

Galen's Response to Skepticism

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Galen's commitment to a science of medicine that could accurately diagnose diseases, identify symptoms and causes, and prescribe treatment brought him into conflict not only with physicians who questioned the need for such medical theory or the reasoning by which it was constructed, but also with the skeptics, whose arguments raised doubts about the possibility of gaining knowledge of the truth about any subject whatever and who held that it is possible to live with suspension of judgment.¹ Galen sometimes refuses to talk to the doubters; they are "boorish Pyrrhonists"² and contentious

The following abbreviations are used in references to Galen's writings:

CMG: *Corpus Medicorum Graecorum*.

K.: *Claudii Galeni Opera Omnia*, ed. Karl Gottlob Kühn. 22 vols. (Leipzig 1821–33; repr. Hildesheim 1964–65).

MM: Galen, *Methodus Medendi*.

PHP: Galen, *De Placitis Hippocratis et Platonis* (= CMG V 4.1.2).

SM: *Claudii Galeni Pergameni Scripta Minora*. 3 vols. (Leipzig 1884–93; repr. Amsterdam 1967).

Müller, *Beweis* (note 20) refers to I. Müller, *Über Galens Werk vom wissenschaftlichen Beweis*, Abh. Bayer. Akad. 1895, No. 2.

Other editions of Galen's writings are identified by the name of the editor. The following require an explanation, since they are in works not primarily on Galen:

De opt. doct. . . . Barigazzi (e.g. note 6) refers to A. Barigazzi, *Favorino di Arelate. Opere* (Florence 1966).

Subf. emp. . . . Deichgr. (e.g. note 2) and *De sectis* . . . Deichgr. (e.g. note 164) refer to K. Deichgräber, *Die griechische Empirikerschule* (Berlin 1930; repr. 1965).

¹ Cf. Cic. *Acad.* 2. 107, 108. Where possible pre-Galenic sources for skepticism are cited. When Sextus Empiricus and Diogenes Laertius are cited, it is with the caveat that their arguments may to some extent be post-Galenic. On possible echoes of Galen's language in Sextus see below, 302–03.

² Galen did not limit this abusive term to avowed Pyrrhonists. In *An in arteriis* 7 (4. 727. 9–12 K. = 172. 1–4 Furley–Wilkie), those who fled to the altar of boorish Pyrrhonism were Erasistrateans. In *De praecognitione* 5. 14–15 (CMG V 8.1, p. 98. 4–8), it was Alexander of Damascus who would not believe his eyes. In *De puls. diff.* 4. 2 (8. 710. 13–17, 711. 1–3 K.), they were skeptics and aporetics, who were not sure of their own feelings, and the physicians who were influenced by them. Similarly, in *Subf. emp.* 4 (49. 29–50. 1 Deichgr.), Galen calls the physician Cassius a Pyrrhonist. Galen expresses the relation of skeptic to empiricist in *Subf. emp.* 11 (82. 28–31 Deichgr.) with the words: *Qualis autem est secundum totam vitam sceticus, talis est circa medicativam empiricus.*

arguers.³ Yet he does not ignore them. Indeed counter-arguments, he says, must be answered if one is not to be tossed about on waves of uncertainty.⁴

The first step in the defense of scientific method is to establish, in answer to the skeptics' doubts, that there are criteria of truth. Galen maintains that there are criteria in the specialized disciplines, and these specialized criteria could not exist if human beings had no natural criteria.⁵ The person who devised the instruments of the arts such as the compass and the yardstick started from the natural criteria,⁶ and it is by calling on the student's natural criteria that the teacher points out his errors and corrects them.⁷ Not only are there natural criteria; they are common to all of us. For, Galen says, what is natural must be common to all and have a common nature.⁸ A possible reason for stressing that all persons have these natural criteria may have been a desire to avoid the skeptics' argument that what is not common is not natural,⁹ or the charge to which the Stoics were liable for their view that only the wise man has scientific knowledge. From that it would follow that the rest of us do not share the ability to separate true from false.¹⁰ There are some, Galen says, who admit that the criterion requires no proof but who do not admit that it is natural or common to all.¹¹ He may have had the Stoics or Epicureans in mind.

In opposing the argument from the arts the skeptics say that appearances are sufficient criteria for choice and avoidance,¹² and the arts provide things useful for life through the observation of appearances.¹³ The arts do not require a criterion that separates true from false.¹⁴ Galen concedes that right opinion is as good as knowledge in practical matters, but it lacks stability and permanence.¹⁵ It was the certainty that he found in

³ Cf. *De peccat. dignot.* 3. 23-24 (CMG V 4.1.1, pp. 51. 22-52. 11) and *De ord. libr. suor.* 1 (19. 52 K. = SM 2. 82. 3-11).

⁴ *Synops. libr. suor. de puls.* 1 (9. 432. 8-12 K.).

⁵ *PHP* 9. 1. 10 (p. 542. 7-8). The same point was made by Lucullus, the spokesman for Antiochus, in *Cic. Acad.* 2. 22; cf. also 2. 146.

⁶ *De opt. doct.* 4 (1. 48-49 K. = 184. 2-6 Barigazzi).

⁷ *De opt. doct.* 2 (1. 44 K. = 180. 33-81. 11 Barigazzi).

⁸ *PHP* 9. 1. 11 (p. 542. 8-11). On nature as common to all members of a class see below, 293.

⁹ The skeptics used the proposition that what is not common is not natural in arguing that there is no common good; see Sextus, *PH* 3. 179 and *AM* 1. 147; *Diog. Laer.* 9. 101.

¹⁰ Cf. *Cic. Acad.* 2. 145; Sextus, *AM* 7. 152. Arcesilaus, according to Sextus (*AM* 7. 153), argued that on the Stoic view there can be no middle ground between the knowledge of the wise man and the opinions of the ordinary man. Galen recognizes, of course, that not all men are equally adept at using the natural criteria; cf. *Thrasymb.* 24 (5. 846-47 K. = *SM* 3. 62. 9-12).

¹¹ *PHP* 9. 7. 5 (p. 586. 23-27).

¹² Cf. Sextus, *AM* 7. 29-30.

¹³ Cf. Sextus, *AM* 5. 2; *Cic. Acad.* 2. 107.

¹⁴ *Cic. Acad.* 2. 146.

