

## IMITATING THE COSMOS: THE ROLE OF MICROCOSM–MACROCOSM RELATIONSHIPS IN THE HIPPOCRATIC TREATISE *ON REGIMEN*\*

Despite its often daunting obscurity, the ‘Hippocratic’ treatise *De Victu*<sup>1</sup> is a text of particular interest, not only because it presents the first clear formulation in an entirely preserved Greek text of the microcosm–macrocosm relationship<sup>2</sup> but also for the sophisticated use it makes of this pervasive pattern of Greek thought in the context of dietetics.<sup>3</sup>

The purpose of this article is to show that the author—whom I will call ‘the Dietician’<sup>4</sup>—does not appeal to philosophy in order to grant his practice the status of a τέχνη<sup>5</sup> simply by piecing together an unconnected and unoriginal patchwork of Heraclitean, Anaxagorean and Empedoclean material and language.<sup>6</sup> Rather, while Presocratic borrowings in the work are certainly pervasive, the Dietician also develops a rather sophisticated and multi-purpose explanatory framework, which—being based on an original conception of the nature of man, the cosmos and the relationship between

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<sup>1</sup> I refer to W.H.S. Jones, *Hippocrates; Heraclitus On the Universe* (London, 1931) for text and line-numbering. Given the uninterrupted numeration of chapters in this edition, I do not specify the book number. It is true that the unity of the treatise cannot be straightforwardly assumed (cf. Jones [this note], xiii–xxi and xxxviii–lv); but with H. Diller, ‘Der innere Zusammenhang der hipp. Schrift *de victu*’, *Hermes* 87 (1959), 39–56, R. Joly, *Recherches sur le traité pseudo-hippocratique Du régime* (Paris, 1960) and *Hippocrate: Du régime* (Paris, 1967), I consider *De Victu* 1–4 as a coherent whole; see esp. Joly (this note), 11.

<sup>2</sup> J. Jouanna, *Hippocrates* (trans. M.B. DeBevoise) (Baltimore, 1999), 70.

<sup>3</sup> Some references to ‘microcosmic–macrocosmic’ texts are given below, nn. 83–91.

<sup>4</sup> Thus I side with J. Mansfeld, ‘Plato and the method of Hippocrates’, *GRBS* 21 (1980), 341–63 and G.E.R. Lloyd, ‘The Hippocratic question’, in id., *Methods and Problems in Greek Science: Selected Papers* (Cambridge, 1991), 194–223 in rejecting the claim that *De Victu* is an authentic work of Hippocrates, supported by W. Smith, *The Hippocratic Tradition* (Ithaca, NY and London, 1979).

<sup>5</sup> Cf. M.J. Schiefsky, *Hippocrates on Ancient Medicine* (Leiden, 2005), 19–22. A.J. Festugière, *L’ancienne médecine; introduction, traduction et commentaire* (Paris, 1948), Jouanna (n. 2), 283 and Schiefsky (this note), 55–62 argue that *Vict.* is one of the targets of *VM*; contra, G.E.R. Lloyd, ‘Who is attacked in *On Ancient Medicine*’, in id., *Methods and Problems in Greek Science: Selected Papers* (Cambridge, 1991), 49–69 and M. Vegetti, ‘Empedocle “medico e sofista”’, in K.D. Fischer, D. Nickel and P. Potter (edd.), *Text and Tradition: Studies in Ancient Medicine and its Transmission* (Leiden and Boston, 1998), 289–99.

<sup>6</sup> Cf. Jones (n. 1), xxxix; Joly (n. 1 [1960]), 19–26; Lloyd (n. 4); G.S. Kirk, *Heraclitus. The Cosmic Fragments* (Cambridge, 1954), 265–6.

the two—provides an effective foundation for the medical enterprise,<sup>7</sup> allowing him to propose his dietetics as a ‘way of life’. At the core of this enterprise is the relationship between microcosm and macrocosm: in virtue of this relationship, the cosmos becomes both an *active factor* to be taken into account for the maintenance of individual physical well-being and the *normative standard* to which a dietician and whoever cares about health must refer in order to live the healthiest possible life.<sup>8</sup>

The relationship between a human body and the cosmos is explicitly termed ἄπομίμησις in *Vict.* 10. Focussing on this passage, various scholars have attempted to establish exactly what correspondences are supposed between bodily and cosmic parts, in an effort to individuate the philosophical affiliations of the author.<sup>9</sup> My aim here is to provide a satisfying account of the specific connection thought to link the body with the cosmos, and of its theoretical function within a treatise concerned with regimen.<sup>10</sup> Accordingly, I examine the content of the work as a whole. I first outline the author’s basic beliefs about the constitution and the workings of the cosmos at large (section 1) and of the body within it (section 2). I then clarify the relationship that is envisaged between the two (section 3) and its theoretical role within the science of dietetics (section 4).

## 1. THE COSMOS AS EQUILIBRIUM

At 3.1–4, the Dietician introduces the topic of the world’s basic constituents, claiming that all animals, including man, are composed of two things: fire and water. He then extends his claim to the whole of the cosmos, saying that fire and water ‘suffice for all things throughout the universe’ (τὸ μὲν οὖν πῦρ καὶ τὸ ὕδωρ [...] αὐτάρκεια ἐστὶ

<sup>7</sup> Cf. *Vict.* 2.1–5, arguing that the study of regimen must be based on the knowledge of the original constituents of the human being; cf. Schiefsky (n. 5), 20.

<sup>8</sup> *De Victu* thus provides evidence against the view that medical writers simply took over theories wholesale from philosophers; see e.g. H. Diller, ‘Hippokratische Medizin und attische Philosophie’, *Hermes* 80 (1952), 385–409, at 393; L. Edelstein, ‘Empiricism and skepticism in the teaching of the Greek Empiricist school’, in O. Temkin and C.L. Temkin (edd.), *Ancient Medicine. Selected Papers of Ludwig Edelstein* (Baltimore, 1967), 195–203. Differently, J. Longrigg, ‘Philosophy and medicine: some early interactions’, *HSPH* 67 (1963), 147–75, and ‘[Hippocrates] *Ancient Medicine* and its intellectual context’, in F. Lasserre and P. Mudry (edd.), *Formes de pensée dans la collection hippocratique* (Geneve, 1983), 249–56.

<sup>9</sup> E.g. C. Fredrich, *Hippokratische Untersuchungen* (Berlin, 1899), 100; W. Kranz, ‘Kosmos und Mensch in der Vorstellung des frühen Griechentums’, *Nachrichten von der Gesellschaft der Wissenschaften zu Göttingen* 3 (1938), 121–61, at 130; Joly (n. 1 [1960]), 35; M.L. West, ‘The cosmology of “Hippocrates”, *De Hebdomadibus*’, *CQ* 21 (1971), 365–88. Cf. also J. Jouanna, ‘L’interprétation des rêves et la théorie micro-macrocosmique dans le traité hippocratique *Du Régime*’, in K.D. Fischer, D. Nickel and P. Potter (edd.), *Text and Tradition: Studies in Ancient Medicine and its Transmission* (Leiden and Boston, 1998), 161–74.

<sup>10</sup> Thus, while my overall approach and conclusions differ from theirs, I am closer to H. Bartoš, ‘The concept of *mimēsis* in the Hippocratic *De Victu*’, *CQ* 64 (2014), 542–57 and A. Olerud, *L’idée de macrocosmos et de microcosmos dans le Timée de Platon* (Uppsala, 1951), 57, who notes the practical import of ἄπομίμησις, though his aim is establishing parallels with the *Timaeus* and Pythagoreanism. After W. Burkert, *Lore and Science in Ancient Pythagoreanism* (Cambridge, MA, 1972) and C.A. Huffman, *Philolaus of Croton. Pythagorean and Presocratic* (Cambridge, 1993), I am cautious towards ‘Pythagoreanism’ as an undifferentiated umbrella-term and regard Philolaus as the most reliable source of Pythagorean fifth-century philosophy. For the latest interpretations along these lines, see C.A. Huffman (ed.), *A History of Pythagoreanism* (Cambridge, 2014).

πάσι διὰ παντός, 3.22–6).<sup>11</sup> On a closer analysis, however, one wonders what exactly the Dietician actually regards as primary. For, immediately after introducing fire and water, the Dietician makes it clear that it is not much by virtue of their being substances of some kind that fire and water behave and interact in a certain way, but rather by virtue of their δυνάμεις of, respectively, moving all (πῦρ δύναται πάντα διὰ παντός κινήσαι) and nourishing all always (τὸ δὲ ὕδωρ πάντα διὰ παντός θρέψαι, 3.7–10); their interaction is canvassed below. But this is not all; for the Dietician offers a further level of analysis: namely, he says, fire has the hot and the dry and water has the cold and the wet (4.1–3). It is in fact these pairs of δυνάμεις that make fire and water the elements they are, i.e. substances that, by nature and necessity, heat and dry, cool and wet respectively, and are thus prior to them.<sup>12</sup> So one may say that for fire to have the δυνάμεις of the hot and the dry amounts to its *being* the hot and the dry, and similarly for water and the cold and wet.<sup>13</sup> Being the powers with which the elements act on one another, the opposites provide a causal explanation of the way in which the elements behave, while in turn each element can be resolved into a pair of opposites.<sup>14</sup> Most importantly, even the two δυνάμεις of moving all and nourishing all may be reduced to the action of opposites:<sup>15</sup> for it is precisely because it is/has the hot that fire moves, and it is precisely because it is/has the wet that water nourishes.<sup>16</sup> Thus it seems more appropriate to think of hot and cold, dry and wet as primary in the Dietician's universe: it is these δυνάμεις, or perhaps fire and water *qua* these

<sup>11</sup> Jones (n. 1), 241, following J. Burnet, *Early Greek Philosophy* (London, 1948<sup>4</sup>), 150, sees this as a borrowing from Heraclitus. *Contra*, Kirk (n. 6), 265–6 and 337–8. Joly (n. 1 [1960]), 19 finds antecedents in Archelaus (despite Archelaus deriving fire and water from air, A7) and in Hippon (A3).

<sup>12</sup> Cf. Pl. *Tim.* 46d2; *Leg.* 889b5–c6. Cf. the φύσις and ἀνάγκη associated with the opposites in 9.19–20; 28.8. On their relation to elements: C.H. Kahn, *Anaximander and the Origins of Greek Cosmology* (New York, 1960), 119–65. For their philosophical and non-philosophical origins and uses: G.E.R. Lloyd, 'Hot and cold, dry and wet in early Greek thought', in D.J. Furley and R.E. Allen (edd.), *Studies in Presocratic Philosophy* (London, 1970), 1.255–80.

<sup>13</sup> Cf. A.L. Peck, *Aristotle. Generation of Animals* (London and Cambridge, MA, 1948), li on δύναμις as a substance that is a power. For the occurrences of δύναμις in medical writers: J. Souilhé, *Études sur le terme δύναμις* (Paris, 1919), 31–57. Burkert (n. 10), 266 claims, in relation to Presocratic thought, that the distinction between *having* a δύναμις and *being* that δύναμις is not clearly demarcated; whatever its exact date, *Vict.* is so infused with Presocratic ideas that Burkert's remark can be applied to it. For a dating between the end of the fifth and the beginning of the fourth century: Fredrich (n. 9); Jones (n. 1); H.W. Miller, 'The concept of *dynamis* in *De victu*', *TAPhA* 90 (1959), 147–64; Joly (n. 1 [1960]); Jouanna (n. 2); P. van der Eijk, *Medicine and Philosophy in Classical Antiquity* (Cambridge, 2005). Lloyd (n. 12), 257 n. 6 proposes fourth century, and Kirk (n. 6) c.350 B.C.

