In chapters 2–4 of book 1 of his *De caelo*, Aristotle sets out to establish the existence of a fifth element, the aether, which is distinct from the standard four of Greek physics—earth, water, air, and fire—and which uniquely serves to provide the material for the heavenly bodies. His reasons for doing so are various. The heavens are by common consent divine and what is divine ought to be made of something better than the materials of the lower world (*De caelo* 1.3, 270b1–12); the terrestrial four elements inter-transmute and, hence, anything made of them is subject to destruction; but the heavens are eternal and unchanging, as long observation confirms (270b12–16); and the etymology of the word αἰτητός from ἀεὶ ὑπάρχειν (“always running”) confirms that the ancients too supposed it to be quite different in type from the terrestrial elements (270b16–25).\(^1\)

But Aristotle also deploys a set of arguments of an altogether different nature in order to commend the aether’s existence. Bodies which exist by nature, the elements, all have distinct, intrinsic, natural tendencies to move (*De caelo* 1.2, 268b14–16); indeed nature is by definition a source of motion and rest (*Phys.* 2.1, 192b13–14). But if a body has a natural tendency to move, a disposition, that is, which is uniformly

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\(^1\) The etymology, of a typically fanciful and unconvincing Greek type, is owed to Plato’s *Crat.* 410b. Aristotle (1.3, 270b24–25; cf. 3.3, 302b4–5) rejects the altogether more plausible Anaxagorean derivation of the word from αἰτεῖν (to gleam), since he wants to resist its assimilation to fire.
exemplified under the appropriate circumstances, the motions described
by the bodies must be simple in the sense that there should be no jerkiness
or deviation about them. But the only possible types of such uniform
motions are those in a straight line and those along circular paths (De
caelo 1.2, 268b16–20).2

Aristotle is not, as is sometimes claimed, committed to supposing
that there must be an individual element associated with each of the
possible types of simple motion, however they are to be individuated.3
As Alexander puts it (apud Simplicium: Heiberg 1894, 13.20–14.3),4
the geometrically-determined types of motion function for him as material
causes of possible actual motions. In other words, if a motion is natural
(in the sense of being the expression of an essential tendency of an ele-
mental body),5 then it must conform to one of the simple trajectories;
but there is no converse necessity that every determinable simple trajec-
tory must have some simple body whose nature it is to move along it.
Thus, first impressions and those of many commentators notwithstanding,
Aristotle does not suppose that there is a simple geometrical route
to the conclusion that there must be some simple body whose nature it is
to move in a circle (De cælō 1.2, 269a5–7).

Still, Aristotle does contend that

(T1) all change in respect of place (which we call movement) is either
straight, or circular, or a mixture of the two, since these are the only two
simple motions. The reason for this is that these, namely, the straight and
the circular, are the only simple magnitudes.6 (De cælō 1.2, 268b16–20)

2 Xenarchus, a Peripatetic of the first century BC, objected that the regular cylindrical
helix was also simple: so why should an element not move spirally (Heiberg 1894, 13.22–
14.21)? I discuss this and other Xenarchan objections to the Aristotelian system in
Hankinson (2003).
3 On this issue, see Hankinson (2009).
4 Alexander’s commentary on De cælō is lost, but it is extensively quoted and dis-
cussed in Simplicius’ own commentary.
5 This parenthesis is required, since Aristotle is happy to allow that the capacities
for movement of animals are in a perfectly good sense natural (De an. 2.1; Phys. 2.1;
but see Heiberg 1894, 242.3–11, where Simplicius glosses an Aristotelian argument by
distinguishing between “things which move by nature [sc. in the elemental sense]” and
“self-movers”). Of course, even animals can have tendencies to move qua composites of
elements: it is in this sense, as Simplicius says, that a man falling off a roof falls with
the motion appropriate to his (predominantly heavy) elemental composition (Heiberg
1894, 40.18–20; cf. 17.19–20), since compound bodies “move in respect of whatever [sc.
elemental body] predominates”: De cælo 1.2, 269a1–2, 5–6 (T5 below), 28–30. Cf. De
6 The translations of the De cælo are taken from Hankinson and Matthen (2009) with
minor alterations.