¹⁵ *Gal. De ord. libr. suor.* 2 (19. 54 K. = *SM* 2. 83. 17-23), with an apparent allusion to Plato, *Meno* 96d-98a.

mathematics that saved him from Pyrrhonic skepticism.¹⁶ Mathematical reasoning was for him the model for philosophy and medicine.¹⁷ The skeptics had of course questioned the fundamental concepts of mathematics. Carneades, Galen tells us, refused to believe that magnitudes equal to the same thing are equal to each other. He dismisses such an attack on the evident as a sophism.¹⁸

Having established the existence of natural criteria, Galen now identifies them. They are, according to *De plac. Hipp. et Plat.*, the eyes in their natural state seeing things that are visible, the ears in their natural state hearing things that are audible, the tongue tasting savors, the nostrils smelling odors, the skin touching things touchable, and the mind or intellect or whatever you want to call it, by which we distinguish what follows and what conflicts and the like.¹⁹ Trusting in these natural criteria we accept as true what appears clearly to the senses or the mind.²⁰ They are the criteria that make possible the special criteria of the special disciplines.²¹

It is necessary, then, to distinguish between appearances that are clearly true and those that are not. Galen considered clear sensation and thought equivalent to the Stoic *καταληπτική φαντασία*,²² and he therefore had to defend his view against the attacks of the skeptics on that Stoic view. It was first criticized by the Academic skeptics, and their criticism was broadened by the Pyrrhonist Aenesidemus to refute any attempt to move from the evident to the non-evident.²³ Aenesidemus' ten tropes give a list of

¹⁶ *De libr. prop.* 11 (19. 40 K. = *SM* 2. 116. 20–23).

¹⁷ See for examples *PHP* 8. 1. 25 (p. 486. 12, with the note on p. 684). Other examples, of which there are many, include *Subf. emp.* 12 (90. 2–4 Deichgr.) and *De peccat. dignot.* 3. 2–4 (*CMG* V 4.1.1, p. 46. 7–23). In *PHP* 8. 1. 20 (p. 484. 22–26), Galen asserts that those who have mastered Euclid's proof that the earth is the center of the universe accept it as confidently as they do that $2 \times 2 = 4$. In calling the elements of the art of medicine its theorems (*θεωρήματα*) Galen may have intended an allusion to the theorems of mathematics; see *De part. art. med.* 4, 5 (*CMG* Suppl. Or. II, pp. 122. 30–34, 124. 19–20) and the reference to *θεωρήματα γραμμικά* in *De usu part.* 10. 14 (3. 838 K. = 2. 110. 23–24 Helmreich).

¹⁸ *De opt. doct.* 2 (1. 45 K. = 181. 14–82. 5 Barigazzi). Galen often refers to the arguments of the skeptics as sophisms; see below, 286.

¹⁹ *PHP* 9. 1. 13 (p. 542. 13–20). In *MM* 1. 3 (10. 29. 3 K.) Galen identifies the criteria as *πεῖρα* and *λόγος*. *Πεῖρα* is the criterion of drugs in *De simpl. med.* 3. 6, 10 (11. 552. 13–15, 560. 18 K.).

²⁰ See for example *De opt. doct.* 4 (1. 49 K. = 184. 16–18 Barigazzi) and the discussion in Müller, *Beweis* 29–34. For examples of things clear to the mind see below, 305 and 306.

²¹ Cf. *PHP* 9. 1. 10, 23 (pp. 542. 7–8, 544. 17–21); *De opt. doct.* 4 (1. 48–50 K. = 184. 2–6, 18–19 Barigazzi).

²² Cf. *PHP* 9. 7. 3 (p. 586. 18–21). In *De opt. doct.* 2 (1. 42 K. = 180. 5–8 Barigazzi) Galen equates the Stoic *καταληπτός* with *βεβαίως γνωστός*.

²³ For Aenesidemus see Photius, *Bibl.* 212 (3. 121 Henry). One of Aenesidemus' arguments was quoted by Sextus in *AM* 8. 234.

obstacles that confront anyone who wishes to determine which, if any, sense perceptions give accurate information about anything beyond themselves.²⁴

In general terms Galen counters the arguments of the skeptics in three basic ways. (1) He appeals to the universal agreement of mankind. Everyone agrees that the judgment of true and false is to be referred to clear perception and thought.²⁵ Everyone except Academics and Pyrrhonists believes that what we see when awake is a source of firm knowledge, and what we see in dreams is false.²⁶ (2) He calls the skeptics' arguments sophistical. Those who would argue that it is unclear whether we are awake or asleep, or, if that is clear, whether what we see when awake is any more to be trusted than what we see when asleep, do not believe their own arguments. They are indulging in eristic.²⁷ (3) He charges the skeptics with upsetting human life. If what we see when awake, in good health, and sane is no more credible than what we see when asleep, sick, or mad,²⁸ the criteria of truth are thrown into disarray (συγκέχθται).²⁹

A fourth general charge, aimed at those who fall under the influence of the skeptics, is that they lack training in logic and scientific method. Some physicians, Galen says, doubt the evident because of sophisms that they are unable to solve.³⁰ And philosophers of all schools, including Academics and Skeptics, are blind to their own errors when they dare to make statements about things apart from proof and logical method.³¹

But in addition to his overall denunciation of skepticism Galen responds to specific difficulties raised by the skeptics. One such difficulty was that if some appearances are true and some are false, there must be a criterion by which we judge which appearances are true. But this criterion requires a

²⁴ The ten tropes are presented by Sextus in *PH* 1. 36–163 and more briefly by Diog. Laer. 9. 79–88. It is impossible to tell how far Sextus and Diogenes departed from Aenesidemus' text; but presumably they did not greatly alter the overall import of the tropes. Sextus may have added some of the medical examples that he gives. I follow Sextus' numbering of the tropes.

²⁵ See for example *PHP* 9. 7. 3 (p. 586. 19–20). Galen appeals also to common notions; see for example *De plenit.* 8 (7. 551. 9–10 K.).

²⁶ *De opt. doct.* 2 (1. 42 K. = 180. 8–14 Barigazzi). The argument from dreaming and being awake is in Aenesidemus' fourth trope: Sextus, *PH* 1. 104.

²⁷ *In Hipp. De vict. acut. comm.* 1. 16 (CMG V 9.1, p. 132. 10–15). See also below, note 47.

²⁸ Cf. Aenesidemus' fourth trope: Sextus, *PH* 1. 100, 104.

²⁹ Gal. *De opt. doct.* 2 (1. 43 K. = 180. 19 Barigazzi). Cf. also *MM* 2. 7 (10. 155. 1–5 K.); *De caus. procatarc.* 92, 201 (CMG Suppl. II, pp. 22. 26–27, 54. 20–23); *De simp. med.* 1. 36, 37, 39 (11. 443. 4–12, 448. 13, 16–17, 455. 4 K.). In *De puls. dignosc.* 1. 2 (8. 786. 5 K.) Galen dismisses an ἀπορία of the empiricists as of no importance, as it cannot overturn the use of clear appearances. See below, 295. Sextus, *AM* 8. 157 denies that the skeptic causes life to be confused. In *De elem.* 1. 5 (1. 451 K. = 28. 18–20 Helmreich) Galen includes the monists among those who overturn life.

³⁰ *De caus. procatarc.* 115–25, 141 (CMG Suppl. II, pp. 28–30, 36. 3–5). See also below, note 68.