<sup>14</sup> Cf. Aristotle's definition of element at *Metaph.* 1014a26–b15 and his statement that it is the four opposites, which he refers to as δυνάμεις, that actually deserve to be called στοιχεῖα (*Part. an.* 646a13–20; *Gen. corr.* 330a30, 33; cf. 329a29–35).

<sup>15</sup> *Contra*, Miller (n. 13), 150 envisages six distinct powers.

<sup>16</sup> In many physical accounts fire and heat are interchangeably seen as the source of movement (and therefore of life, cf. Arist. *De an.* 405a19; cf. W.K.C. Guthrie, *In the Beginning. Some Greek Views on the Origins of Life and the Early State of Man* [Ithaca, NY, 1957], 59), and water and the moist as what nourishes. Cf. Anaximander A11, A30; the various versions of 'terrestrial wombs' (Archelaus A1, A4; Diod. Sic. 1.7.3; Censorinus on Epicurus, fr. 333 Usener; Lucr. 5.805–20); θερμόν in Philolaus A27; Hippon A3; Empedocles B62. Elsewhere it is the cold that is considered τροφή for the hot, cf. *Flat.* 3; *Carn.* 3, 6; *Nat. Puer.* 12 (cf. H.C. Baldry, 'Embryological analogies in Presocratic cosmogony', *CQ* 26 [1932], 27–34, at 28 n. 5; W.A. Heidel, 'Antecedents of Greek corpuscular theories', *HSPH* 22 [1911], 111–72, at 135). Cf. Philolaus A27, where ψυχρόν πνεῦμα is drawn in from the new-born constituted only of the hot.

δυνάμεις, that account for the elements' interactions and the way the world and all animals are.<sup>17</sup> Be that as it may, it is crucial to recognize that despite the initial appearance of an emphasis on the elements, the world-picture of *De Victu* is grounded primarily on, and explained through, processes, interactions and forces.<sup>18</sup>

The interactions between fire and water as a consequence of their natural powers explain the somewhat puzzling claim that fire has (is) the moist 'from' water, and water the dry 'from' fire (4.1–4):<sup>19</sup> fire grows by consuming the moist in the water, and water becomes dryer as the moisture evaporates feeding the fire.<sup>20</sup> This explains also why the two together are sufficient for one another and for everything else (3.4–5),<sup>21</sup> while each by itself suffices neither for itself nor for anything else (3.4–7),<sup>22</sup> and why, though constantly prevailing one over the other, neither ever gains complete mastery (3.12–20). If the fire consumed all its nourishment, it would be extinguished; if water overcame the fire, it would become inert; but the fact that things exist and are as they are is the proof that this never occurs (3.20–6). Thus 'each is in turn dominant or dominated to the greatest maximum or the least minimum possible' (ἐν μέρει ἐκότερον κρατεῖ καὶ κρατεῖται ἐς τὸ μήκιστον καὶ ἐλάχιστον ὡς ἀνυστόν, 3.10–11).<sup>23</sup> The Dietician explains his view by using one of his favourite analogies from human arts. Just as two carpenters sawing a log, one pulling and the other pushing the saw, perform two contrary actions, but what results is a single synergic process (6.6–8), so too fire and water are 'different in their powers, but complementary in their action' (διαφόρον μὲν τὴν δύναμιν, συμφόρον δὲ τὴν χρῆσιν, 3.2–3).<sup>24</sup> Just as in sawing, one can pull only if the other pushes, also in the interaction of water and fire, only if one gives can the other take. But this is only half of the process. Sawing cannot happen if the only movement performed is that from sawyer A, who pushes, towards sawyer B, who pulls; for the sawing to be completed, to this first motion (in turn composed of two, pushing/pulling) in the direction of sawyer B, a second motion in the contrary direction, in which the roles are reversed, must correspond. Similarly, the interaction in which fire takes what water gives (in itself constituted of two contrary but complementary actions) must be followed by the opposite interaction, in which water takes what fire gives. Given the Dietician's physical

<sup>17</sup> This seems confirmed by chs. 32, 33, 67 and 68 *passim*, where the constitutions of human bodies at different ages, of foods, seasons, lands, winds and their interactions are not so much explained in terms of fire and water as of wet, dry, hot and cold. See below, pp. 45, 47.

<sup>18</sup> Cf. Miller (n. 13), 150. Cf. the connection between φύσις and οὐρία clarified by G.E.R. Lloyd, *Magic, Reason and Experience: Studies in the Origin and Development of Greek Science* (Cambridge, 1979), 49.

<sup>19</sup> Joly (n. 1 [1960]), 21 explains this claim with the Dietician's Anaxagorean affiliation. But if so, fire should be attributed also a share of the cold, and water of the hot. According to Joly, the Dietician 'n'a que faire de cette confusion extrême', and yet 'seul Anaxagore [...] pouvait l'amener a l'idée paradoxale d'un feu humide et d'une eau sèche'. The paradox is explained away through the elements' natural interactions. *Contra*, H. Bartoš, *Philosophy and Dietetics in the Hippocratic On Regimen* (Leiden, 2015), 126 sees this as a development of Heraclitean ideas.

<sup>20</sup> For water feeding the fire as ἀναθυμίασις, cf. Arist. *Metaph.* 983b23–7;  *Mete.* 354b34–355a33; Theophr. *De igne* 20; Theophr. *Dox.* 276. Cf. Heidel (n. 16), 142.

<sup>21</sup> Cf. the self-sufficiency of first principles in Arist. *Metaph.* 1091b16–19.

<sup>22</sup> Thus, if there is dualism (Jones [n. 1], xliii n. 3), this is limited by the fact that fire and water cannot exist independently (cf. H. Bartoš, 'Soul, seed and *palingenesis* in the Hippocratic *de Victu*', *Apeiron* 42 [2009], 1–31, at 3–7).

<sup>23</sup> Cf. Empedocles B17.20–44: the roots 'dominate in turn' (ἐν μέρει κρατεοῦσι, 38). For the 'rotation in office' as maintaining cosmic balance, G. Vlastos, 'Equality and justice', in D.J. Furley and R.E. Allen (edd.), *Studies in Presocratic Philosophy* (London, 1970), 1.56–91.

<sup>24</sup> The powers of food and exercise are similarly defined at 2.21–5. Cf. 17.8, 18.5.

principles, if neither of the two is to succumb to the other, each transformation in which fire turns into water must be complemented by an equal but opposite transformation, in which water turns back into fire.

It must be noted that this is not a matter of two linear and bidirectional processes, in which fire fully changes into water and then water again into fire in a simple back-and-forth movement, but of two alternating and increasingly dominant elements that never entirely disappear into one another, in a circle that unfailingly repeats itself. Let me explain this better. In a linear elemental transformation, as, for example, the one that has been attributed to upholders of a Generative Substance Theory,<sup>25</sup> each element ceases to exist and is completely replaced by its successor in an ordered sequence (for example fire, air, wind, cloud, water, earth, stones); from the end point, the process of change reverses in the opposite direction, along the same ordered series (stones, earth, water, etc.). But the Dietician's theory differs from this on two accounts: first, fire and water never fully disappear into one another; there is always a little remainder of each from which the second half of the process picks up again in the reversed direction. Second, while in an ordered series of transformation the last element of the sequence (for example stones) does not turn into the first (for example fire) and vice versa, but always only in its successor or precedent, in the Dietician's account fire always turns into water, which then always turns back into fire, and so on. While the former process is not circular, the latter is.

The transformation of fire into water without ever completely disappearing into it, and of water back into fire in the same way, is a process formed of two complementary actions: first, one element increases from its minimum to its maximum point, while the other simultaneously decreases from its maximum to its minimum, the latter turning into the former but with a remainder; from this remainder, the second part of the process unfailingly starts, in which the roles of decrease/increase are reversed, and then again. If we consider a circle as a process that 'ends in the same place from which it begins', as the Dietician himself defines it (περίοδος [...] ὁκόθεν ἄρχεται, ἐπὶ τοῦτο τελευτᾷ, 19.5) perhaps echoing Alcmaeon's formula (τὴν ἀρχὴν τῷ τέλει προσάψαι, B2), then we can say that the process is circular: for the transformation of fire into water starts from that minimal remainder of water which was the end point of the transformation of water into fire, and the process repeats itself endlessly, each beginning starting from the end and each end providing a new beginning. There is no linear switching back and forth, but the repetition of a process in which beginning and end coincide.

Were one half not to complete the other half, the process would be interrupted, and 'none of the things that now are would be as it is now' (οὐδὲν ἂν εἴη τῶν νῦν ἑόντων ὥσπερ ἔχει νῦν, 3.21–2). In virtue of this perpetual mutual compensation the cosmos exists as a pattern of unailing equilibrium, observable in the regular alternation of day and night and of the seasons. As fire and water, by virtue of their δυνάμεις, rhythmically oscillate between maximum and minimum, without ever disappearing

<sup>25</sup> Cf. D.F.W. Graham, *Explaining the Cosmos* (Princeton, 2006), esp. chs. 3 and 4 on Anaximenes. For elemental transformation as a circle, cf. Empedocles B26; Pl. *Tim.* 49b–c (mentioning specifically Anaximenes' elemental bodies, see Graham [this note], 76); *Phd.* 72b1; Arist. *Gen. corr.* 331b2–4. The idea of constant change echoes Heraclitus (cf. B31, B36, B60, B67, B76, B88, B125, B126) perhaps more in language (cf. e.g. 5.1–2) than in content; it was widespread (cf. reports in Pl. *Tim.* 152e; Arist. *Cael.* 298b29), and the Dietician's explanation in terms of mixture and separation recalls Anaxagoras and Empedocles (below, p. 38). On elemental change, see also Kahn (n. 12), 121–4, 152–4; W.A. Heidel, 'Qualitative change in the Presocratic philosophers', *AGPh* 19 (1906), 333–79.

one into the other,<sup>26</sup> so do sun and moon, both within the cycle of the day and within that of the year, having in turns their longest and shortest course, through ‘divine necessity’ (θεῖα ἀνάγκη, 5.2–6).<sup>27</sup>

## 2. THE BODY AS A HARMONY

Having clarified the Dietician’s basic physical framework, let us now turn to the conception of healthy living body that follows from it. Like everything else in the world, the human body is composed of fire and water (3.1–4; 7.1–4). Recalling how such elements can be reduced to their δυνάμεις, and considering the author’s statements that it is necessary to know ‘what is prevailing in the body’ (τὸ ἐπικρατέον ἐν τῷ σώματι) in order to administer treatment (2.8–10) and prevent the body from being ‘overpowered by the excess and fall sick’ (2.54–7), one may conclude that *De Victu* shares to some extent Alcmaeon’s idea of the body as a combination of δυνάμεις, in which health is the proportionate mixture of powers (σύμμετρος τῶν ποιῶν κρᾶσις) and disease is the unbalance owing to one power gaining ‘monarchy’ (μοναρχία) over the others.<sup>28</sup> However, the theory of *De Victu* seems different in one important respect. Given the Dietician’s view of the cosmos as a dynamic system in which fire and water are mastering each other in turn, and given that the body is part (and imitation, 10.3) of it, the bodily balance cannot be, as in Alcmaeon’s view, an ἰσονομία, i.e. an egalitarian equilibrium where at each moment, if the body is healthy, every constituent is counterpoised by an opposing constituent of equal force.<sup>29</sup> It is necessary for him to provide a more complex theory, i.e. one able to account for the body as a system, which, though in constant transformation and exchange with the environment, does not fall sick all the time.

