· τῶν μὲν γὰρ αἱ φλέβες στεναί, ὡστ' οὐ
ῥᾶδιον διαρρεῖν κατῶν τὸ ὑπόον, τοῖς δὲ ναυάδεσι καὶ μεγάλο-
25 κεφάλοις ἡ ἔνυ ὀρητὴ πολλὰ καὶ ἀναθυμιάσις. οἱ δὲ
φλεβῶδες ἔνυ ὑπνωτικοὶ δι' εὐροίαν τῶν πόρων, ἀν μὴ τι
ἄλλο πάθος ἔχωσι ὑπεναρτίον. οὐδ' οἱ μέλαγχολικοί· κατ-

experience, while in a faint, as a dream. But the hypothesis is incorrect, as has
already twice been said (455b4-6, 456b9-11), and its rejection is recalled once
more at b17-18: 'As we have said, however, sleep is not any and every in-
capacitation of the perceptual part'. With these words, the conditional is, in
effect, pronounced counterfactual, and the dream solution thereby ruled out.

13. Alternatively, reading πολλοῖς at 457a10 with some mss, 'That is why, for
many people, the start etc.'. Thus Beare and Heitl.

their heads or eyelids. It is after meals, especially, that sleep of that
sort comes on. For the exhalation from food is considerable. It also
follows upon some states of fatigue. For fatigue is a solvent; and the
dissolved matter, / unless it is cold, acts like food not yet digested. 457a
Certain illnesses too have the same effect, i.e. those due to moist and
hot residue, as happens with the feverish and the comatose.

13. 457a3-21. *The same process underlies the sleep of infants. It also explains epileptic seizures, and the harmful effects of wine upon infants.*

457a3. Again, early childhood is similar. For infants sleep deeply be-
cause all their / food is traveling upwards. Proof of this is the fact that 5
during early childhood the upper parts exceed the lower in size, be-
cause growth takes place in the direction of the former. This is also
the explanation of epileptic fits. For sleep is like epilepsy. In fact,
sleep is, in a way, an epileptic seizure. That is why, / for some 10
people, the start of that affection happens when they are asleep;
and they become seized with it while asleep, but not while awake. For
whenever vapor moves upwards in a large volume, it swells the veins
as it comes down again, and constricts the respiratory passage. Hence
wines are not good for infants—or for their / wet-nurses, since it 15
makes no difference whether they drink it themselves or their nurses
do. But they should drink it diluted and in small quantity. For wine is
gaseous, particularly dark wine. Infants are so filled with food in their
upper parts that for five months they do not even turn their necks.
For as with the very drunk, much moisture / gets carried upwards. This 20
affection probably also explains why initially the embryo lies at rest in
the womb.

14. 457a21-33. *The same pattern occurs in those with small veins or big heads. Those with large veins and atrabillious people show the opposite pattern.*

457a21. In general, also, those with inconspicuous veins, as well as
dwarfs and those with big heads, are fond of sleeping. For in the
former the veins are narrow, so that the descending moisture cannot
easily flow through them; while for dwarfs and / big-headed creatures 25
the surge upwards in exhalation is considerable. Those with large
veins, on the other hand, because of the breadth of their passages, are
not given to sleep, unless they possess some other, counteracting af-
fection. Nor again are the atrabillious. For their inner region has been

ἐψυκται γὰρ ὁ εἶσα τόπος, ὥστ' οὐ γίγνεται πᾶθος αὐτοῖς
 ἀναθυμιάσεως. διὰ τοῦτο γὰρ καὶ βρωτικοί, σκλήφοι ὄντες.
 30 ὥστερ γὰρ οὐδὲν ἀπολελαυκότεν διακείται τὰ στήματα αὐ-
 τοῖς. ἡ δὲ μέλαινα χολὴ φύσει ψυχρὰ οὔσα καὶ τὸν
 σπερτικὸν τόπον ψυχρὸν ποιεῖ καὶ τὰ ἄλλα μόρια, ὅπου ἐν
 ὑπέροχῃ θυνάμει τὸ τοιοῦτον περιττωμα.

ὥστε φανερὸν ἐκ
 457b τῶν εἰρημένων ὅτι ὁ ὕπνος ἐστὶ σύνοδος τις τοῦ θερμοῦ εἶσα
 καὶ ἀντιπεριστασις φυσικὴ διὰ τὴν εἰρημένην αἰτίαν. διὸ
 πολλὰ ἢ κίνησις τοῦ ὑπνοῦντος. ὅθεν δ' ἐκλείπει, καταψύχε-
 5 ῖται καὶ διὰ ψῦξιν καταπίπτει τὰ βλάφαρα, καὶ τὰ μὲν
 εἶσα κατέψυκται καὶ τὰ ἔξω, τὰ δ' ἔντος καὶ τὰ κάτω
 θερμά, ὅταν τὰ περὶ τοὺς πόδας καὶ τὰ εἶσα.