³¹ *De peccat. dignot.* 5. 28–30 (CMG V 4.1.1, pp. 61. 11–62. 10).

demonstration, which in return requires a criterion, and so on.³² Galen replies that it is madness, it is Pyrrhonic nonsense, to require a criterion prior to sense-perception or a logical demonstration of the truth of perceptibles. If that were so, one would need a proof that snow is white.³³ We don't need a criterion from outside for what we all have by nature.³⁴ Things clear to sense-perception and thought are the starting-point of all proof, and the person who doubts them has left himself nowhere to begin.³⁵ It was no doubt to avoid the regress of criteria for criteria that Galen says in *PHP* 9. 1. 12 (p. 542. 11–13) that he is reminding us of the natural criteria, not teaching or proving them.³⁶

Of course Galen recognized that the same thing may appear different to different persons or to the same person at different times and under different circumstances.³⁷ He recognized also that things clear to thought may sometimes appear to be in conflict with things clear to sense. But the person trained in these matters will show that there is no real conflict.³⁸ One source of seeming conflict is rashness of assent. Some people are deceived when from rashness they assent to things not yet clear as though they were clear.³⁹ Seeing a person at a distance, they say confidently that it is Theon, but they are proved wrong when at close range it turns out to be Dion.⁴⁰

³² Again Aenesidemus' fourth trope: Sextus, *PH* 1. 114–17. See also Sextus, *AM* 7. 340, 342; Diog. Laer. 9. 91. The first of Aenesidemus' tropes (Sextus, *PH* 1. 59–61) also raises the issue of proving the truth of perceptions: Since things appear differently to men and animals, we can say how they appear to us, but not how they are in their own nature. We cannot assert without proof that our appearances are better, nor can we prove it, since proof would require a judge above both men and animals. The demand for a sign by which true appearances can be separated from false was made by the Academics in their controversy with the Stoics. What is the distinguishing mark, the *propria nota*, of the cognitive appearance? Cf. Cic. *Acad.* 2. 35, 101, 103.

³³ There is probably an allusion here to Anaxagoras, whose black snow is sometimes mentioned in controversies about the accuracy of sense-perception. See for example Gal. *De simp. med.* 2. 1 (11. 461. 14–16 K.); *De temp.* 2. 2 (1. 589 K. = 50. 26–29 Helmreich); and for the skeptics, Cic. *Acad.* 2. 72 and Sextus, *PH* 1. 33.

³⁴ *PHP* 9. 8. 25 (p. 596. 20–21).

³⁵ *De temp.* 2. 2 (1. 588–90 K. = 50. 13–51. 17 Helmreich). Cf. also *De simp. med.* 1. 30, 2. 1 (11. 434. 16–35. 3, 459. 1–61. 9 K.).

³⁶ Galen's term for reminding is ἀναμνησκῶν. One would expect it to be used by empiricists and skeptics, but the evidence is slight. Janáček's index to Sextus lists only two occurrences. For the empiricists see Gal. *De sect.* 8 (1. 92 K. = *SM* 3. 22. 4–5) (the empiricist is speaking): ἔσται δὲ καὶ νῦν ὁ λόγος ἀνάμνησις τοῦ φαινομένου and *De plenit.* 9 (7. 558. 5–7 K.): ἀρά γε πάνθ' ἅμα τὰ εἰρημένα συνελθεῖν δεῖ πρὸς τὴν ὡς αὐτοὶ λέγουσιν ἀνάμνησιν τῆς κενώσεως . . .

³⁷ See for example *De san. tuend.* 1. 5. 7 (*CMG* V 4.2, pp. 8. 32–9. 1).

³⁸ *De peccat. dignot.* 6. 3 (*CMG* V 4.1.1, p. 63. 7–10).

³⁹ *Ibid.* 6. 3 (p. 63. 11–13).

⁴⁰ *Ibid.* 6. 4 (p. 63. 15–18); cf. 6. 6 (pp. 63. 25–64. 2).

Those friends who heard a report that a traveller had returned and rashly announced his arrival were proved to be in error.⁴¹ If people persist in assenting rashly in matters that can be verified, what will they do in obscure matters?⁴² The cause of their rashness, Galen decides, is their desire to show that they are quicker than their neighbors to make some discovery, whether by the senses or by thought.⁴³ To a skeptic rashness is a disease afflicting dogmatists that the skeptic, being a man of good will, would like to cure.⁴⁴ But Galen maintains that those who have honored their rational power as their greatest glory and have sought to train and perfect it are neither rash nor boastful.⁴⁵

A different kind of problem is raised by the relativity of hot and cold, dry and wet. It often happens that the same thing appears warm to the touch at one time, cold at another.⁴⁶ If you say that Dion's *crasis* is dry and hot, a sophist could easily say that in comparison with those whose *crasis* is hotter and dryer, Dion's *crasis* is wet and cold.⁴⁷ Galen's answer is that there are standards that make it possible to say that a *crasis* is in fact hot or cold, dry or wet. For each class of animal and plant there is a mean *crasis* best suited in each case to its proper activity. If an animal or plant is above the mean for its class, it may be said to be hot; if below it, cold.⁴⁸ But there is also a midpoint that applies universally to all substances of all kinds, the mean between the cosmic extremes of hot and cold, dry and wet. In terms of this mean a *crasis* may in absolute terms be said to be hot or cold, dry or wet.⁴⁹ Now as it happens, the human skin is precisely at the midpoint of these cosmic extremes, and of the human skin that of the hand, and of the hand that on the inside.⁵⁰ The skin of the inner side of the hand, therefore, of the well-tempered person, whose hands have not been hardened or calloused by digging or rowing, is the standard (κάνονα τε καὶ οἶον

⁴¹ Ibid. 6. 8 (p. 64. 15–17).

⁴² Ibid. 6. 10 (p. 65. 2–5).

⁴³ Ibid. 6. 11 (p. 65. 9–14).

⁴⁴ Cf. Sextus, *PH* 3. 280–81. The charge of *προπέτεια* had a long history in the controversies between skeptics and dogmatists. Colotes had used it against the Academy of Arcesilaus, and Plutarch in reply turned it against the Epicureans. See Plut. *Adv. Col.* 1124b–c. It appears in Cicero as *temeritas*; see for example *Acad.* 1. 42, 45; 2. 31, 66.

⁴⁵ *De peccat. dignot.* 5. 17–18 (CMG V 4.1.1, p. 59. 9–15).

⁴⁶ *De simp. med.* 3. 8 (11. 554. 11–12 K.).

⁴⁷ *De temp.* 1. 6 (1. 549 K. = 25. 15–23 Helmreich). The sophist here is not necessarily a skeptic. Galen may have had in mind a commentator on Hippocrates; see *De temp.* 1. 7 (1. 553–54 K. = 28. 12–21 Helmreich). The skeptics, however, did use the relativity of hot and cold as an argument against the trustworthiness of sense-perception. See for example Sextus, *PH* 2. 56, and Aenesidemus' fourth trope: Sextus, *PH* 1. 101, 110.

⁴⁸ *De temp.* 1. 6 (1. 544–47 K. = 23. 1–24. 19 Helmreich).