In order to understand the notion of physical constitution at play, we can look at the chapters devoted to embryology. The most obviously relevant chapters (8–10) insist on the role of fire and water in the formation of the embryo. What is interesting here is the invocation of the notion of ἄρμονία. At 8.10–19 the life and growth of the embryo is explained in musical terms, as a matter of it finding the ‘correct attunement’ (ἄρμονία ὀρθή).<sup>30</sup> One possibility is to interpret the ἄρμονία as expressing a temporal relation: if

<sup>26</sup> Cf. 4.13–20: what seems to perish in the eyes of the unknowing men (cf. Anaxagoras B21; Heraclitus B107, B46) only disaggregates, becoming so small as to be invisible (goes to ἄιδης, 4.16), only to then combine in some other form becoming visible once again (comes from ἄιδης). Cf. A.L. Peck, ‘Pseudo-Hippocrates Philosopher’ (Diss., University of Cambridge, 1928), 101. Thus the Dietician can draw the identities: γενέσθαι = ζυμμηγῆναι = αὐξήθηναι; ἀπολέσθαι = διακριθῆναι = μειωθῆναι (4.29–34).

<sup>27</sup> Cf. Vlastos (n. 23), 59. C.H. Kahn, ‘On early Greek astronomy’, *JHS* 90 (1970), 99–116, at 111 argues *contra* D.R. Dicks, ‘Solstices, equinoxes, & the Presocratics’, *JHS* 86 (1966), 26–40 that already Thales and Anaximander observed equinoxes and solstices, attempting accurate measurements. Cf. Kahn (n. 12), 105–9 on the importance of these observations for Anaximander’s notion of cosmic justice. For the relevance of astronomical data in regimen, see *Vict.* 68 and below, pp. 47–8.

<sup>28</sup> Alcmaeon B4. His seminal notion of health and disease was variously interpreted by Hippocratic writers, according to their different assumptions regarding the bodily δυνάμεις. Cf. e.g. *Aēr.* 12.18; *VM* 14.33–4, 17.9–10, 19.53, 22.3–4; *Aff.* 16; *Nat. Hom.* 4–5. Cf. also Arist. [*Mund.*] 396b35.

<sup>29</sup> Vlastos (n. 23).

<sup>30</sup> The incomprehensible MS reading συλλήβδην διεξίον was independently corrected into συλλαβῆν δι’ ὄξειων by both Bernays (quoted by E. Littré, *Œuvres complètes d’Hippocrate*, vol. 6 [Paris, 1849], liv), and A. Delatte, ‘Les harmonies dans l’embryologie hippocratique’, in

the foetus does not develop in the sequence of days 6, 8, 9, 12,<sup>31</sup> corresponding to the intervals in Pythagorean musical theory, it is aborted.<sup>32</sup> However, chapters 6 and 7, which arguably also deal with embryology,<sup>33</sup> stress the necessity for the body and the ψυχή 'to be arranged' (6.2)<sup>34</sup> and have 'all the parts' (7.7);<sup>35</sup> thus it seems more likely that the proportion invoked at 8.11 does not refer to a temporal relation but to a physical one:<sup>36</sup> if the initial 'cell' strikes the appropriate proportion (τύχη τῆς ἁρμονίας, 8.11) among all the necessary elements, then the embryo lives and grows; but if only one of the constituents does not fit in the harmonic pattern, then all the attunement (ὁ τόνος) is worthless (8.16–17) and the foetus is aborted.<sup>37</sup>

Some of the passages describing how the τέχναι imitate human nature suggest the same interpretation (ch. 18): just as music and cuisine achieve their goal (i.e. produce pleasure) when they compose harmony out of different constituents (notes or flavours), so too the embryo 'is successful' when its different components are appropriately attuned.<sup>38</sup> Moreover, the recurring pair διάφορον/σύμφορον<sup>39</sup> suggests a Heraclitean idea of ἁρμονία as a unity arising out of contrasting elements;<sup>40</sup> if we recall that the same adjectives characterized the interactions between fire and water (3.2–3), it is reasonable to think that the harmony that must be struck is between these constituents, present in such a proportion that their different (διάφοροι) but complementary δυνάμεις

*Mélanges Paul Thomas* (Bruges, 1930), 160–71. To Joly (n. 1 [1960]), 28, this is a piece of Pythagorean musical theory; however, as Burkert (n. 10), 262–3 recognized, the peculiar musical terminology is specifically drawn from Philolaus B6a; see Huffman (n. 10 [1993]), 160–5.

<sup>31</sup> Cf. Pythagorean embryology in Censorinus, *De die nat.* 9, 11; Diog. Laert. 8.29; Sext. Emp. *Math.* 4.6; Plut. *De an. procr. in Timaeo* 12.

<sup>32</sup> Joly (n. 1 [1967]), 111.

<sup>33</sup> Joly (n. 1 [1960]), 28; Delatte (n. 30), 161. Cf. also Heidel (n. 25), but contradicted in Heidel (n. 16), 148.

<sup>34</sup> The verb is διακοσμεῖν, the primary meaning of which refers to the distribution of troops in specific positions (LSJ s.v. A). Kahn (n. 12), 222 notes its use in cosmology, alongside διατιθέναι, κρατεῖν, δεδάσθαι, to express the distributing of the δασμός to cosmic constituents (Anaxagoras B12; Diogenes B3, B5; cf. Thgn. 677–8). Various sources report the Pythagorean use of διακόσμησις for the universal arrangement (Arist. *Metaph.* 986a6; Plut. *Per.* 4; Diod. Sic. 12.20; Sext. Emp. *Math.* 9.27; Porph. *De antr. nymph.* 6); cf. Parmenides 8.60.

<sup>35</sup> τὰ μέρεα πάντα: cf. the 'aristocratic' and concrete connotation of μέρος (like ἀριθμός): 'that which counts' (i.e. which is important, necessary) and 'that which is counted', i.e. numerically ordered; cf. Burkert (n. 10), 260–6. Huffman (n. 10 [1993]), 173–6 stresses how this plurality must be also 'properly ordered'. Cf. *Genit.* 11.1–3: a cripple can have healthy children, since he has all that is necessary (the four humours) in numerical order (ἔχει γὰρ τὸν ἀριθμὸν πάντα τὸ πεπρωμένον τῷ ὑγιεῖ).

<sup>36</sup> The dependence on Philolaus B6a corroborates this interpretation, for ἁρμονία here is not a temporal sequence but the 'fitting together' of all the concords to form the overall attunement (cf. Huffman [n. 10 (1993)], 161–2).

<sup>37</sup> Cf. the distinction between ἁρμονία, the ideal proportions, and τόνος, the tension of the strings which should embody those proportions but not always can (Joly [n. 1 (1967)], 114); for instance, if the instruments are attuned by inexperienced players who, like the parts in the aborted embryo, 'know not what they do' (8.19).

<sup>38</sup> Cf. 26.3–16: everything in the embryo is present since the beginning, increasing through the nutriment that makes each part grow (7.5–7). Cf. 7.8–10: that of which no part is present cannot grow, for nourishment has nothing to grow on. If the μέρεα are portions of fire and water with their δυνάμεις, and nourishment is also composed of δυνάμεις (e.g. 2.11–17; 27.2–6; 39–56 *passim*), this notion of nutrition (cf. 56.10–12) appears similar to that of Anaxagoras (ἀύξετα δὲ τὸ ὅμοιον τῷ ὁμοίῳ, A45; cf. B10, A46). Cf. Joly (n. 1 [1960]), 30; A.L. Peck, 'Anaxagoras and the parts', *CQ* 20 (1926), 57–71, at 65–9.

<sup>39</sup> 17.1–3, 18.5–6 and διάφορα/σύμφορα at 18.18–19.

<sup>40</sup> Cf. Heraclitus B8, B10, B51.

can interact in a way that is suitable (σύμφορον) to the formation and development of the embryo (cf. ch. 9).<sup>41</sup>

If this is correct, and if, as suggested above, ‘having a combination (σύγκρησιν ἔχειν) of fire and water’ amounts to ‘being a combination of fire and water’, one may further suggest that, at least in some passages (6.1–3; 7.2–4; 25.1–2), ψυχὴ means ‘life’, arising when the opposites composing the body are properly attuned.<sup>42</sup> This reading makes sense of a statement such as the following: ‘life is the same in all living beings, although the body of each is different’ (ἡ μὲν ψυχὴ τῶντὸ πᾶσι τοῖσιν ἐμψύχοισι, τὸ δὲ σῶμα διαφέρει ἐκάστου, 28.3–5). That is, life in all animals emerges when the physical components strike the proper attunement, but different combinations of fire and water allow it. At 9.2–4 it is explicitly stated that female or male can happen to achieve the attunement; considering that the difference between man and woman is explained in terms of proportions of fire and water (chs. 27, 34), we can conclude that, though a ‘correct’ attunement is always necessary for life to arise, this attunement is not the same for all organisms. In fact, it is because different harmonizations are possible that differences between individuals exist and can be accounted for.<sup>43</sup> The Dietician does it through his theory of combination and separation. At 4.6–35 he claims that, given the dynamic relations of fire and water, no two things can come into being that are exactly alike, and that what we call coming-to-be and passing away are in reality combination and separation of elements. The linguistic similarities with Anaxagoras are striking;<sup>44</sup> and while the idea of growth and diminution by mingling and separating is probably Anaxagorean,<sup>45</sup> some Empedoclean influence also seems present, given that a limited number of elements is sufficient to make up the whole range of individual substances merely by virtue of different ratios going in the mixture.<sup>46</sup> The Dietician,

<sup>41</sup> Parallel ‘naturalistic’ explanations in *Nat. Puer.* 12, 17; *Carn.* 3–14. Cf. I.M. Lonie, *Hippocratic Treatises ‘On Generation’, ‘On the Nature of the Child’, ‘Diseases IV’* (Berlin, 1981), 147.

<sup>42</sup> Cf. Burkert (n. 10), 272. This interpretation fits the non-dualistic account of body and soul in *Vict.* endorsed by R.J. Hankinson, ‘Greek medical models of mind’, in S. Everson (ed.), *Psychology. Companions to Ancient Thought 2* (Cambridge, 1999), 194–217, at 200; Peck (n. 26), 82; N. Singer, ‘Some Hippocratic mind–body problems’, in J.A. López-Férez (ed.), *Tratados Hipocráticos* (Madrid, 1992), 131–43, at 141. It does not contradict the interpretation of ψυχὴ as σπέρμα (as in Joly [n. 1 (1960)], 30–5 and B. Gundert, ‘Soma and psyche in Hippocratic medicine’, in J. Wright and P. Potter [edd.], *Psyche and Soma* [Oxford, 2000], 13–35, at 18), since the seed is alive when the components are attuned. Cf. Philolaus’ view of ψυχὴ as a *harmonia* of hot and cold: D. Sedley, ‘The *dramatis personae* of Plato’s *Phaedo*,’ in T.J. Smiley (ed.), *Philosophical Dialogues: Plato, Hume, Wittgenstein* (Oxford, 1995), 3–26; differently, Huffman (n. 10 [1993]), 329 and id., ‘The Pythagorean conception of the soul’, in D. Frede and B. Reis (edd.), *Body and Soul in Ancient Philosophy* (Hamburg, 2009), 21–43. Further adherents are discussed in H.B. Gottschalk, ‘Soul as harmonia’, *Phronesis* 16 (1971), 179–98. Bartoš (n. 22) attributes the Dietician both the harmony theory of the soul and its immortality. On the problem of reconciling the two (cf. Pl. *Phd.* 86b5–c7), see e.g. F.M. Cornford, ‘Mysticism and science in the Pythagorean tradition’, *CQ* 16 (1922), 137–50, at 146–50; W.K.C. Guthrie, *A History of Greek Philosophy* (Cambridge, 1962), 1.312–16; Huffman (n. 10 [1993]), 328–32.

