

# *Physics viii 4-6*

Moving and Moving Everlastingly

# Key Background I

- Recall :
  - N.b. 'moves' in English is ambiguous in a way that *kinein* (κινεῖν) in Greek is not: transitive ( $\text{moves}_T$ ) and ( $\text{moves}_I$ )
  - Transitive ( $\text{moves}_T$ ): She moved the sofa to the front of the parlor.
    - $\text{moves}_T$  = imparts motion to something
  - Intransitive ( $\text{moves}_I$ ): He moves really well for a hefty chap.
    - ( $\text{moves}_I$ ) = is in motion
  - Greek κινεῖν is always transitive, and is used in both the active and passive voice.
  - This has the result that 'If  $y$  is moved, then there is some  $x$  such that  $x$  moves  $y$ .' has an easy air of analyticity about it.

# Key Background II

- We need to distinguish between:
  - mover<sub>T</sub>
  - moved mover<sub>I</sub> = what is moved and is in motion but not moving anything else
  - moved mover<sub>T</sub> = what is moved and is in motion and is moving another
    - N.b. that what is in motion can but need not move something beyond itself.
- And this [*scil.* something's being in motion] is said in two ways: what is in motion will be moved either (a) not because of the mover itself but rather because of something else which the mover moves, or (b) because of (the mover) itself—and this mover will act either (i) first after the last motion or (ii) through several (intermediate movers), as when the stick moves the stone and is moved by the hand, which is moved by the human, whereas the human is no longer moved by the motion of anything else.' (*Phys.* viii 5, 256a3-8)
- Τοῦτο δὲ διχῶς· ἢ γὰρ οὐ δι' αὐτὸ τὸ κινεῖν, ἀλλὰ δι' ἕτερον ὃ κινεῖ τὸ κινεῖν, ἢ δι' αὐτό, καὶ τοῦτο ἢ πρῶτον μετὰ τὸ ἔσχατον ἢ διὰ πλειόνων, οἷον ἢ βακτηρία κινεῖ τὸν λίθον καὶ κινεῖται ὑπὸ τῆς χειρὸς κινουμένης ὑπὸ τοῦ ἀνθρώπου, οὗτος δ' οὐκέτι τῶ ὑπ' ἄλλου κινεῖσθαι.

# Possible Pitfalls

- Since with respect to each thing, its being in actuality and potentiality is distinguished, the actuality (ἐντελέχεια) of being in potentiality, *qua* such, is motion (διηρημένου δὲ καθ' ἕκαστον γένος τοῦ μὲν ἐντελεχείᾳ τοῦ δὲ δυνάμει, ἢ τοῦ δυνάμει ὄντος ἐντελέχεια, ἢ τοιοῦτον, κίνησις ἐστίν; *Phys.* iii 1, 201a9-11).
  - Note that Aristotle expressly refers to this definition in *Physics* viii 1, 251a8.
- Motion (κίνησις) =<sub>df</sub> the actuality of what is potentially φ, *qua* such.
- Note two ways of thinking about (a) motion:
  - As a *bounded event*, with a before and after and a beginning, middle and end.
    - 'There's a special providence in the fall of a sparrow.' (*Hamlet* v 2)
  - As a *process*, an ongoing moving, which is not yet complete.
    - 'Adam was all in tears, and to his guide/Lamenting turned full sad. . .' (*Paradise Lost* xi 674-5)

# Some Initial Theses and Questions about Motion

- No one of which is without interpretive controversy:
  - What is without parts cannot move (*Phys.* vi 10, 240b8). (The relevant notion of ‘without parts’ in this connection is indivisible in respect of quantity).
    - An apparent corollary: That which is without parts can only be moved co-incidentally (*Phys.* vi 10, 240b17).
  - Whatever is moved is moved by something (*Phys.* vii 1, 241b34: Ἄπαν τὸ κινούμενον ὑπὸ τινος ἀνάγκη κινεῖσθαι). Cf. *Phys.* vii 1, 242a49-54).
    - This does not say that whatever is moved is move by another, that is, by something other than itself—though this claim may lead in conjunction with other theses to that further commitment.
      - One question pursuant to this claim, raised trenchantly by Graham (xv): ‘According to Book II, a natural body originates its own motion; according to Book VIII, no body in motion originates its own motion.’
      - Another question pursuant to this claim, also raised by Graham (xv): ‘Moreover, the argument of Book VIII seems to interpret the external cause of change as a moving or efficient cause. Can this be reconciled with the ultimate interpretation in *Metaphysics* Λ of the unmoved mover as a final cause? What indeed would it mean for the unmoved mover, so sublimely aloof from the natural world, to be an efficient cause?’