⁴⁹ Ibid. 1. 6 (1. 550 K. = 26. 6–16 Helmreich).

⁵⁰ Ibid. 1. 9 (1. 563–65 K. = 34. 20–35. 16 Helmreich).

κριτήριο) by which you may discover faulty *crases* in all parts of the body.⁵¹

Galen gives a very different explanation of the taste of honey. Honey when heated changes to yellow bile. In the body of a person who is cool it keeps its sweetness and easily changes to blood; but it quickly turns to bile in the body of a person who is hot and feverish, and for that reason it tastes bitter.⁵² Sextus raises the problem of the taste of honey in his account of Aenesidemus' fourth trope,⁵³ and he goes on to argue that if one says that it is the combination of humors in a perceiver whose state is unnatural that gives the honey its unnatural taste, one might equally well say that the combination of humors in the healthy person gives the honey an unnatural taste.⁵⁴ If this argument was actually made by Aenesidemus and is not merely Sextus' own elaboration of the fourth trope, it could have been known to Galen; and he may have tried to avoid it by placing the change in the honey itself. The two different tastes are of two different substances.

A much more serious problem for Galen is that of distinguishing between objects whose appearances are very similar, for the differentiation of things in terms of similarities and differences was an essential part of his scientific method.⁵⁵ The Academic skeptics had argued that a perception is not cognitive if, on seeing one of two or more very similar things, we don't know which one we are looking at. Their examples included twins, eggs, imprints of a seal, and Lysippus' statues of Alexander.⁵⁶ In *De peccat. dignot.* Galen takes up the problem of the twins which he finds analogous to the *πλάνας καὶ ἀπορίας* that closely similar things cause for physicians as well as philosophers. Like Cicero's Lucullus, he points out that those who are familiar with the twins can easily distinguish one from the other.⁵⁷ In *De crisibus* Galen draws an analogy between recognizing diseases and recognizing persons. Each, he says, has its own distinctive mark, which the person who has seen it frequently and continually can

⁵¹ *Ibid.* 1. 9 (1. 566–68 K. = 36. 20–37. 24 Helmreich); see also 2. 1 (1. 575–77 K. = 41. 24–43. 9 Helmreich). Similarly in *De simp. med.* 3. 8 (11. 555. 17 K.) Galen calls touch the *γνώμων* of hot and cold, and on the next page (556. 12–15 K.) he warns that something may be called hot or cold in an absolute sense only when compared to the mean and best human *crasis*.

⁵² *De simp. med.* 4. 17 (11. 675. 15–77. 6 K.); cf. also *De alim. fac.* 3. 38. 3, 6, 7 (CMG V 4.2, pp. 380. 20–81. 4, 381. 21–29); *De antidotis* 1. 4 (14. 21. 5–15 K.).

⁵³ Sextus, *PH* 1. 101. Sextus raises the problem of the taste of honey also in *AM* 8. 53–54.

⁵⁴ Sextus, *PH* 1. 102–03.

⁵⁵ The ninth book of *PHP*, for example, is devoted entirely to the problem of knowing how to distinguish between very similar things.

⁵⁶ *Cic. Acad.* 2. 54, 84–86.

⁵⁷ *De peccat. dignot.* 2. 4–5 (CMG V 4.1.1, pp. 43. 25–44. 11); cf. *Cic. Acad.* 2. 57.

easily recognize.⁵⁸ Here Galen has conceded that one must have prior knowledge in order to identify a veridical perception, and to that extent he has departed from his doctrine that the clear perception is the starting-point of knowledge. Clear perception in the case of twins requires prior knowledge of the difference between them.

Other problems in the differentiation of things in terms of similarities and differences were raised by the sorites. The skeptics used the sorites to point out the difficulty of establishing boundaries. Their examples included the boundary between grain and heap, hill and mountain, deity and non-deity, rich and poor, clear and unclear, few and many, small and large, short and long, narrow and wide, virtue and vice, good and evil, true and false.⁵⁹ In a more specific attack on Stoic epistemology Sextus argued that as the last cognitive appearance lies beside the first non-cognitive appearance and no boundary can be drawn, the cognitive cannot be differentiated from the non-cognitive. If "fifty are few" is a cognitive appearance, and "ten thousand are few" is non-cognitive, where is the dividing line?⁶⁰

Of course the sorites, which Galen also calls *ὁ παρὰ μικρὸν λόγος*,⁶¹ was not used exclusively by skeptics. Dogmatists used it against empiricists, and empiricists in turn used it against dogmatists.⁶² It was first formulated and named, apparently, by the Megaric Eubulides,⁶³ but there is something very much like it in a passage from Plato's *Phaedrus* that Galen quoted in *PHP*, where Socrates says that it is easier to go undetected from one thing to the opposite if one proceeds *κατὰ μικρὸν*, and that the one who is to deceive another without being deceived himself must distinguish accurately the similarity and difference in things.⁶⁴

Galen responds to the problem of the sorites in several ways. He acknowledges that it is common to many things in life and has been discussed by many philosophers and physicians.⁶⁵ You can ignore it, he says, and in many places you have to; but when it is possible to set clear boundaries it is not a good idea to expose yourself to unnecessary difficulties.⁶⁶

⁵⁸ *De crisibus* 2. 9 (9. 684 K. = 153. 15–25 Alexanderson). Cicero, as spokesman for the New Academy, had argued (*Acad.* 2. 84) that the inability to distinguish between twins results from the lack of a mark (*nota*) by which true is distinguished from false.

⁵⁹ See for example Cic. *Acad.* 2. 49, 92–95; *De nat. deor.* 3. 43–50; *De div.* 2. 11; Sextus, *AM* 9. 182–90.

⁶⁰ Sextus, *AM* 7. 415–21; cf. *PH* 2. 253–54.

⁶¹ Cf. Gal. *De loc. aff.* 1. 2 (8. 25. 16–17 K.).

⁶² See *De exp. med.* 7. 5–10; 12. 8; 15–18; 20 (95–97, 106, 111–21, 123–26 Walzer); *Subf. emp.* 3 (47. 1–4 Deichgr.).

⁶³ Diog. Laer. 2. 108.

⁶⁴ Plat. *Phaedr.* 261e6–62c3, quoted by Galen in *PHP* 9. 2. 14–16 (pp. 546. 35–48. 13).

⁶⁵ *De loc. aff.* 1. 2 (8. 25. 17–26. 1 K.).

⁶⁶ *De marcore* 4 (7. 680. 4–9 K.).