<sup>43</sup> Besides male and female, physical constitutions (ch. 32), ages (ch. 33) and psychological characters (ch. 35). Cf. Peck (n. 26), 64 n. 1, approved by Jones (n. 1), xlv: the attunement of fire and water is a sort of ‘chemical formula’ for each individual thing.

<sup>44</sup> Compare 4.13–15 and 4.26–9 with Anaxagoras B17, echoed in Empedocles B8–9. See also Empedocles B17.30–5, B21.9–15, B26; Anaxagoras B21, A46. Cf. 4.6–10 with Anaxagoras B4. Cf. Fredrich (n. 9), 123.

<sup>45</sup> Cf. P. Curd, ‘The metaphysics of physics: mixture and separation in Empedocles and Anaxagoras’, in V. Caston and D.W. Graham (edd.), *Presocratic Philosophy. Essays in Honour of Alexander Mourelatos* (Aldershot, 2002), 139–58, at 145, and Peck (n. 26), 101.

<sup>46</sup> Empedocles B20, B96, B98, A78.



like Empedocles, is a reductionist,<sup>47</sup> who manages to account for in(de)finite differentiation through a minimal set of elements, thanks to the notion of harmonic combination.<sup>48</sup>

Thus there seems to be a specific attunement of elements for each creature which is, in the first place, the formula of its individual constitution and, secondly, what must be maintained through the constant inflow/outflow of elements to and from outside. Given the constant oscillation to the maximum and to the minimum of fire and water, and the continuous inflow and outflow of δυνάμεις through the body, the same individual's constitution is subject to variations. The blend varies with age (ch. 33), seasons, the geographical area, the food ingested and the air inhaled (for example chs. 37–8), according to the principle of like with like.<sup>49</sup> Throughout all the 'sawing motions' of nutrients/excretions of the body, the attunement must be respected. The interaction is illustrated through the recurring image of the carpenters, whose work, like human nutriment, is obstructed if one of the two complementary actions of pulling/pushing is forced or untimely (7.13–16; 16.4–9).<sup>50</sup> The image of the builders (17) is also revealing. Their activity is also like human regimen in so far as builders produce a harmony out of different components (ἐκ διαφόρων σύμφορον ἐργάζονται, 17.1): they 'moisten the dry' (τὰ μὲν ξηρὰ ὑγραίνοντες, 17.1–2, 17.8), as foods and breath feed the motions in the body, and they 'dry the moist' (τὰ δὲ ὑγρὰ ξηραίνοντες, 17.1–2, 17.8), as exercises consume the nourishment supplied.<sup>51</sup> The harmony of their product, like that of the body through regimen, is obtained by constant compensation.

It seems that an ἄρμονία must be respected in three senses: (1) in the original composition of the animal out of water and fire, if (a) life is to occur, and (b) the individual is to be different from all others; (2) within the same individual's constituents throughout the transformations; (3) in the dynamic interaction of the body's powers with the external ones.

The Dietician's theory thus appears to be rather sophisticated since, replacing the notion of ἰσονομία with the proportional dynamic notion of ἄρμονία,<sup>52</sup> it is able to account for individual differences as well as for the modifications that constantly affect the same individual, owing to the unceasing exchange with the environment. It accounts

<sup>47</sup> Whether Anaxagoras was also a reductionist depends on the account one gives of his ontology. See e.g. D.W. Graham, 'Was Anaxagoras a reductionist?', *AncPhil* 24 (2004), 1–18 and D.J. Furley, *The Greek Cosmologists* (Cambridge, 1987), 1.65–70, *contra* e.g. G. Vlastos, 'The physical theory of Anaxagoras', in D.J. Furley and R.E. Allen (edd.), *Studies in Presocratic Philosophy* (London, 1975), 2.323–53; M. Schofield, *An Essay on Anaxagoras* (Cambridge, 1980); D. Sedley, *Creationism and its Critics in Antiquity* (Berkeley, Cambridge and London, 2007), 26–30. Chs. 37–56 *passim* confirm the Dietician's genuine reductionism: all the properties of foods, winds, etc. and their interactions with the body are analysed in terms of basic δυνάμεις.

<sup>48</sup> Joly (n. 1 [1960]), 21–2, heavily relying on lexical considerations, is too quick to ascribe a fully Anaxagorean physical theory to the Dietician; his very parsimonious ontology would be equally well defended by Empedocles B23 (cf. J. Warren, *Presocratics* [Stocksfield, 2007], 139–41).

<sup>49</sup> Cf. Empedocles B62.6, B90, B110.9; Anaxagoras B15; Democritus B164; Pl. *Tim.* 53a4–6.

<sup>50</sup> More on this below, pp. 42, 47. For ch. 7 using auger boring instead of sawing as a craft analogy, see H. Bartoš, 'The analogy of auger boring in the Hippocratic *De Vicu*', *CQ* 62 (2012), 92–7, and *id.* (n. 19), 148–50. My point is unaffected, as the complementary movement remains the same on either interpretation.

<sup>51</sup> Cf. the same phrase in chs. 13, 21, 22 (Peck [n. 26], 65).

<sup>52</sup> Cf. G. Vlastos, 'Isonomia', *AJPh* 74 (1953), 337–66, at 345–7, for the difference between the two. He attributes the isonomic view to Hippocratic writers in general, but *Vicu.* might not be included. The Dietician's notion could rather recall the ἰσονομία γεωμετρική regulating the cosmos in Pl. *Grg.* 508a6. The dynamism envisaged in *Vicu.*, however, is not captured by this formula.

for the fact that there is not one single formula for health, but as many formulas as there are constitutions and the indefinitely many circumstances that affect them.<sup>53</sup>

### 3. THE RELATIONSHIP OF ΑΠΟΜΙΜΗΣΙΣ

It is now time to tackle the key relationship of ἀπομίμησις linking man with cosmos, on which the whole Detician's medical enterprise pivots. I shall do so starting from ch. 22. Though normally overlooked in favour of the more striking ch. 10, this passage, I submit, points to a distinction between μίμησις and ἀπομίμησις that helps introducing the peculiar relationship of imitation holding between man and cosmos. Ch. 22 illustrates some of the workings of human and universal nature:

(1) Potters spin a wheel [τροχὸν δινέουσι], which shifts neither forwards (2) nor backwards, but moves both ways (3) at once, imitating the revolution of the universe [ἴσμοφότερος ἅμα τοῦ ὅλου ἀπομίμησις τῆς περιφορῆς]; in this (4) revolving wheel, they make all sorts of things, and (5) none is like the other, though made out of the same material (6) and with the same tools. Men are in the same case (7), and all other animals too: in the same revolution [ἐν τῇ αὐτῇ περιφορῇ] (8) they make all things, none of them alike, (9) from the same materials and with the same tools, (10) drying the moist and moistening the dry.<sup>54</sup>

Lines 2–3 are corrupt. Of the two most reliable MSS,<sup>55</sup> θ has the text as printed above, where ἀπομίμησις cannot stand; the other (M) has καὶ ἴσμοφότερος ἅμα τοῦ ὅλου μιμητῆς περιφορῆς.<sup>56</sup> Evidently, the idea involved is that the potters' craft somehow imitates the cosmic revolution; but the specific vocabulary employed might be significant. For were the term ἀπομίμησις to be intended here, this would be the only occurrence in the chapters devoted to the τέχναι (11–24), where the terms μίμησις and μιμέομαι regularly occur. On the other hand, the only indubitable occurrence of ἀπομίμησις is in ch. 10, where it applies to the relation of human body and cosmos. One gets the impression that in that passage the choice of ἀπομίμησις is not a stylistic flair, but is meant to convey a genuine difference in thought; for if matters of style concerned the author, why did he not introduce a *variatio* there, where the term appears twice in the space of a few lines (3, 9), or in one of the many proximate occurrences of μίμησις/μιμέομαι in chs. 11–24 (11.4; 11.6; 12.8; 16.5; 17.5; 18.17; 21.1)? Without going so far as to ascribe to ἀπομίμησις a specific meaning distinct from its uncompounded form, it is reasonable to think that the author intends to stress a particular aspect of the body/cosmos relationship of imitation, and that he intends to do so through the prefix ἀπό-. In particular, I suggest that the compounded form is meant to convey an idea of hierarchy in the relation linking body and cosmos, where the cosmos is the

<sup>53</sup> Whether such formulas can actually be realized is a different matter; see below, pp. 48–9. Cf. the notion of 'relative health' in G. Freudenthal, 'The theory of the opposites and an ordered universe: physics and metaphysics in Anaximander', *Phronesis* 31 (1986), 197–228, at 203 and F. Kudlien, 'The old Greek concept of relative health', *Journal of the History of Behavioural Sciences* 9 (1973), 53–9.

<sup>54</sup> The line-numbering is that of Jones's edition.

<sup>55</sup> See the survey of the MSS tradition in July (n. 1 [1960]), 14–17.

<sup>56</sup> Jones (n. 1) reports θ. Littré (n. 30), with Diels, without knowing M but following the *Parisini* H, E, K, belonging to the same family, prints καὶ ἴσμοφότερος ἅμα τοῦ ὅλου μιμητῆς τῆς περιφορῆς. July (n. 1 [1967]) proposes καὶ ἴσμοφότερος ἅμα τοῦ ὅλου ἀπομιμῆται περιφορῆν.

superior original, and the body the inferior copy.<sup>57</sup> For the relationship between nature and art, on the other hand, the Dietician is happy with simply asserting a likeness between the two.<sup>58</sup>

Let us now see how the notion of μίμησις, called into play in relation to the τέχνηα, is employed. The Dietician introduces his digression on the arts by declaring that, as men ‘do not understand how to observe the invisible through the visible’ (ἐκ τῶν φανερῶν τὰ ἀφανέα σκέπτεσθαι οὐκ ἐπίστανται, 11.1–2), he will illustrate the workings of human nature (11.3) through examples taken from the crafts (12.1–2).<sup>59</sup> What entitles him to do this? The Heraclitean-sounding statements in the passage could offer an answer.<sup>60</sup> To some extent, νόμος and φύσις ‘do not agree’ (11.10–11), since the fact that νόμος/τέχνη is established by man (11.11–12) and not by the gods makes them ‘unlike’ and ‘incompatible’ (11.7–8) (for ‘that which men arrayed never remains constant [...]; but whatever was arranged by the gods [i.e. φύσις πάντων, 11.13] always remains right’, 11.14–16);<sup>61</sup> but in another sense they do agree (11.11) and are ‘alike’ and ‘compatible’ (11.6–7), since, through men, it is ultimately from φύσις that νόμος comes (‘the mind of the gods taught [men] to copy [μιμεῖσθαι] their own functions’, 11.4).<sup>62</sup> Being to some extent similar to nature and its workings, established by the gods,<sup>63</sup> the τέχνηα can thus be used as analogies to clarify some ‘invisible’ aspects of the φύσις.<sup>64</sup>

Let us see how the potters’ craft does this. Their wheel spins like the revolving cosmos; interestingly, the movement associated with the revolution (περιφορῆ) is explained as a motion that does not shift ‘neither forwards nor backwards’ (οὔτε ὀπίσω οὔτε πρόσω προχωρεῖ), but moves ‘both ways at once’ (ἀμφοτέρωσθε ἅμα, 22.2–3). Such description seems to explain the circular motion of the wheel not as one single movement but rather as the result of two more basic opposite movements; their ‘cooperation in opposition’ generates the revolution. This is perfectly reasonable, given the Dietician’s physical theory. The rotation of the heavens, as anything else in the universe, must instance the natural law embodied in the harmonic combination of the opposing movements of fire and water: fire and water, and with them the moon and the sun (5.3–5), advance to the maximum possible point and then turn back

<sup>57</sup> The term ἀπομίμησις (with its cognates) is not very common; it recurs with relative frequency in Plato (e.g. *Cra.* 427a1, 427c9, 431d3; *Plt.* 274a1; *Leg.* 846c5, 865b1). Some relevant occurrences are mentioned below, n. 96. For a different assessment, see Bartoš (n. 10), 546 n. 23, who however recognizes that the prefix ἀπο- might suggest derivativeness.