καίτοι τοῦτό τις
 ἀπορροεῖεν αὐ, ὅτι μετὰ τὰ στήρια ἰσχυρότατος ὁ ὕπνος γί-
 γνεται, καὶ ἔστιν ὑπνωτικὰ οἴνος καὶ ἄλλα θερμότητα ἔχον-
 10 τα τοιαῦτα, ἔστι δ' οὐκ εὐλόγον τὸν μὲν ὕπνον εἶναι κατὰ-
 10 ψύξιν, τὰ δ' αἰτρία τοῦ καθεύδειν θερμά. πότερον οὖν τοῦτο
 συμβαίνει ὅτι ὥστερ ἢ κοιλία κενῇ μὲν οὔσα θερμὴ ἐστίν,
 ἡ δὲ πᾶρωσις αὐτὴν καταψύχει διὰ τὴν κίνησιν, οὕτω καὶ
 οἱ ἐν τῇ κεφαλῇ πόροι καὶ τόποι καταψύχονται ἀναφερο-
 15 μένης τῆς ἀναθυμιάσεως; ἢ ὥστερ τοῖς προσχομένοις τὸ
 θερμὸν ἐξαιφνης φρίκη γίγνεται, κακεῖ δυνάτωτος τοῦ θερμοῦ
 ἀπορροεῖται τὸ ψυχρὸν καταψύχει, καὶ τὸ κατὰ φύσιν
 θερμὸν ποιεῖ ἐξαδυναρεῖν καὶ ὑποχωρεῖν; ἔτι δὲ πολλὰς
 20 ἐμπροσθεν τροφῆς, ἣν ἀνάγει τὸ θερμὸν, ὥστερ τὸ πῦρ
 ἐπιτεβέλει τῶν ξύλων, καταψύχεται, ἕως αὐ κατακαυθῆ.
 20 γίγνεται γὰρ ὁ ὕπνος, ὥστερ εἴρηται, τοῦ συμπαιδίου ἀνα-
 φερομένου ὑπὸ τοῦ θερμοῦ διὰ τὴν φλεβῶν πρὸς τὴν κεφα-
 λὴν. ὅταν δὲ μηκέτι δύνηται, ἀλλὰ τὴ πᾶθηβει ὑπερβάλλῃ
 τὸ ἀναχθεῖν, πάλιν ἀναπαύεται καὶ κάτω πεῖ (διὸ καὶ
 25 πίπτουσι γὰρ ὑποσπυμένοι τοῦ θερμοῦ τοῦ ἀνάγοντος οἱ ἀνθρω-
 ποι, ὥστερον δὲ φαντασίαν.

14. The translation at 457b23 'it gets driven back again', follows Ross in read-
 ing ἀναπαύεται and understanding τὸ συμπαιδίου (b20) as its subject.
 ἐπιτεβέλει(b25) is taken with Ross (265) as agreeing with that subject, 'as it
 [the solid matter] descends, it produces unconsciousness'. There is, however,
 ms support for ἀναπαύεται, which requires τὸ θερμὸν to be supplied as
 object, and τὸ ἀναχθεῖν taken as subject. Thus Beare, 'when that which has
 been thus carried up can no longer ascend, but is too great in quantity [to do
 so], it forces the hot back again and flows downwards'. Similarly Heit.

15. The translation follows Ross's text at 457b23-24, reading καὶ πίπτουσι.
 Alternatively, reading the well attested καταπίπτουσι, 'men sink down'.
 Thus Beare and Heit.

cooled, so that in their case no mass exhalation occurs. For the same
 reason they are much inclined to eat, gaunt as they are. / For their 30
 bodily state is as if they have gained no benefit from their food. Black
 bile, also, being cold by nature, makes the nutrient area cool, and
 other parts too, wherever a secretion of that kind may potentially be
 present.

15. 457a33-b6. *Conclusion. Sleep is due to an inner concentration of
 hot matter and its subsequent reverse flow downward.*

457a33. Hence it is plain from / what has been said that sleep is a sort 457b
 of inward concentration of the hot matter and a natural reflux that are
 due to the causes stated. That is why the movement of a somnolent
 person is considerable. But from where the heat falls, he is cooled;
 and owing to the cooling his eyelids droop. Both upper and outer
 parts / have been cooled, while inner and lower ones, e.g. those 5
 around the feet and the interior, are hot.