Insofar as the sorites leads to the conclusion that there is no mountain, since the addition of a single foot, at whatever point, is not enough to change the hill into a mountain, Galen would no doubt agree with the view that he attributes to the empiricists in *De exp. med.*, that the sorites is fallacious since it is contradicted by what is plain to the senses.⁶⁷ Denying that there is such a thing as a mountain is like denying that there are such things as vision, generation and destruction, motion, aging, change of winter to spring, spring to summer, summer to fall, because you cannot explain how they come about.⁶⁸

But the problem remains how to find the boundaries between kinds of things. When faced with the soritic question—When does old age begin?—Galen finds the answer in the increase in the relative amount of liquids discharged from the body. Old age is a drying out.⁶⁹ It is thought to be wet because the discharge of liquids increases, the body being no longer able to retain them.⁷⁰ A clear boundary, therefore, between the decline from the prime of life and the beginning of old age is the predominance (ἐπικράτησις) of those fluid discharges that deceived people into thinking that old age is wet.⁷¹

Galen has a very different explanation of the beginning of disease. It rests on the distinction between change in form and change in magnitude. In homoeomerous parts of the body a disease begins the moment the hot or cold or wet or dry exceeds healthy limits in the *crisis* of the body. At that point the boundary has been crossed. The disease now has its proper form, but it may be too small to be detected by the physician or the patient, just as the first drop of water to hit the rock begins to hollow it out, although the hollow is not yet perceptible. Nature can cure small affections, but when they become too large for nature to overcome, then outside help is needed.⁷² The form of the disease, however, is independent of its magnitude.

⁶⁷ *De exp. med.* 17. 6–8 (118–19 Walzer).

⁶⁸ *De exp. med.* 15–16 (113–15 Walzer); cf. also 19 and 20 (122–26 Walzer). The theme that to deny the existence of something that is evident because one cannot explain it is the result of misguided reasoning appears also in *De semine* 2. 4 (4. 620. 5–6, 10–13 K.); *An in arteriis* 6 (4. 721. 10–12 K.); *De caus. procatarc.* 115–16, 123 (CMG Suppl. II, pp. 28–29, 30); *De consuet.* 1 (CMG Suppl. III, p. 2). Galen does not tell us which argument against motion he has in mind. The argument of Diodorus Cronus is given by Sextus, *AM* 1. 311–12, 10. 85–87, 143; it is not in the form of a sorites. Neither Galen nor Sextus, so far as I know, mentions Zeno's paradox of motion.

⁶⁹ *De marcore* 3, 4 (7. 672. 10–13, 678. 15–17 K.).

⁷⁰ Cf. *De temp.* 2. 2 (1. 580–82 K. = 45. 9–46. 14 Helmreich).

⁷¹ *De marcore* 4 (7. 680. 9–12 K.).

⁷² *De loc. aff.* 1. 2 (8. 26. 3–28. 18 K.). Compare *Ars med.* 4 (1. 316. 4–17. 13 K.), where the continuum from the best condition of the body to painful and crippling disease is divided by clear visual differences; but when there is a weakening of activities the difference between the extremes is easy to recognize but lesser differences are unclear. A condition in this ambiguous middle zone is neither, οὐδεντέρα. This analysis, like that in *De loc. aff.*, recognizes the difference between the nature of things and their appearance. The author says that appearance should be used in setting boundaries. He rejects setting

Still another response is simply to leave the boundaries imprecise and to make the uncertainty a matter of name-giving. Galen says in *De febr. diff.* that paroxysms of different durations are given different names. It is not possible to define the boundaries precisely because of the soritic puzzle; but it is not necessary to look for such precision in names, since we can prescribe treatment without them.⁷³ Similarly in *In Hipp. Progn. comm.* the question whether a fever with a crisis after the fourteenth day, on up to the seventeenth or even the twentieth day, can still be called acute, becomes a soritic problem which involves names only.⁷⁴

What limits can be set to great and small, fast and slow? Galen faces this problem in *De puls. dignosc.* 2. 1–2. One of his students suggested that they have an indefinite range but are limited in the sense that one can think of things outside the limits. The size of a city is indefinite, but no city consists of only three households, and no city stretches out to a thousand stades. No mountain is a foot high, but no mountain reaches the moon.⁷⁵ On this view both the upper and the lower limit of a class of objects is left indeterminate. But Galen rejects this analogy. There is no upper limit too large, and no lower limit. Such terms as large and small, hard and soft, have a fixed meaning only within a class of objects in which there is a midpoint, a mean, a measure, μέσω τε καὶ μετρίῳ καὶ συμμέτρῳ, that can serve as canon and criterion. This mean, Galen says, is sought in all of life. The arts, especially, are engaged in the pursuit of it.⁷⁶ Then after a long discussion Galen explains how to find the σύμμετρος σφυγμός.⁷⁷

The recognition that a clear perception does not always become clear until the proper preliminaries have been carried out is nowhere more evident than in Galen's identification, in *PHP* 9, of his φαντασία ἐναργής not only with the Stoic φαντασία καταληπτική but also with Carneades' persuasive appearance, including its three requirements: οὐ μόνον πιθανὴν ἀλλὰ καὶ περιωδευμένην καὶ ἀπερίσπαστον.⁷⁸ Consistent with this

natural boundaries between disease and health on the ground that it would lead to the doctrine of ἀειπάθεια (317. 11–13). I take this warning to mean that if disease is a lack of the proper proportion in the *crisis* of hot and cold and dry and wet, then only the best constitution would be free of it, since bodies that are healthy but not in the best state have already some small defect in their *crisis* (cf. 314. 15–15. 2; 315. 14–17). Here the author of *Ars medica*, whether Galen or not, is clearly trying to avoid the sorites.

⁷³ *De febr. diff.* 2. 10 (7. 371. 10–72. 14 K.).

⁷⁴ *In Hipp. Progn. comm.* 3. 15 (CMG V 9.2, p. 342. 12–30).

⁷⁵ *De puls. dignosc.* 2. 1 (8. 840. 11–41. 12 K.). Compare the Epicureans on limits of variation, Philodemus' man of iron who walks through walls (*De sign.* col. 21), and Lucretius' superman who wades through the sea and tears great mountains apart with his hands (1. 199–201).

⁷⁶ *De puls. dignosc.* 2. 2 (8. 841. 13–43. 12 K.).

⁷⁷ *De puls. dignosc.* 2. 2 (8. 857. 10–58. 17 K.).

⁷⁸ *PHP* 9. 7. 3 (p. 586. 16–20); cf. also *PHP* 9. 9. 37 (p. 606. 20–21). For Carneades' three requirements see Cic. *Acad.* 2. 33–36 and Sextus, *PH* 1. 227–29, *AM* 7. 166–84.

identification is his warning against assenting to an appearance ἀπερισκέπτως.⁷⁹ These preliminaries, as described in *PHP* 9. 2, are themselves a modified sorites. As a method for distinguishing between very similar things Galen says that one should start with the greatest and easiest differences.⁸⁰ Having established these, one may advance κατὰ βραχὺ to the differences that are slight. In other words, instead of starting at one pole and advancing gradually from that, as the sorites does, we should first establish two polar opposites and then advance gradually from each toward the other, using the same criteria that we used to establish the poles.⁸¹ The well-trained master of a discipline will be able by this means to separate the false from the true.⁸²

After defending the trustworthiness of clear appearances, Galen must next defend against skeptic attack the method of passing from the evident to the non-evident. Galen's term for this is *endeixis*, "indication," which, he says in *Meth. med.* 2. 7 (10. 126. 10–11 K.), is as it were the disclosure of the consequence, οἷον ἔμφασιν τῆς ἀκολουθίας. It is not an inference from a particular perceived thing; it is rather an inference from the very nature of the thing, ἐξ αὐτῆς τῆς τοῦ πράγματος φύσεως (ibid. p. 127. 1). Here "the very nature of the thing" is not a periphrasis for "the thing" or "the thing itself."⁸³ Nature in this context is something that transcends the individual and is shared by other members of the group to which the individual belongs. As Galen says about the natural criteria, what is natural must be common to all.⁸⁴ It is from this common nature that inferences are made by *endeixis*, and *endeixis* gives us truths that apply generally to all members of a class. Applying this to medicine, Galen says that in order to find the cure for every disease one must first find the generic and common *endeixis* of all diseases and from there proceed to the species (ibid. p. 128. 4–6).