<sup>58</sup> *Contra*, Burkert (n. 10), 44 claims that in *Vict.* and in *Hebd.* both relationships of imitation—that between arts and nature and that between body and cosmos—are symmetrical; hence the author of *Hebd.* can say that the cosmos also imitates the body (cf. 6.1: *terra [...]* *ossium imitationem habens*; cf. West [n. 9], 377). But nothing of the kind is said in *Vict.*, *pace* Bartoš (n. 10), 550 n. 55 and id. (n. 19), 134–5, who recently defended the symmetrical reading.

<sup>59</sup> Despite the verbal echo of Heraclitus B54, these statements seem closer in content to Anaxagoras B21a (approved by Democritus, Sext. Emp. *Math.* 7.140). For a discussion: H. Diller, ‘ὄψις ἀδήλων τὰ φαινόμενα’, *Hermes* 67 (1932), 14–42. *Contra*: H. Gomperz, ‘ὄψις ἀδήλων τὰ φαινόμενα’, *Hermes* 68 (1933), 341–3. Joly (n. 1 [1960]), 62 remarks that the two interpretations are compatible.

<sup>60</sup> Note the ‘harmony of opposites’ vocabulary (Heraclitus B5, B8, B10) throughout ch. 11, and cf. the following notes.

<sup>61</sup> Cf. Heraclitus B102 and the Heraclitean theme ‘lack of insight of mankind’ (B1; B78; B79) in 11.2–3, 11.5–6 (already in 5.10–15).

<sup>62</sup> Cf. Heraclitus B114.

<sup>63</sup> Cf. 4.35, delimiting the opposition of custom and nature.

<sup>64</sup> For the pervasiveness of this argumentation in Greek thought, see the seminal G.E.R. Lloyd, *Polarity and Analogy* (Cambridge, 1966).

(cf. ἀποτρέπεται, 3.10).<sup>65</sup> We can think of the revolution as the movement of the astral bodies in one direction, unfailingly followed by a movement in the opposite direction, the reversion completing the circle.

Moreover, all that comes-into-being (i.e. is combined) within the cosmic revolution<sup>66</sup> must be the result of the same interactions. This is shown in the potters' creative activity: alternately drying the moist (through the spinning of the wheel) and moistening the dry (through adding water or extra clay), they combine their basic material into an indefinitely large number of unique pieces, just like things are formed in the cosmic processes.<sup>67</sup> On a microcosmic level, the same two 'omni-explanatory' movements are responsible for the internal functioning of animate bodies (6–7). Like its cosmic correspondent, the animal's revolution is not one single movement but the combination of two contrary ones. In the Dietician's physiology, this is exemplified in the coordinated and complementary actions of 'moistening the dry' and 'drying the moist' (9–10), i.e. the intake/expenditure of τροφή (food and breath): what comes in (food/inspiration) must coordinately come out (excretion/expiration),<sup>68</sup> if this happens at the wrong time (παρὰ καιρὸν), there is no success (7.17). The process of drawing in (ἔλκειν) can be thought of as half a cycle, which must be corresponded by the other half, i.e. the equal expelling (ὠθεῖν), for the circuit to be completed.<sup>69</sup> As long as each half meets the other, i.e. as long as to each going-in corresponds a going-out, the cycle of life is maintained. What happens in this case is that 'the circle in the body ends in the same place from which it begins' (περίοδος ἐν τῷ σώματι, ὁκόθεν ἄρχεται, ἐπὶ τοῦτο τελευτᾷ, 19.5): the beginning joins the end, and the animal lives.<sup>70</sup> Just as the περιφορὴ of the astral bodies is responsible for the maintenance of the system in the cosmos, so too is the περιφορὴ of going-ins/going-outs in the body; both the body's and the cosmos' δυνάμεις, while moving two ways, remain in harmony.

We can now turn to the notion of ἀπομίμησις by looking at ch. 10:

ἐνὶ δὲ λόγῳ πάντα διεκοσμήσατο κατὰ (2) τρόπον αὐτὸ ἑαυτῷ τὰ ἐν τῷ σώματι τὸ πῦρ, (3) ἀπομίμησιν τοῦ ὄλου, μικρὰ πρὸς μεγάλα καὶ (4) μεγάλα πρὸς μικρά· κοιλίην μὲν τὴν μεγίστην, (5) ὕδατι ξηρῷ καὶ ὑγρῷ ταμεῖον, δοῦναι πᾶσι καὶ (6) λαβεῖν παρὰ πάντων, θαλάσσης δύναι, ζῶων (7) ἐντρόφων τροφὸν, ἀσυμφόρων δὲ φθορόν· περὶ (8) δὲ ταύτην ὕδατος ψυχροῦ καὶ ὑγροῦ σύστασιν· (9) διέξοδον πνεύματος ψυχροῦ καὶ θερμοῦ· (10) ἀπομίμησιν τῆς γῆς, τὰ ἐπεισπίπτοντα πάντα ἀλλοιούσης. (11) καταναλίσκον δὲ καὶ αὐξὸν σκέδασιν ὕδατος (12) λεπτοῦ καὶ πυρὸς ἐποίησατο ἡερίου, ἀφανέος καὶ (13) φανεροῦ, ἀπὸ τοῦ συνεστηκότος ἀπόκρισιν, ἐν ᾧ (14) φερόμενα ἐς τὸ φανερόν ἀφικνεῖται ἕκαστον μοίρῃ (15) πεπρωμένη. ἐν δὲ τούτῳ ἐποίησατο τὸ πῦρ (16) περιόδους τρισσᾶς, περαινούσας πρὸς ἀλλήλας (17) καὶ εἴσω καὶ ἔξω· αἱ μὲν πρὸς τὰ κοῖλα τῶν

<sup>65</sup> Cf. the παλίντροπος ἀρμονίη of Heraclitus B51, and the echo of παλίντροπος in the τροπαί of fire (B31), which can be interpreted (cf. C.H. Kahn, *The Art and Thought of Heraclitus* [Cambridge, 1979], 138–44, 199–200) as the sun reversing its course once reached its maximum point, so that it οὐχ ὑπερβήσεται μέτρα (B94; cf. B100).

<sup>66</sup> Cf. δινέουσι, echoing the cosmogonical δίνη; cf. Leucippus at Diog. Laert. 9.31; Empedocles B35.21; Anaxagoras B12 (though the term used is περιχώρησις; J. Ferguson, 'DINOS', *Phronesis* 16 [1971], 97–115 distinguishes Anaxagoras' rotation from the whirl of Empedocles and the atomists; *contra*, Furlley [n. 47], 70).

<sup>67</sup> For the analogy zoogony/potter's craft, cf. Empedocles B73.

<sup>68</sup> Cf. 7.16–18 and 16.5–7.

<sup>69</sup> Cf. Pl. *Tim.* 78c1–79e9, where the cycles of respiration and nutrition (blood circulation) are explained as the joining of two complementary movements (C. Mugler, 'Alcméon et les cycles physiologiques de Platon', *REG* 71 [1958], 42–50), and especially 79e7–9.

<sup>70</sup> Cf. Alcmaeon B2; Heraclitus B103; *Loc. Hom.* 1.1. On the connection between circular motion and perpetuation of life, C.H. Kahn, 'Anaximander and the arguments concerning the ἀπειρον at *Phys.* 203b4–15', *Festschrift Ernst Kapp* (Hamburg, 1958), 19–29. More below, pp. 50–1.

(18) ὑγρῶν, σελήνης δύναμιν, αἱ δὲ [πρὸς τὴν ἕξω (19) περιφορὴν], πρὸς τὸν περιέχοντα πάγον, ἄστρων (20) δύναμιν, αἱ δὲ μέσαι καὶ εἴσω καὶ ἕξω περαίνουσαι <ἡλίου δύναντιν>. (21) τὸ θερμότατον καὶ ἰσχυρότατον πῦρ, ὅπερ πάντων (22) ἐπικρατεῖται, διέπον ἅπαντα κατὰ φύσιν, αἴκτον (23) καὶ ὄψει καὶ ψαύσει, ἐν τούτῳ ψυχὴ, νοός, (24) φρόνησις, αὐξήσις, κίνησις, μείωσις, διάλλαξις, (25) ὕπνος, ἔγερσις· τοῦτο πάντα διὰ παντὸς κυβερνᾷ, (26) καὶ τάδε καὶ ἐκεῖνα, οὐδέποτε ἀτρεμίζον.

In a word, fire, in the manner proper to itself,<sup>71</sup> arranged everything in the body, a copy of the whole, the small in accordance with the great and the great with the small.<sup>72</sup> It made the belly the greatest, a reservoir for dry and moist water, to give to all and to take from all, the power of the sea, feeder of the animals suited to it, destroyer of the not suited. Around it, a solidification of cold and moist water, a passage for cold and hot breath, copy of the earth, that alters all things falling upon it. Consuming and increasing,<sup>73</sup> it made a scattering of thin water and aerial fire, invisible and visible, secretion from the solidified substance, in which things carried come to light, each according to the appointed time.<sup>74</sup> Inside this, fire made three sets of circuits, mutually bounded both within and without: those towards the hollow of the moist, the power of the moon; those [towards the external circumference]<sup>75</sup> towards the solid enclosure, the power of the stars; the middle ones, bounded within and without, <the power of the sun>.<sup>76</sup> The hottest and strongest fire, which controls everything, managing all things according to nature, inaccessible to sight or touch, wherein there are soul [or 'life'], mind, thought, growth, motion, decrease, mutation, sleep, wakefulness; this governs all things always,<sup>77</sup> both here and there, without ever being at rest.

The cosmos appears here as the model in imitation of which fire, somewhat demiurgically,<sup>78</sup> arranges the body. As clearly stated in the passage, the body is a copy that has something in common with its model; it is also clear that it is a copy that depends on its model and is ranked as inferior.<sup>79</sup>

The body is in certain respects similar to the cosmic original, because it is made of the same elements and powers; it is formed 'from the same constituents, with the same

<sup>71</sup> According to its nature of moving, drying, heating. Cf. 9.17–20: τὸ δὲ πῦρ [...] διακοσμέεται τὸ σῶμα κατὰ φύσιν διὰ τοιήνδε ἀνάγκην.