16. 457b6-26. *A problem. If the things that produce sleep are hot, why
 should sleep itself be a cooling process? Some possible solutions.*

457b6. One might, however, pose the following problem. It is after
 food that sleep is heaviest; and wine and other such things containing
 heat are soporific. Yet it is not logical that sleep should be a / cooling 10
 process, when the things that cause sleeping are hot. Is the explana-
 tion that, just as the stomach is hot when empty, and yet its filling
 cools it because of the movement, in the same way the passages and
 regions of the head are cooled as the exhalation moves upwards? Or
 is it that, just as / a sudden shiver comes over people who have hot 15
 water poured on them, so in this case, as the hot matter rises, the cool
 rallies and counteracts it, thereby causing what is naturally hot to lose
 its power and to withdraw? Again, when much food is ingested, and
 the hot matter carries it up, then the hot is cooled, like a fire when
 logs are placed upon it, until digestion is complete. / For sleep comes 20
 on, as has been said, when the solid matter is carried up by the hot,
 through the veins, to the head. When the matter taken up can rise no
 longer, but is excessive in bulk, it gets driven back again¹⁴ and flows
 downward. (That explains why human beings actually fall,¹⁵ when the
 uplifting heat is withdrawn. / For man alone among animals is erect). 25
 And as the solid matter descends, it produces unconsciousness, and
 subsequently fantasy (phantasia).

ἤ αι μὲν οὖν λεγόμεναι λυ-
σεις ἐνδέχονται μὲν εἶσι τοῦ γίνεσθαι τὴν καταψύξιν, οὐ
μὴν ἀλλὰ κύριος γ' ἐστὶν ὁ τόπος ὁ περὶ τῶν ἐγκέφαλων,
ὡσπερ ἐν ἀλλοῖς εἴρηται. πάντων δ' ἐστὶ τῶν ἐν τῷ σώματι
30 ψυχρότατος ὁ ἐγκέφαλος, τοῖς δὲ μὴ ἔχουσι τὸ δυνάλογον
τοῦτ' ἴδιον. ὡσπερ οὖν τὸ ἀνατιλίξον ὑγρὸν ὑπὸ τῆς τοῦ
ἡλίου θερμότητος, ὅταν ἔλθῃ εἰς τὸν ἄνω τόπον, διὰ τὴν
ψυχρότητα αὐτοῦ καταψύχεται καὶ συστὰν καταφέρεται
458a γινόμενον πάλιν ὑδωρ, οὕτως ἐν τῇ ἀσφοδῇ τοῦ θερμοῦ τῆ
πρὸς τὸν ἐγκέφαλον ἢ μὲν περιττωματικῇ ἀναθυμίασις εἰς
φλέγμα συνίσταται (διὸ καὶ οἱ κатарροὶ φαίνονται γλυκό-
μενοι ἐκ τῆς κεφαλῆς), ἢ δὲ πρόσμιος καὶ μὴ νοσώδης
5 καταφέρεται συνισταμένη καὶ καταψύχεται τὸ θερμὸν. πρὸς
δὲ τὸ καταψύχεσθαι καὶ μὴ δεχεσθαι παθίως τὴν ἀνα-
θυμίασιν συμβάλλεται καὶ ἡ λεπτότης καὶ [ἡ] στενότης τῶν
περὶ τὸν ἐγκέφαλον φλεβῶν. τῆς μὲν οὖν καταψύξεως τοῦτ'
ἐστὶν αἴτιον, καίπερ τῆς ἀναθυμιάσεως ὑπερβαλλούσης τῆ
10 θερμότητι.