# Some Further Theses and Questions about Motion

- Motion is sempiternal: there has always been and will always be motion (*Phys.* viii 1, 250b11)
- Some things are always at rest, some always in motion, and others sometimes at rest and sometimes in motion (*Phys.* viii 3, 253a22)
- Whatever is in motion is moved by something (*Phys.* viii 4, 254b24-33)

# Three Arguments from *Physics* viii

- All things in motion are moved by something (*Phys.* viii 4, 255b31-256a3)
- Motion cannot go on into infinity *Phys.* viii 5, 256a13-21
- Cosmic motion has a single mover (*Phys.* viii 6, 259a13-20)

# Moved by Another

- If, then, all things in motion are moved either by nature or contrary to nature and by force, and if both things moved by force and contrary to nature are all moved by something, that is, by another, and if things moved by nature, in turn—both those moved by themselves and those not moved by themselves, e.g. the light and the heavy (for they are moved either by what generated them and made them light or heavy, or by what removes the impediment or obstacle)—are moved by something, then all things in motion would need to be moved by something (*Phys.* viii 4, 255b31-256a3)
- εἰ δὴ πάντα τὰ κινούμενα ἢ φύσει κινεῖται ἢ παρὰ φύσιν καὶ βία, καὶ τά τε βία καὶ παρὰ φύσιν πάντα ὑπό τινος καὶ ὑπ' ἄλλου, τῶν δὲ φύσει πάλιν τά θ' ὑφ' αὐτῶν κινούμενα ὑπό τινος κινεῖται καὶ τὰ μὴ ὑφ' αὐτῶν, οἷον τὰ κοῦφα καὶ τὰ βαρέα (ἢ γὰρ ὑπὸ τοῦ γεννήσαντος καὶ ποιήσαντος κοῦφον ἢ βαρύ, ἢ ὑπὸ τοῦ τὰ ἐμποδίζοντα καὶ κωλύοντα λύσαντος), ἅπαντα ἂν τὰ κινούμενα ὑπό τινος κινοῖτο.



# The Argument

- (1) All things in motion are moved either (a) by nature or (b) by force.
- (2) All things moved by force are moved by something.
- (3) All things moved by nature (whether they move themselves or are moved by another) are moved by something.
- (4) So, all things in motion are moved by something.
  - Compare Graham (1999, 86-87) and Judson (2019, 191-2)

# A Sore Spot in (3)?

- (3) All things moved by nature (whether they move themselves or are moved by another) are moved by something.
- Cf. Graham (1999, 86-87):
    - (C5) Things that do not move themselves are moved by something, either by what creates them or by what removes obstacles to their motion.
      - ‘We have strong reasons for rejecting (C5)—reasons growing out of fundamental Aristotelian principles. Nevertheless Aristotle seems willing to slight some of his own distinctions in the theories of nature and cause in order to arrive at his conclusion, which will ultimately lay the groundwork of a new understanding of the causes of motion.’