<sup>72</sup> Jones (n. 1): 'the small after the manner of the great, the great after the manner of the small'; Joly (n. 1 [1967]): 'accordant les petits organs aux grands et le grands aux petits'. Jones's translation seems to imply that the imitation is symmetrical. Given my interpretation (see below), I second Joly's translation: the body, like the cosmos, is formed of greater and smaller constituents, fitted to one another to form a whole. Cf. *Hebd.* 6: *quae autem in terra sunt [...] quae minima et quae magna.* (Cf. Anaxagoras B12.30: νοῦς δὲ πᾶς ὁμοίος ἐστὶ καὶ ὁ μείζων καὶ ὁ ἐλάττων; B6: ἐν τοῖς μείζουσι τε καὶ ἐλάττουσι.) This idea fits with the 'craftic' verb *διοκοσμήσατο* (cf. Anaxagoras B12.21: πάντα διεκόσμησε νοῦς). *Contra*, Bartoš (n. 10), 546.

<sup>73</sup> Joly (n. 1 [1967]): 'consumant ceci, developpant cela', following Diels's emendation καὶ τὰ μὲν ἀνολίσκον, τὰ δὲ αὐξον.

<sup>74</sup> These might be the foetus' organs, which, though forming all at the same time, become visible earlier or later according to their size; cf. ch. 26.

<sup>75</sup> A gloss, according to Fredrich (n. 9); Joly (n. 1 [1967]); J. Jouanna, 'L'interprétation des rêves et la théorie micro-macrocosmique dans le traité hippocratique *Du Régime*', in K.D. Fischer, D. Nickel and P. Potter (edd.), *Text and Tradition: Studies in Ancient Medicine and its Transmission* (Leiden and Boston, 1998), 161–74, at 164.

<sup>76</sup> Following Joly (n. 1 [1967]).

<sup>77</sup> Cf. Heraclitus B41. But against the Heraclitean inspiration of this passage: Kirk (n. 6), 75. Joly (n. 1 [1967]), 36 associates the ruling function of fire to that of Anaxagoras' νοῦς (cf. B12.15).

<sup>78</sup> Olerud (n. 10), 64.

<sup>79</sup> Not only the body as a whole but also its parts are ἀπομμήσεις of the 'parts' of the cosmos (10.9). Cf. the masses of elements as *maxima membra mundi* in Lucr. 5.243, and Pl. *Phlb.* 29a–e, where the elements form the σῶμα of the universe. Cf. the cosmic sphere as having limbs in Empedocles B27a, B30.1, B35.11.

tools' (ἐκ τῶν αὐτῶν τοῖσιν αὐτοῖσιν ὀργάνοισιν, 22.5–6, 22.8–9).<sup>80</sup> This is evident in the Dietician's exposition. Simply by juxtaposing by asyndeton 'the belly, [...] the power of the sea', 'three groups of circuits, some [...] the power of the moon, some [...] the power of the stars, some [...] the power of the sun', he makes clear that the δυνάμεις internal to the body are the same as those at work in the surrounding world. The similarity involved is that of the part to the whole, and legitimates using the body as an analogue from which to infer facts about the cosmos.<sup>81</sup> As a matter of fact, chs. 9–10, intended to explain embryology, could equally well describe a cosmogony and cosmology. If we disregard the explicit references to τὸ σῶμα, we obtain a plausible cosmological picture. In the beginning, there is a blending of fire and water,<sup>82</sup> in which the moist is acted upon by fire (9.4–5); moved by it, the cosmic nucleus draws nutrients from the outside;<sup>83</sup> under the action of the fire the external layer encompassing the whole dries and solidifies (9.9, 9.12; 10.19);<sup>84</sup> the fire, i.e. the δυνάμεις of the hot and the dry, arranges everything (9.19; 10.1) within it.<sup>85</sup> The sea, with its power to feed animals suited to it and destroy those unsuited (10.6–7),<sup>86</sup> appears first; from the solidification of the water, the earth results (9.35–7; 10.8),<sup>87</sup> capable of transforming what falls into it (seeds into plants?),<sup>88</sup> alternatively traversed by cold and hot wind (10.9),<sup>89</sup> and then the realm of the 'strongest and hottest fire'

<sup>80</sup> Given the homogeneity of constituents, not only the human body but all living creatures are, to some extent, copies of each other and of the cosmos. Cf. *Hebd.* 6.1: *necesse est enim mundi partes [corpora et arbores], cum sint omnia similiter, comparari mundo*. The kinship of all nature is widespread in early speculation: cf. the development of the embryo likened to the nutrition and growth of plants in *Nat. Puer.* 27; Empedocles' analogies between animals and plants at B79, B82; the bark (φλοιός) in which first humans (A30) as well as the cosmos (A10) were contained at birth for Anaximander; the analogue formation of human embryos and chicks in the egg in *Nat. Puer.* 12, 30. For the analogy human embryo-cosmogony-egg, see Baldry (n. 16). Cf. W.K.C. Guthrie, *A History of Greek Philosophy* (Cambridge, 1965), 2.190–1.

<sup>81</sup> On the typicality of this, Lloyd (n. 64), 232–72.

<sup>82</sup> With their opposite δυνάμεις; the presence of the opposites in the original mixture is attested in Anaximander A10; Anaxagoras B12; Empedocles B27, B30, B31.

<sup>83</sup> Cf. the idea of ἐκ τοῦ ἀπειρου πνεύμα of the original one ascribed to the Pythagoreans (Arist. *Ph.* 213b22–7; *Metaph.* 1091a13–17), identified with the central fire (ἔστιά, Philolaus B7). Cf. Baldry (n. 16), 30–3; Huffman (n. 10 [1993]), 202–15. Cf. Leucippus' cosmogony in Diog. Laert. 9.32, where the cosmos grows κατὰ τὴν ἐπέκκρισιν τῶν ἐξῶθεν σομάτων.

<sup>84</sup> The words used are τὸν περιέχοντα πάγον; cf. Empedocles A30, where πάγος is used of the firmament, and the ἀκριτον πάγος (or *inseparabilis soliditas*) constituting the outermost 'skin' of the world in *Hebd.* 1.2, 6.2 (see West [n. 9], 372; Fredrich [n. 9], 101). Cf. the ὑμὴν enclosing the cosmos in Leucippus, Diog. Laert. 9.32. The idea of a surrounding solid layer was hinted at by Anaximenes (A14) and Parmenides (A37). Cf. Empedocles A51.

<sup>85</sup> διακοσμέω recalls the organizing action of Anaxagoras' νόυς (cf. n. 77). That fire had active power at cosmic level can be inferred of Philolaus on the grounds of B7 and A27. See Huffman (n. 10 [1993]), 213, 292–7.

<sup>86</sup> Cf. Heraclitus B61. I suggest that the microcosmic equivalent of the sea is not so much the belly *qua* stomach (as Jouanna [n. 75], 168; Joly [n. 1 (1960)], 41; Bartoš [n. 10], 547) but *qua* uterus, feeding the embryo that has achieved ἁρμονία ὀρθή, aborting the one that has not. For the correspondences, see references in n. 9.

<sup>87</sup> Cf. Anaximander and Diogenes, reported by Alex. Aphr. *In meteor.* 67.3 ff: the sea (ἐν τοῖς κοίλοις [...] τόποις) and the earth result from the first moisture dried up by the sun.

<sup>88</sup> Cf. Jouanna (n. 75), 172.

<sup>89</sup> In the microcosm διέξοδον πνεύματος ψυχροῦ καὶ θερμοῦ refers to respiration as the exchange of hot and cold air (cf. Philolaus A27) through the pores of the body (which, coupled with the respiratory tract, formed the breathing system; cf. διέξοδοι at 23.9–10; Philistion, *An. Lond.* 20.45; Empedocles B100; Pl. *Tim.* 79c); in the macrocosm it could describe the alternation of seasons, determined by the prevalence of cold or hot wind (πνεῦμα) (cf. ch. 38; *Hebd.* 3, 4). Cf. West (n. 9), 372 on <δ>εξ[όδου]ς θέρους καὶ χειμῶνος at *Hebd.* 1.2.

in the *περίοδοι* of celestial bodies contained in the firmament, the moon the lowest, closer to the inner concavity of the sphere surrounding us (*πρὸς τὰ κοίλα*), the sun in the middle and the stars more external.<sup>90</sup> The Dietician could well be illustrating the birth and structure of the cosmos.

If this is correct, the analogy may further suggest that some of the features true of the animal body might apply to the cosmic model. For instance, one could think that in order for the world to come into being an *ἀρμονία ὀρθή* among powers needed to be struck, and that this harmony is kept through the unending alternation of sun and moon, day and night, and the seasons, just as it is kept throughout a human lifetime. This hypothesis is corroborated by the text, repeatedly evidencing that human and cosmic bodies share similar features on the basis of their analogous constitutions from fire and water—or, rather, from basic opposites—which moreover analogously change in accordance with their stages of development (both human and cosmic). By connecting ch. 33 with ch. 68, for instance, we see that a child's constitution is moist and warm (33.2–3), as is spring (68.96); a young man is hot and dry (33.6–7), like summer (68.95); a grown man's constitution is dry and cold (33.13), presumably like autumn (no explicit definition is provided, but dietetic indications in ch. 33 make it clear that it is so); an old man, like winter, is composed of cold and wet (33.18–19; 68.19).<sup>91</sup> Again, ch. 37 outlines the similarity between the qualities of different regions of the world and those of the plants, animals and humans that inhabit them: southern regions, for example, are hot and dry, and so are the natures of living beings in them (lines 2–8). At ch. 38, the survey of the various types of wind takes the cue from the straightforward claim that 'as there is breath in animals, so there is in everything else' (*ὥσπερ γὰρ καὶ τοῖσι ζώοισι πνεῦμα ἔνεστιν, οὕτω καὶ τοῖσιν ἄλλοισι πᾶσι*, lines 11–13). At ch. 68, again, the Dietician asserts that 'as the season is cold and congealed, animals too come to have the same qualities' (*τῆς ὥρης ἐούσης ψυχρῆς καὶ συνεστηκυίης, παραπλήσια πέπονθε καὶ τὰ ζῶα*, 68.69–70), and then continues his detailed treatment of how to adjust regimen to season based on this principle. As we shall see in the next section, it is precisely by virtue of this similarity in dynamic composition, so to speak, that the cosmos affects human bodies, and must therefore be taken into account when prescribing the treatment appropriate to each constitution.

Granted this similarity, there is, however, a most important difference between the copy and its original, in virtue of which the cosmos is also a 'better' version of the body. As noted in section 2, the body is a specific *σύγκρησις* of powers, the maintenance of which corresponds to that specific individual's health. Each organism is naturally predisposed to being healthy: the attunement that allowed it to be born and that constitutes its *φύσις*, its *ἐξ ἀρχῆς σύστασις*, would not fail, were it not threatened from the external environment. But threatened it is, and thus its balance depends on maintaining that specific harmony while unavoidably interacting with the outside. On the contrary, the cosmos is a system the harmony of which is not threatened: it does not have an 'outside' from which it can receive disturbances; all the interactions and alternations of powers happen internally, and their harmonic exchange cannot be

<sup>90</sup> Cf. 89.9–11 and Jones (n. 1), 427 n. 3. West (n. 9), 372 refers to this as to the plain man's three-fold division making no special provision for the planets (cf. Parmenides B11; Anaxagoras B12).