ἐγείρεται δ' ὅταν πεφθῆ καὶ κρατήσῃ ἡ συν-
εσμημένη θερμότης ἐν ὀλίγῳ πολλῇ ἐκ τοῦ περιεστῶτος, καί
διακριθῆ τὸ τε σωματώδες τερον αἷμα καὶ τὸ καθαρώτερον.
ἐστὶ δὲ λεπτότατον μὲν αἷμα καὶ καθαρώτατον τὸ ἐν τῇ κε-
φαλῇ, παχύτατον δὲ καὶ θολερώτατον τὸ ἐν τοῖς κάτω
15 μέρεσιν. πάντως δὲ τοῦ αἵματος δρῆχῆ, ὡσπερ εἴρηται καὶ
ἐν τῷ βιβλίῳ περὶ τῶν ἀνθρώπων, ἡ καρδία. τῶν δ' ἐν τῇ καρδίᾳ
ἐκατέρας τῆς θαλάμης κοινῇ ἡ μέση. ἐκεῖθεν δ' ἐκατέρω
δέχεται ἕξ ἐκατέρας τῆς φλεβῶν, τῆς τε μεγάλης καλοῦ-
μένης καὶ τῆς ἄσφοδης. ἐν δὲ τῇ μέσῃ γίνονται ἡ διακρισις.
20 ἀλλὰ τὸ μὲν διορίζειν περὶ τούτων ἐτέρον ἐστὶ λόγων οἰκτιροῦ-
τερον. διὰ δὲ τὸ γίνεσθαι διακριτώτερον τὸ αἷμα μετὰ τῆν
τῆς τροφῆς προσφορὰν ὕμνος γίνεσθαι, ἕως ἂν διακριθῆ.
τοῦ αἵματος τὸ μὲν καθαρώτερον εἰς τὰ ἄνω, τὸ δὲ θολερώ-
τερον εἰς τὰ κάτω. ὅταν δὲ τοῦτο συμβῆ, ἐγείρονται ἀπο-
25 λυθέντα τοῦ ἐκ τῆς τροφῆς βάρους.

17. 457b26-458a10. *An alternative solution. The brain acts as a coolant during sleep.*

457b26. Alternatively, the solutions just stated are admissible explanations of the cooling; it is, nevertheless, the region about the brain that is the dominant factor, as has been said elsewhere. The brain, or its counterpart in animals that do not have one, / is the coldest of all parts of the body. So, just as the moisture that is vaporized by the sun's heat when it reaches the upper region, is cooled by its coldness, and after condensing comes down once more / in the form of water, in the same way, as the hot matter rises to the brain, the superfluous exhalation gathers into phlegm (which is why catarrhs are felt as developing from the head), while the nutritive and wholesome matter / collects together, travels down, and cools the hot. A further contribution to the cooling, and to its resistance to exhalation, comes from the fineness and narrowness of the veins in the head. This accounts for the cooling, then, despite the excess of heat in the exhalation itself.

18. 458a10-25. *Awakening occurs when the more solid and the purer blood, which were intermingled during sleep, have become separated once more.*

458a10. Awakening occurs when digestion is complete, i.e. when the heat, which has been concentrated in large quantity from the surrounding area in a small space, prevails, and when separation has taken place between the more solid and the purer blood. The rarest and purest blood is located in the head, while the thickest and most turbid is in the lower / parts. The source of all blood, as has been said, both here and elsewhere, is the heart. Of the chambers in the heart, the central one is connected with both of the others; and each of these receives blood from one of the two blood-vessels, i.e. the so-called 'great vein' and the aorta. / Detailed treatment of these matters is, however, more proper to another treatise. But it is because the blood becomes more intermingled after the absorption of food that sleep occurs. It lasts until the purer kind of blood has been separated into the upper regions and the more turbid into the lower. Once that has happened, animals, / released from the heaviness due to the intake of food, wake up.

καθεύδειν εἴηται, ὅτι ἡ [ὕπνῳ] τοῦ σμαρτώδους τοῦ ἀνακρο-
 μένου ὑπὸ τοῦ σμυφύτου θερμοῦ ἀντιμεπίστασις ἀπὸδῶς ἐπὶ
 τὸ πρῶτον αἰσθητήριον· καὶ τί ἐστὶν ὁ ὕπνος, ὅτι τοῦ πρῶτου
 αἰσθητηρίου κατὰλῆψις πρὸς τὸ μὴ δύνασθαι ἐνεργεῖν, ἐξ
 30 ἀνάγκης μὲν γινόμενος (οὐ γὰρ ἐνδέχεται ζῆον εἶναι μὴ
 συμβαίνοντων τῶν ἀνεργαζομένων αὐτό), ἕνεκα δὲ αὐτῆ-
 ρίας· σφίζει γὰρ ἡ ἀνάπνοσις.

19. 458a25-32. *Retrospect. Sleep has been explained in terms of the material changes that produce it. It consists in a disabling of the primary sense-organ, and is necessary for animal preservation.*

458a25. The cause of sleeping has, then, been stated. It is the reverse flow of the solid matter, carried upwards by the naturally inherent heat, *en masse* towards the primary sense-organ. It has also been stated what sleep is; i.e. that it is a seizure of the primary sense-organ, rendering it incapable of functioning. It occurs of / necessity, since it is not possible for an animal to exist, should the conditions that produce it not obtain. Yet it is for the sake of animal preservation. For rest does preserve it.