In explaining this generic approach to disease Galen introduces a Platonic term. The reason all diseases are called diseases is necessarily because they all participate in one and the same thing, ἐνὸς καὶ ταύτου

This Carneadean scheme may have been one of the things that Galen recognized as sound (ὀυγιές) in the earlier Academics; see *De opt. doct.* 3 (1. 47 K. = 183. 3–4 Barigazzi).

⁷⁹ *PHP* 5. 4. 12 (p. 314. 33); *In Hipp. Epid. III comm.* 3. 76 (CMG V 10.2.1, p. 166. 19); *In Hipp. Epid. VI comm.* 2. 27 (CMG V 10.2.2, p. 91. 8–11, 16). Cf. also *PHP* 9. 9. 38–39 (p. 606. 22 [σκέπτως] and 606. 28 [ἄσκεπτοι]).

⁸⁰ *PHP* 9. 2. 3 (pp. 544. 36–46. 1). The allusion is to the Hippocratic ἀπὸ τῶν μεγίστων καὶ ῥηίστων (*De off. med.* 1 [3. 272 Littré]), quoted in *PHP* 9. 1. 14 (p. 542. 22). Quoting this same phrase in *In Hipp. Progn. comm.* 1. 5 (CMG V 9.2, p. 210. 1–2) Galen says that this is the starting-point not only for prognosis but also for the indications (ἐνδείξεις) of what must be done.

⁸¹ *PHP* 9. 2. 4 (p. 546. 1–2).

⁸² Cf. *PHP* 9. 7. 18–19 (p. 590. 2–9).

⁸³ On "the nature of" as periphrasis see Plutarch's charge in *Adv. Col.* 1112f that when Epicurus says "the nature of the void" he simply means "the void."

⁸⁴ See above, 284 and note 8.

μεθέξει (ibid. p. 128. 7). He then gives examples of things that have the same name by virtue of what is the same in them (ibid. p. 128. 8–15). When two or more different kinds of things have the same name for each of its meanings, the name refers to what is one and the same in some one kind of thing. A dog may be a land dog or a sea dog. They have only the name “dog” in common; they do not have a common nature (ibid. p. 129. 2–4). At this point Galen introduces another Platonic term: For all land dogs there is one εἶδος by virtue of which they are called dogs (ibid. p. 129. 17–18); and two pages later ιδέα is used along with εἶδος as that to which the name refers (ibid. p. 131. 17–18).⁸⁵ There is clearly some close relation here between φύσις and εἶδος and ιδέα. They all refer to that shared unity of members of a class on which the dogmatist bases his *endeixis*.⁸⁶

Empiricists and skeptics had doubts about the possibility of knowing the nature of things. Aenesidemus had argued that since the appearance of things differs with the difference in animals, we will be able to say how an object is seen by us, but we shall stop short of saying what kind of thing it is in its nature, ὁποῖον μὲν ἡμῖν θεωρεῖται τὸ ὑποκείμενον ἔξομεν λέγειν, ὁποῖον δὲ ἐστὶ πρὸς τὴν φύσιν ἐφέξομεν.⁸⁷ In *De puls. dignosc.* Galen says that the empiricists professed ignorance of the nature of things, μηδ' ὅλως μηδὲν ἀπάντων ὡς ἔχει φύσει γινώσκειν,⁸⁸ and he links them to the Pyrrhonists by quoting a line from Timon that was quoted also by Sextus and Diogenes Laertius, τὸ φαινόμενον πάντη σθένει οὐπερ ἂν ἔλθῃ.⁸⁹ Galen rejects their talk about not knowing the nature of things as

⁸⁵ Galen uses the term εἶδος frequently in the following pages of *MM* 2. 7. See also *Inst. log.* 12. 8 (29. 5 Kalbfleisch): καὶ γὰρ ἐστὶν ὡς εἶδος ἓν and ibid. 18. 3 (45. 19–21): τὸ γὰρ εἶδος τῆς δικαιοσύνης, ἀφ' οὗ λέγεται πάντα τὰ κατὰ μέρος δίκαια. Things are given their εἶδος by the four εἰδοποιοὶ ποιότητες, *De simp. med.* 3. 4 (11. 546. 17–47. 5 K.) or by εἰδοποιοὶ διαφοραί, *MM* 1. 3 (10. 23. 10–14 K.). For ιδέα see τί (or τι) . . . πρᾶγμα μίαν ιδέαν ἔχον, *MM* 2. 7 (10. 144. 3, 5 K.). Galen sees a reference to this unifying one also in the terms γένος, *MM* 2. 7 (10. 139. 10 K.), ἦ (favored by empiricists), ibid. 129. 8, 130. 5–9, 136. 4–5, 140. 9–13, 142. 13 K., and κοινότης (favored by methodists), ibid. 141. 14–16, 142. 12 K.

⁸⁶ The close relation between φύσις and εἶδος and ιδέα is evident also in such passages as *De simp. med.* 3. 4 (11. 546. 16–17 K.): κατὰ τὴν οὐσίαν ὅλην ἀλλοιοῦται (sc. ὁ ἄρτος) καὶ τῆς ἀρχαίας ἐξίσταται φύσεως, εἰς ἕτερον εἶδος μεθιστάμενος, *Inst. log.* 12. 9 (29. 7–8 Kalbfleisch): ἀλλὰ τοῦ τοιοῦτου γε εἶδους αὐτοῦ μία φύσις ἐστὶ, and *In Hipp. Aph. comm.* 2. 34 (17 B. 532. 7–8 K.): ἐστὶν ὅτε γὰρ ὀνομάζουσι φύσιν καὶ ταύτην (sc. τὴν ιδέαν). *Endeixis* may be from an ιδέα: ἐκ τῆς ἑαυτῶν ιδέας ἐνδείκνυται, *In Hipp. Epid. I comm.* 2. 47 (CMG V 10.1, p. 72. 19). In conjoining nature and form Galen may have been influenced by such Platonic expressions as τὸ φύσει δίκαιον, *Resp.* 6, 501b2.