<sup>91</sup> For the parallel human ages/seasons, cf. e.g. Pericles *ap.* Arist. *Rh.* 1365a32; Pythagoras *ap.* Diog. Laert. 8.10; Diod. Sic. 10.9.5; *Hebd.* 5.

disrupted by the intervention of external δυνάμεις.<sup>92</sup> Given the conception of disease as a slow but sure sliding away from the equilibrium constituting health,<sup>93</sup> caused by an even minimal uncompensated external influence which gradually degenerates in excess (2.54 ff),<sup>94</sup> nothing like it can affect the cosmos. There is nothing that, introducing an element of disorder, would, little by little, drive the system away from its equilibrium.<sup>95</sup> Thus the attunement of powers that allowed the cosmos to come into being has no threat to its maintenance: the world is an unfailing κρᾶσις of δυνάμεις. In this sense, τὸ σῶμα is the product of ἀπο-μίμησις, a copy 'removed from' its model: though sharing some features with τὸ ὅλον (the basic constituents), the body is still different and inferior to it in certain important respects (it is subject to illness and death).<sup>96</sup>

#### 4. THE IMPORTANCE OF ΑΠΟΜΙΜΗΣΙΣ FOR REGIMEN

It is now time to take stock of the findings so far, and see the pay-off of this relationship of imitation for regimen. The science of dietetics is grounded on both aspects of this relationship: it is because it is constituted of the same δυνάμεις as the cosmos that the body, as well as being constantly submitted to its influence, is also capable of being modified by our intervention, and thus dietetics is effective. In virtue of this similarity, ὁ ὅλος κόσμος with everything it comprehends ('the rising and setting of the stars, food, drinks, wind') must be known by the practitioner, *qua* active factor in the determination of health or disease (2.35–9). But, even more importantly, it is because the body is an inferior copy of the universe (it is susceptible to externally introduced disorder) that dietetics is necessary as a τέχνη able to compensate the shortcomings of our φύσις by minimizing the distance between the copy and its original. For disease is a disruption of the inner balance imported from the outside and if that disruption can be avoided one will never fall ill. Given that the δυνάμεις inside and outside the body are the same, and that it is on their balanced or imbalanced interactions that health and disease depend, if one can make sure that all the inevitable exchanges with the outside are such as to maintain the specific harmony of the individual, then disease will not occur. This is the aim of dietetics, concerned not with disease

<sup>92</sup> Assuming the Dietician thought of the cosmos as a 'Closed World' rather than as an 'Infinite Universe', in which infinitely many κόσμοι, and thus matter external to this one, exist (Furley [n. 47], 2). Nothing indicates that the Dietician might endorse the latter picture.

<sup>93</sup> Cf. O. Temkin, 'Greek medicine as science and craft', in id., *The Double Face of Janus and Other Essays in the History of Medicine* (Baltimore, 1977), 137–53, at 149.

<sup>94</sup> Presumably because once a constituent has gained dominance it keeps attracting its like from the exterior, thus becoming stronger and stronger. Cf. the notion of equilibrium in Freudenthal (n. 53), 205.

<sup>95</sup> Cf. the world built as unique and perfect at Pl. *Tim.* 32c5–33a8: containing the totality of elements, it is unassailable by external powers and thus inaccessible to illness and old age (cf. Melissus B7.17–22); in contrast, the body is subject to both because assailable from outside (81e6–82b7).

<sup>96</sup> Cf. the use of ἀπομυμέομαι at Pl. *Tim.* 44d4, 88d1 for the relationship between world and man: the latter is created in imitation of the former but needs to get closer to it in order to be healthy physically (through gymnastics, imitating the self-caused motion of the universe, 88c7–89a1) and psychically (through the study of astronomy which, making the revolutions in our head more harmonic, assimilates them to the heavenly ones, 47b5–c4). See D. Sedley, 'The ideal of godlikeness', in G. Fine (ed.), *Plato 2: Ethics, Politics, Religion, and the Soul* (Oxford, 1999), 309–28. Cf. Pl. *Menex.* 238a4–5.



once it has ensued,<sup>97</sup> but with the prevention of it, and therefore insisting on the necessity to observe the transformations of the external environment and adjust accordingly, so that harmony between inside and outside (and thus inside) be kept.<sup>98</sup> We recall how processes between the body and its surroundings happen: to each going-in a going-out corresponds, and once again the going-out is supplemented by a going-in. But if the in/out movement of exchange with the environment is not harmonic, and the oscillation of absorbing and expelling is impeded or forced, the specific mixture of the individual in that specific circumstance risks to be altered.

Considerations regarding one's constitution must be coupled with observations concerning the environment, because it is in virtue of the specific attunement of elements in each individual that the modifications of attunement in season, place and the like affect that particular body, and consequently the way in which one must intervene. The medical implications of this complex relationship are deployed in detail in chs. 32 and 68. Ch. 32 provides an illustration of the six types of human constitution in terms of combination of specific kinds of fire and water and indications on what regimen suits what constitution; while the details of the passage are obscure,<sup>99</sup> what matters here is that certain human constitutions and ages are considered more sensitive to certain seasons owing to their analogous κρᾶσις of constituents. For example, bodies blended from the moistest fire and the densest water, which yield a moist and warm constitution, are most threatened in spring, when there is a similar excess of moisture, and least in autumn, which has the appropriate amount of dryness; children, moreover, should particularly beware in this season (32.45–51; cf. also lines 32–8), arguably because, as it is said in ch. 33, they are moist and warm by nature (lines 2–3). People with such a constitution should thus prevent these opposites from becoming excessive through the intake of appropriately drying and cooling foods, drinks and exercises (cf. 32.54–6), especially in spring. In contrast, dry and cold constitutions (33.69–70) are most unhealthy in autumn, when the cosmos shares the same composition of opposites, and healthiest in spring; regimen should accordingly be designed to increase the moist and warm powers in the body (32.74–5).<sup>100</sup> In ch. 68 it is made abundantly clear that, as the season changes, so accordingly must regimen (δεῖ τοῖσι διαίτημασιν ἔπεσθαι τῇ ὥρῃ, lines 89–90; cf. lines 77–8, 109–11, 123–4, 175–6)—and to a painstaking degree of detail. A nearly obsessive yearly programme is outlined, which comprises specific types of foods, drinks, cooking methods, exercises, walks, ointments, baths, emetics, sexual intercourse, etc. It is divided into stages according to what are purported as accurate

<sup>97</sup> Although it is made clear that it results from 'many and frequent errors' in regimen (68.21–5, cf. *Loc. Hom.* 42; *Nat. Hom.* 9; *Hum.* 12; *Epid.* 1.2, 4.50; *Aff.* 1; *Art.* 5, 6; *VM* 22), it is admitted that, once disease takes over, regimen diminishes its efficacy, and drugs are needed. Their effectiveness, however, is doubted. Cf. a similarly hostile attitude towards pharmacopoeia in *Pl. Tim.* 89a8–d1, just following the recommendations in 88c7–89a1 (n. 96, above).

<sup>98</sup> Cf. ch. 2. The idea that health depends on one's way of life was shared by Herodicus of Selymbria (*An. Lond.* 9.20) and Iccos of Tarentus (*Pl. Prt.* 316d); on their view, see J. Schumacher, *Antike Medizin. Die naturphilosophischen Grundlagen der Medizin in der griechischen Antike* (Berlin, 1940). See Joly (n. 1 [1967]), xiii for rebuttal of Herodicus' authorship of *Vict.*

<sup>99</sup> A detailed treatment is in C. Enache, 'The typology of human constitutions in Hippocrates' *De Victu* 1, 32', *WS* 124 (2011), 39–54.

<sup>100</sup> The countering of 'opposite through opposite' (cf. *Flat.* 1; *Morb. Sacr.* 21; Eryximachus at *Symp.* 186d5–e3) happens through the principle of 'like with like': the addition of *y* is not supposed directly to repress *x*, but to reinforce its opponent *y*. Cf. Kahn (n. 12), 180. The same principle is stated in relation to fire and water at *Vict.* 36.4–7.

astronomical observations. The gradual movement from solstice to equinox, marked by the changing positions of the stars and by the exact number of days, must be met with corresponding rigorous step-by-step minuscule modifications in regimen, presumably because each cosmic movement brings forth a slightly different macrocosmic attunement of powers, with which the body must be kept constantly aligned.<sup>101</sup> Thus the cosmos acquires a normative role in dietetics not only because it is the standard of unflinching equilibrium at which one aims, but also because it indicates what measures one must take for that equilibrium to be achieved. Regimen can be thought of as a way of life that allows one to become more similar to the cosmos (more stable in one's physical κρῶσις) by becoming more integrated with it, since through following the cosmic norm it maximizes the attunement between internal and external powers.

Whether this enterprise is actually within human reach is, none the less, a different matter, and one that deserves to be briefly discussed. However seemingly pedantic, such recommendations are an absolute minimum; they should be followed even by those unlucky ones who, tied to the necessities of life, do not have the opportunity to put their well-being before everything else (68.1–10).<sup>102</sup> They are necessary measures, but far from sufficient to reach that complete harmonization of external and internal δυνάμεις that, becoming exactly attuned, would prevent any discrepancy between the body and the environment. The yearly schedule provides no more than the closest possible approximation (68.175–6) to the correct regimen for achieving complete health. This latter is a much more complicated matter. For there are no points in time in which our body is spared the constant inflow and outflow from outside, so there is not even one instant in which someone concerned with his well-being could, in principle, stop observing the surrounding environment and acting accordingly. One must be prepared to structure one's entire life-style around it, postponing any other daily concern.<sup>103</sup> Evidently, only a few privileged men have the time and leisure to live like this; and it is perhaps to impress these perspective 'customers' that the author dwells on the long catalogue of symptoms and suitable preventive treatments (chs. 69–85), which he pompously presents as his own great discovery (ἐξεύρημα).<sup>104</sup> The fastidiousness of these prescriptions shows how those who aspire to proper health should spend their time observing every minuscule change in their physical condition, interpret it as symptom of potential excess or defect and immediately take preventive measures, even (or especially!) when they feel and look well (69.21–5).<sup>105</sup> Becoming more and

<sup>101</sup> E.g. a drying warming regimen for the forty-four days from the setting of the Pleiads to the solstice (68.75–80); a milder varied regimen for thirty-two days when Arcturus rises (68.86–92), etc. See below, pp. 49–50 for this 'accuracy'.

<sup>102</sup> L. Edelstein, 'Hippocratic prognosis', in O. Temkin and C.L. Temkin (edd.), *Ancient Medicine. Selected Papers of Ludwig Edelstein* (Baltimore, 1967), 65–85, at 84 attributes a classist attitude to the Dietician. *Contra*, Joly (n. 1 [1960]), 132.

<sup>103</sup> Cf. Plato's criticism of Herodicus' way of life, enslaved to his preventive regimen (*Resp.* 400a ff). Cf. L. Edelstein, 'The dietetics of antiquity', in O. Temkin and C.L. Temkin (edd.), *Ancient Medicine. Selected Papers of Ludwig Edelstein* (Baltimore, 1967), 303–16, at 305: the life of the rich who intended to follow his dietician's prescriptions was fraught with anxiety.

<sup>104</sup> *Vict.* 69.10–11: τὸδε δὲ τὸ ἐξεύρημα καλὸν μὲν ἐμοὶ τῷ εὐρόντι; cf. *Vict.* 1; 2.53–4, 2.59–61; 67.17–27; 93.39–41. For such 'egotic' first-person statements in medical writings as a means to emphasize one's innovativeness, see G.E.R. Lloyd, *The Revolutions of Wisdom* (Berkeley, 1987), 56–70; for the role of rhetoric in a field markedly defined by competitiveness, see Lloyd (n. 18), 86–98.