# No Strolling into Infinity

- If, then, it is necessary that everything in motion be moved by something, and either [moved] (a) by something moved by another or (b) not, and if it is moved by another [so, the (a) alternative], it is necessary that there be some mover that is not moved by another first, but if the first [mover] is this sort of thing ([*scil.* the (b) alternative], it is not necessary for it [to be] that kind (for it is impossible for [a series] of movers which are themselves moved by another to go on to infinity—there being no first member of an infinite [series]). If, then, everything in motion is moved by something, and the first mover is moved, but not by another, it is necessary that it be moved by itself (*Phys.* viii 5, 256a13-21).
- εἰ δὴ ἀνάγκη πᾶν τὸ κινούμενον ὑπὸ τινός τε κινεῖσθαι, καὶ ἢ ὑπὸ κινουμένου ὑπ' ἄλλου ἢ μή, καὶ εἰ μὲν ὑπ' ἄλλου [κινουμένου], ἀνάγκη τι εἶναι κινοῦν ὃ οὐχ ὑπ' ἄλλου πρῶτον, εἰ δὲ τοιοῦτο τὸ πρῶτον οὐκ ἀνάγκη θάτερον (ἀδύνατον γὰρ εἰς ἄπειρον ἵέναι τὸ κινοῦν καὶ κινούμενον ὑπ' ἄλλου αὐτό· τῶν γὰρ ἀπείρων οὐκ ἔστιν οὐδὲν πρῶτον)—εἰ οὖν ἅπαν μὲν τὸ κινούμενον ὑπὸ τινος κινεῖται, τὸ δὲ πρῶτον κινοῦν κινεῖται μὲν, οὐχ ὑπ' ἄλλου δέ, ἀνάγκη αὐτὸ ὑφ' αὐτοῦ κινεῖσθαι.

# The Argument

- (1) Everything in motion is moved by something.
- (2) Everything that is moved by something is either (a) moved by something that is itself moved by another, or (b) moved by something that is not moved by another.
- (3) If all movers<sub>T</sub> in a chain of motion are moved by another, the chain of motion proceeds to infinity.
- (4) It is not possible of a chain of movers<sub>T</sub> to proceed to infinity.
- (5) Hence, not all movers<sub>T</sub> in a chain of movers<sub>T</sub> are moved by another.
- (6) If (5), for every chain of movers<sub>T</sub> there is a first mover, not moved by another.
- (7) If that first mover<sub>T</sub> is moved, it is moved by something. [(1) and (2)]
- (8) If it is moved, the first mover<sub>T</sub> is moved either by another or by itself.
- (9) Hence, the first mover<sub>T</sub>, if moved, is moved by itself. [(6) and (8)]

# Cosmic Motion

- It is also evident from this that the first mover (τὸ πρῶτον κινουῦν) must be something that is one and everlasting. For it has been demonstrated that there must always be motion. But if motion always exists, it must be continuous, for what is everlasting is continuous, while what is successive is not continuous. Moreover, in fact, if it is continuous, it is one. But a motion both caused by one mover and belonging to one thing being moved is one. For if now one thing and now another moves something, the whole motion will not be continuous, but successive (*Phys.* viii 6, 259a13-20)
- φανερόν δὲ καὶ ἐκ τοῦδε ὅτι ἀνάγκη εἶναί τι ἓν καὶ αἰδίων τὸ πρῶτον κινουῦν. δέδεικται γὰρ ὅτι ἀνάγκη αἰεὶ κίνησιν εἶναι. εἰ δὲ αἰεὶ, ἀνάγκη συνεχῆ εἶναι· καὶ γὰρ τὸ αἰεὶ συνεχές, τὸ δ' ἐφεξῆς οὐ συνεχές. ἀλλὰ μὴν εἴ γε συνεχῆς, μία. μία δ' ἢ ὑφ' ἑνός τε τοῦ κινουῦντος καὶ ἑνός τοῦ κινουμένου· εἰ γὰρ ἄλλο καὶ ἄλλο κινήσει, οὐ συνεχῆς ἢ ὅλη κίνησις, ἀλλ' ἐφεξῆς.

# The Argument

- (1) Cosmic motion is everlasting.
- (2) Everlasting motion is continuous
- (3) So, cosmic motion is continuous.
- (4) Continuous motion is the motion of a single thing being moved by the agency of a single mover.
- (5) So, the mover of cosmic motion is an everlasting single mover.

# Some Observations

- (2), that everlasting motion is continuous, seems simple a special case of the more general thesis that all motion is continuous (which is to say, infinitely divisible into ever smaller motions; cf. *Phys.* v 4, 228a20).
  - Either way, though, (3) follows.
- (4), that continuous motion is the motion of a single thing being moved by the agency of a single mover, is evidently a bi-conditional:
  - a motion *m* is single and continuous iff (i) *m* is the motion of a single thing in motion, and (ii) *m* is effected by a single mover (cf. *Phys.* v 1 and 4 where these conditions are introduced as *definitional* or at least *individuating* of something's being a (single) motion.
    - here (ii) seems difficult, since one might think that joint agency is not only possible but actual