⁸⁷ Sextus, *PH* 1. 59; cf. 1. 117, 128, 129, 134, 163; Diog. Laer. 9. 86; and Aenesidemus, 170b15–16 in Phot. *Bibl.* 212 (3. 121 Henry).

⁸⁸ Gal. *De puls. dignosc.* 1. 2 (8. 782. 6–7 K.).

⁸⁹ *De puls. dignosc.* 1. 2 (8. 781. 10 K.); Sextus, *AM* 7. 30; Diog. Laer. 9. 105. Cf. also Galen's ridicule of those who sit σκεπτομένους καὶ ἀποροῦντας, *De puls. dignosc.* 1. 2 (8. 783. 4 K.). The passage from 8. 780. 14 to 785. 1 K. is quoted by Deichgräber, *Die gr. Empirikerschule* 133–34, with textual corrections.

no more than idle talk.⁹⁰ Since in their actions in medicine and in the rest of life they trust their senses and follow them, just like everyone else, their *aporia* cannot overturn the use of clear appearances.⁹¹

Empiricists and skeptics had also doubted the existence of an εἶδος that is common to many particulars. Sextus raised the question how a genus, being one thing, could be present in all its species;⁹² and he asked how it is that the ἄνθρωπος by participation in which we are held to be human beings is not one of us.⁹³ The empiricists, Galen says, asked to be shown this ἄνθρωπος αὐτὸς καθ' ἑαυτὸν apart from individual ἄνθρωποι.⁹⁴ Galen's answer is again aimed at the empiricists. He defends his own position by an argument from names. The unifying one is something, for it can be named, e.g. horse, empiricist, disease; and the name is the name of something.⁹⁵ If the name signifies one thing, the form of the thing is necessarily one.⁹⁶

Arguing from names is treacherous. Names can be the names of more than one thing, such as "dog" and "tongue."⁹⁷ They may be mere words, signifying nothing, like βλίτυρι and σκινδαψός,⁹⁸ or they may, like Scylla and Centaur, have a meaning for which there is no corresponding object.⁹⁹ They may say nothing because they arise from a mistaken view of things, like Archigenes' "heavy pulse."¹⁰⁰ Such names as hot, cold, dry, wet may be ambiguous because of the many different objects of which they are used.¹⁰¹ The ambiguity of names is a source of sophistical arguments.¹⁰² It is clear, then, that when Galen says that there is one thing signified by such a name as ἄνθρωπος or νόσος, he does not mean that from the name we can infer the existence of a class of objects that are in some sense one, but rather

⁹⁰ *De puls. dignosc.* 1. 2 (8. 785. 2 K.).

⁹¹ *Ibid.* 1. 2 (8. 786. 4-6 K.). See also 783. 18 and 785. 4 K.

⁹² Sextus, *PH* 2. 219-22.

⁹³ Sextus, *AM* 10. 288-91.

⁹⁴ Galen, *MM* 2. 7 (10. 140. 14-16 K.); cf. *ibid.* 152. 6-10; 154. 15-16.

⁹⁵ See *MM* 2. 7 (10. 128. 13-15, 143. 1, 144. 2-4, 155. 10-13 K.).

⁹⁶ *MM* 2. 7 (10. 131. 17-18 K.).

⁹⁷ *MM* 2. 7 (10. 131. 2-9 K.). Galen uses the same examples in a discussion of definition in *De puls. diff.* 2. 3 (8. 573. 1-15 K.).

⁹⁸ *MM* 2. 7 (10. 144. 9-11 K.). See also *De diff. febr.* 2. 6 (7. 348. 7 K.); *De puls. diff.* 4. 1 (8. 696. 19 K.); *De usu part.* 8. 4 (3. 629 K. = 1. 456. 3-13 Helmreich); *De med. nom.* pp. 8, 17, 32 Meyerhof-Schacht.

⁹⁹ *MM* 2. 7 (10. 144. 13 K.); cf. *De puls. diff.* 4. 1 (8. 697. 4-5 K.). The centaur appears alone in *MM* 2. 7 (10. 153. 19 K.).

¹⁰⁰ *De puls. diff.* 3. 3 (8. 652. 2-10 K.). In 3. 4 (8. 662. 4-7 K.) Galen compares Archigenes' heavy pulse to βλίτυρι and σκινδαψός.

¹⁰¹ The ambiguity of the names of the qualities is a theme to which Galen often returns. See for example *De elem.* 1. 6 (1. 460-65 K.); the convenient summary in *De simp. med.* 3. 2 (11. 542. 11-44. 6 K.); and above, 288-89.

¹⁰² See for example *PHP* 2. 4. 4, 5. 26, 8. 2 (pp. 116. 30-31, 132. 25-28, 158. 1-2).

that the class can be given a name because one and the same thing is present in all its members.¹⁰³

Galen also makes an argument from definitions. Definition of a name, ὁ λόγος τοῦ ὀνόματος,¹⁰⁴ resolves into simple terms the things that the name combines. The name "fever" combines heat and damage to activity, and "phrenitis" combines fever and delirium.¹⁰⁵ The name ἄνθρωπος combines animal, rational, and mortal.¹⁰⁶ But if phrenitis is a thing, disease is also πρᾶγμα τι. It makes no sense to recognise that phrenitis and human being, which are non-simple, are things, and not recognize that disease and animal are things.¹⁰⁷ Animal, in turn, is a body with sense-perception. It is absurd to say that body is something and sense-perception is something, but a body with sense-perception is nothing, or that there is a body with sense-perception but not an animal.¹⁰⁸

This argument from definition in *MM* 2. 7 places definition on the level of universals and holds that the universals defined and the universals in the definition are things (πράγματα). There is no hint here of skeptical doubts about definition. But Sextus questioned it;¹⁰⁹ and Galen tells us that the empiricists attacked definition¹¹⁰ and avoided the term.¹¹¹ There were also some who in their ignorance wanted to define everything,¹¹² and some who considered it useless.¹¹³ Galen himself says in *De puls. diff.* that there are not definitions of everything,¹¹⁴ and when everyone knows what a word means definition serves no useful purpose.¹¹⁵

Yet in that same work Galen points out the usefulness of definition when a concept is not clear.¹¹⁶ But there is a difference between definition

¹⁰³ *MM* 2. 7 (10. 128. 9-15, 144. 2-45. 2 K.).

¹⁰⁴ *MM* 2. 7 (10. 151. 15 K.); cf. *De puls. diff.* 4. 2 (8. 705. 11-14 K.).

¹⁰⁵ *MM* 2. 7 (10. 150. 11-51. 11 K.).

¹⁰⁶ *Ibid.* 151. 11-12 K.

¹⁰⁷ *Ibid.* 152. 1-6 K.

¹⁰⁸ *Ibid.* 153. 14-54. 10 K.

¹⁰⁹ Sextus, *AM* 7. 269-82; *PH* 2. 205-12; cf. *PH* 2. 22-32.