<sup>105</sup> Under their personal dietician's guidance, of course. The ability to forecast events and control them gained the physician trust and social prestige (Edelstein [n. 102], 80); his τέχνη was seen as a divine gift (Freudenthal [n. 53], 206). See Schiefsky (n. 5), 11 and Lloyd (n. 18), 37–49 on the

more 'like the cosmos' by following the indications it provides appears thus as a toilsome never-ending task. Indeed, one cannot help but wonder whether it is a task that could ever be accomplished.

The Dietician admits there is a limit to this enterprise. An exact formula for health is impossible to discover (2.47), for many things prevent the treatment of regimen with such accuracy (ἐς ἀκριβείην) as 'to make the exercises exactly proportionate to the amount of food' (67.1–4; cf. 2.42–3). Such things are: the differences in individual constitutions and within the same individual at different times; the characteristics of each geographical area; the shifting of the winds; the change of seasons; the constitutions of the year; the nature of individual foods and drinks (67.4–17).<sup>106</sup> These variables seem to pose a problem in so far as they cannot be precisely known. The recurrence of the term ἀκριβεία and its cognates is significant (cf. 2.46; 2.52; 67.3; 67.16; 67.27). For this is a notion linked to that of mathematical precision and quantitative measurements,<sup>107</sup> and the Dietician's stress on it as something impossible to achieve<sup>108</sup> might suggest that, if one had the scientific and technological means quantitatively to determine the constitution of each individual at every point in time, the constitution of each interacting element, the exact amount of δυνάμεις expended through exercise and the like, then it would be possible to achieve perfect equilibrium between within and without and, therefore, within.<sup>109</sup> The limit imposed on the realization of the ideal would then be an epistemological one: perfect health could be achieved, were these cognitive impairments removed. This belief might thus be the drive behind the Dietician's attempt to approach the wished ἀκριβεία by producing exact numbers and proportions;<sup>110</sup> and the insistent claim that, basing himself on previous discoveries,<sup>111</sup> he has pushed knowledge as far as is possible (93.39–41) might spring from his genuine desire to establish the scientific status of his discipline.

On the other hand, this might well be too naïve a way of taking the Dietician's claims at face value: one should not forget the role that matters of audience, context, purpose and competitiveness had in shaping the style and approach of medical writings: thus the self-conscious admissions of uncertainty and readiness to recognize the limitations of one's art, combined with the striking self-confidence and unhesitant dogmatism flaunted elsewhere (for example in the both painstakingly precise and suspiciously arbitrary numbers and proportions indicated in Book 3),<sup>112</sup> might rather be part of a complex

doctors' pressure to defend their status as craftsmen superior to other healers (root-cutters, drug-sellers and others; cf. G.E.R. Lloyd, *Science, Folklore and Ideology* [Cambridge, 1983], 119–21).

<sup>106</sup> Which vary with their place of origin and the δυνάμεις they are submitted to (e.g. 37.17–24; 38.41).

<sup>107</sup> By the end of the fifth century, a conception of exact τέχνη as an art that achieves full ἀκριβεία by using precision tools to make exact measurements had become widespread; see Schiefsky (n. 5), 13–18. The 'exactness' of measures, however, does not equate to their 'accuracy': for the mystification involved, Lloyd (n. 104), ch. 5.

<sup>108</sup> Cf. 67.27. *VM* 9.2 also recognizes the role of ἀκριβεία in determining dietary prescriptions while rejecting its attainability; cf. Schiefsky (n. 5), 361–74; Lloyd (n. 104), 128–31 and 253–4.

<sup>109</sup> Rather than an exclusively Pythagorean notion (e.g. Iamblichus *Comm. math.* 78.8–18), number lore was widespread in popular belief (Lloyd [n. 104], 258). Cf. also Burkert (n. 10), 420. The epistemological role attributed to number by Philolaus (B4) possibly influenced medicine (Huffman [n. 10 (1993)], 76).

<sup>110</sup> See below, n. 112.

<sup>111</sup> See the author's attitude towards his predecessors in ch. 1, especially 16–20 and 28–33.

<sup>112</sup> See e.g. 70.37: reduce the dinner of one half; 70.38: on the third day resume exercise; 72.25 ff: give nothing for three days, etc. See Lloyd (n. 104), 257–70 for the 'spurious quantifications' produced by medical writers in such passages.

tactic, aimed at persuading colleagues, competitors, as well as perspective patients, of one's reliability as a true expert in the field, he who can be safely trusted for what medicine both can and *cannot* do.<sup>113</sup>

To return to the cosmos–body relationship in regimen: however the limitation placed on ἀκρίβεια is to be construed, let us imagine an omniscient and omnipresent dietician, who is able to know with quantitative exactness all the variables, and is capable of following his patient around so as constantly to suggest to him how to keep the balance by ingesting this or eliminating that through suitable exercise (cf. *Vict.* 2). This would perhaps allow the body never to fall ill; but there would still be an inevitable limitation on how much the copy can approach its model. That is, the human body is a perishable system. It is not only in consequence of the intervention from the surrounding environment that it can be damaged but also in consequence of internal failure, which is not the case at the cosmic level (at least for what we know of the Dietician's universe).<sup>114</sup> We recall the περιφορή in the human body: the circle of vital functions is the result of the two complementary movements of drawing in (food/breath) and expelling out (excretions/expiration). As long as the two halves connect, i.e. as long as each action is connected to and balanced by the complementary action in the opposite direction, life is kept. But it gets to a point at which the coordination of the two is lost: the mechanism that compensates each expulsion with an intake and each intake with an expulsion increasingly degenerates, causing the animal to decay and age, until the point of complete failure.<sup>115</sup> When this happens, the circle is interrupted, and death intervenes.

The contrast is once again between the body and its original: unlike those of the moon, stars and sun, the περίοδοι in the human body (9.33; 10.16) cannot repeat themselves indefinitely. Like their cosmic model, these circuits are microcosmically responsible for the perpetuation of the system; they hold in the body the same δυνάμεις the astral bodies hold in the cosmos.<sup>116</sup> But while the cosmic revolutions can indefinitely τὴν ἀρχὴν τῷ τέλει προσάψαι, the human circuits cannot.<sup>117</sup> Thus, even if a person's vital functions could be made exactly attuned to the cosmic transformations, so that the harmonic exchanges between in and out would never be impeded and man would never fall ill, eventual internal failure could not be avoided. Given the type of system the body is, it is impossible for it fully and permanently to reproduce its cosmic original.

So it seems that the limitation expressed by ὡς δυνατόν (67.25) refers not only to the discovery of the exact formula of health but also to the realization of that formula.

<sup>113</sup> Lloyd (n. 104), 124–31.

<sup>114</sup> One could object that the Dietician might conceive of the universe also as perishable, since he quite probably thought of it as having a beginning (see above, pp. 44–5). But if he did have an asymmetrical notion of a generated but indestructible universe, he would be in the good company of Plato (*Tim.* 32b8–33b1) (see Sedley [n. 47], 107) and the 'Pythagoreans', according to Aristotle's account at *Cael.* 279b12.

<sup>115</sup> Cf. the slowing down of the περιφορή in old bodies, unable to turn nourishment into growth as the young (*Vict.* 25), and Plato's account of the aging process as the progressive failure in the cycle of going-ins/going-outs, culminating with death (*Tim.* 81b–e). Cf. Mugler (n. 69), 47.

<sup>116</sup> See above, pp. 43–4 and cf. 10.15: the περίοδοι corresponding in the body to the moon, sun and stars are the dwelling place of 'soul, mind, thought, growth, motion, decrease, mutation, sleep, waking'.

<sup>117</sup> Cf. Alcmaeon's view that, being in everlasting motion, the astral bodies are eternal at Arist. *De an.* 405a30, and B2, where man's uncompleted circle can be interpreted as the eventually interrupted physiological cycle (Kahn [n. 70], 26; Mugler [n. 69], 49–50).

Becoming like the cosmos (stable, harmonic, unassailable by illness and old age) is something the body can do only in so far as it is possible.

### FINAL REMARKS

The reconstruction I offered is not meant to deny those elements of ‘Presocratic patchwork’ that dot the treatise, nor those aspects of carefully dosed dogmatism, circumspection and mystification that derive from the cultural and disciplinary background of medical writing; but it does aim to defend the Dietician from the charges of being no more than a thoughtless compiler who merely lifts ideas from more authoritative philosophers to bolster his claims. In fact, the Dietician constructs a rather sophisticated and original framework that, in addition to providing a comprehensive explanatory pattern, supplies medical practitioners with insightful practical guidelines. There are three senses in which the cosmos is a model for the body, all of which are relevant for dietetics:

- (1) The cosmos is the model to which the body corresponds and is similar, being composed of the same elements and powers. In this sense, the cosmos is an active factor in the determination of physical states that the dietician must know and be able to explain.
- (2) The cosmos is ‘the original’ of the body, from which the body takes its shape, and which is better than, and prior to, its copy. In this sense, the cosmos is the standard of equilibrium the body should reproduce, approaching which is dietetics’ purpose.
- (3) The cosmos is the norm one should observe in order to minimize the distance between the copy (the body) and its model (the cosmos itself). In this sense, it is a pattern of constant modifications according to which the dietician must formulate his prescription. The relationship of imitation is thus both asymmetrical and dynamic.<sup>118</sup>

It is true that, as it has emerged, the cosmos is a model that cannot fully be reproduced by its inferior copy. Perfect health cannot be achieved, not only, or not so much, in consequence of an epistemological limit but because of the sort of thing the body is. However, the constant striving to adjust one’s habits and behaviours to the pattern offered by the cosmic modifications guarantees the healthiest possible life. Imitating the cosmos, that is, structuring one’s life on following the norm provided by it, so as to become more and more similar to it, allows us to be healthy as much as possible for a human being, to be as stable in our harmonic κρῶσις as we are capable of being. Health is an ideal that cannot be absolutely and permanently realized, but the realization of which one should not stop attempting. Accordingly, dietetics is a discipline that has, broadly speaking, an ethical and normative import: it prescribes a change in one’s whole conduct in order to attain that (relative) well-being without which neither wealth nor any other good is of any value (69.5–7).<sup>119</sup> Since without it no other good can be

<sup>118</sup> *Contra* both Joly (n. 1 [1960]), 71, for whom the imitation is static, as the microcosm already corresponds to the macrocosm, and Bartoš (n. 10), for whom it is symmetrical.

<sup>119</sup> Cf. Herophilus *ap.* Sext. *Emp. Math.* 11.50; Sext. *Emp. Math.* 11.49; Gal. *De sanitate tuenda* 2.1. Cf. the Socratic-Platonic view that health of the soul (moral virtue) is that higher-order good without which no other good is of any use, *Euthyd.* 278e–282e; 292a ff; *Men.* 87c–89d; *Ap.* 30a–b, 36b–d.

enjoyed, perhaps one may go so far as saying that dietetics as a way of imitating the cosmos is ultimately what allows one to live the best possible life.<sup>120</sup>

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<sup>120</sup> Cf. Edelstein (n. 8). This idea has some formal affinity with that expressed in Pl. *Tim.* 90a–d, that the best life offered to mankind is achieved by maximizing the resemblance of the revolutions in our head (ἐν τῇ κεφαλῇ περίοδοι) with the cosmic revolutions (τοῦ παντὸς περιφοραί), an enterprise that can be carried out only καθ' ὅσον (...) ἀνθρωπίνη φύσει (...) ἐνδέχεται. Cf. *Tht.* 176b. See Sedley (n. 96).