¹¹⁰ Gal. *De sectis* 5 (1. 77 K. = *SM* 3. 10. 26-11. 2).

¹¹¹ The empiricists speak instead of ὑπογραφαί and ὑποτυπώσεις. See Gal. *De puls. diff.* 4. 2, 3 (8. 709. 1-5, 720. 3-9, 721. 15-16 K.); *Subf. emp.* 7 (63. 1-10 Deichgr.). Sextus too uses ὑπογραφή in place of ὄρος; see for example *AM* 6. 42, 8. 9, 12, 244, 314, 454.

¹¹² Cf. *De puls. diff.* 4. 1, 17 (8. 696. 10-13, 698. 4-6, 763. 2-4, 13-15, 764. 10-11 K.).

¹¹³ *De puls. diff.* 2. 17 (8. 764. 17 K.).

¹¹⁴ *De puls. diff.* 2. 3 (8. 570. 16-18 K.).

¹¹⁵ *De puls. diff.* 4. 1 (8. 696. 13-16 K.); cf. 4. 2 (8. 717. 6-13 K.). See the remarks on definition in J. Kollesch, "Anschauungen von den ἀρχαί in der *Ars medica* und die Seelenlehre Galens," *Le opere psicologiche di Galeno* (Naples 1988) 218-20.

¹¹⁶ *De puls. diff.* 4. 2, 17 (8. 718. 12-15, 763. 4-8 K.). Galen says in *PHP* 6. 1. 3-4 (p. 360. 15-21) that sometimes a clear statement of the meaning of a word can by itself solve a problem.

of a concept and definition of οὐσία,¹¹⁷ which Galen describes as λόγος διδασκαλικὸς τῆς τοῦ πράγματος οὐσίας.¹¹⁸ Οὐσιώδης ὅρος, however, is not a good starting-point for instruction.¹¹⁹ Instruction, Galen says, leads the student from the ἔννοια to the knowledge of οὐσία;¹²⁰ and in fact in his treatise *De elementis* and also in *PHP* 8. 2 he begins with a definition of στοιχεῖον and proceeds to the proof that the elements are fire, air, water, earth.¹²¹

It appears, then, that Galen's view of definition was complex. But whatever the varieties and usefulness of definitions, the important point for the present discussion is that what makes definition possible is the oneness of the thing defined.

Two parts of Galen's defense of universals remain to be mentioned. One is his appeal to the authority of Aristotle, Theophrastus, and Plato.¹²² The other is his exploitation of the curious circumstance that although the empiricists doubted such universals as disease and human being, they did recognize that phrenetic is one thing and empiricist is one thing.¹²³ When asked whether a live empiricist is one with a dead empiricist, they answer that they are one qua empiricists. Galen's argument is that if Serapion and Menodotus are one qua empiricists, it is stupid or perverse not to recognize that since they are both human beings they are one qua human beings.¹²⁴

Having now established that the members of a class have a common nature and participate in a single form, Galen is ready to make inferences by *endeixis* to the non-evident. *Endeixis* reveals what follows from the very nature of a thing. In *MM* 2. 7 he explains it in these words: τὸν (read τὸ) τοίνυν ἐξ αὐτῆς τῆς τοῦ πράγματος φύσεως ὁρμώμενον ἐξευρίσκειν τὸ ἀκόλουθον ἄνευ τῆς πείρας ἐνδείξεις καὶ εὕρεσιν ἔστι πεποιηθῆναι.¹²⁵ It is the instrument of the rational physician: ὁ δὲ λογικὸς ἐπὶ τὴν φύσιν

¹¹⁷ *De puls. diff.* 4. 2 (8. 704. 5–14 K.).

¹¹⁸ *Ibid.* 713. 12–13 K.

¹¹⁹ *Ibid.* 718. 15–19. 2 K.

¹²⁰ *Ibid.* 718. 12–13 K.; cf. *MM* 1. 5 (10. 40. 12–42. 9 K.).

¹²¹ Galen's treatises *De typis*, *De marcore*, and *De partium homoeomerium diff.* also begin with definitions.

¹²² *MM* 2. 7 (10. 137. 15–38. 4, 139. 16–40. 1, 141. 16–42. 4 K.); cf. also 143. 12–14 K. The reference to the *Philebus* (138. 4 K.) is perhaps to *Phileb.* 14c, quoted by Galen in *PHP* 9. 5. 30 (p. 570. 17).

¹²³ *MM* 2. 7 (10. 135. 10–12 K.).

¹²⁴ *MM* 2. 7 (10. 136. 2–37. 13 K.). Galen extends and amplifies this counterargument up to p. 144. 9 K.

¹²⁵ *MM* 2. 7 (10. 127. 1–3 K.). Compare such expressions as τὴν γὰρ οἶον ἔμφασιν τῆς ἀκολουθίας ἐνδείξιν λέγομεν (*MM* 2. 7 [10. 126. 10–11 K.]); ἐκ τῆς τοῦ πράγματος φύσεως ἐνδεικτικῶς (*In Hipp. Epid. VI comm.* 1. 2 [CMG V 10.2.2, p. 14. 20]); ἡ ἐνδείξις ἐκ τῆς τοῦ πράγματος φύσεως ὁρμωμένη τὸ δέον ἐξευρίσκει (*MM* 3. 1 [10. 157. 1–2 K.]); αὐτὴ τῶν πραγμάτων ἡ φύσις ἐνδείκνυται (*De constit. art. med.* 8 [1. 251. 12–13 K.]). There are similar phrases in *MM* 2. 5, 3. 1 (10. 104. 12, 161. 15 K.); *In Hipp. Prorrh. comm.* 2. 59 (CMG V 9.2, p. 104. 17); *In Hipp. Epid. III comm.* 1. 6 (CMG V 10.2.1, p. 32. 21–22).

αὐτὴν τοῦ πράγματος ἐρχόμενος ἐνδεικτικῶς ἀπ' ἐκείνης εἰς τε τὴν τῶν ἐσομένων πρόγνωσιν καὶ εἰς τὴν τῆς θεραπείας εὕρεσιν ὀνίναται, χρώμενος μὲν ἅπασι καὶ τοῖς διὰ πείρας εὕρισκομένοις, προστιθεὶς δὲ αὐτοῖς ἐκ τῆς λογικῆς μεθόδου πολλὰ.¹²⁶ It is rejected by empiricists and skeptics.¹²⁷ It is sequential, the first *endeixis* followed by others until the goal, which is to find the cure for every kind of disease, is reached.¹²⁸

The uses of *endeixis* are not limited to the discovery of cures.¹²⁹ An example from natural science is that winds indicate that when moisture is changed to air a small amount of moisture produces a very large amount of air.¹³⁰ Among animals, the fact that the calf butts before it has horns, and the young of winged animals try to fly before they are able, indicate that the souls that use the parts understand and use them as their own creation.¹³¹ Among human beings the conflict of reason with desire indicates that there are two contending powers in us;¹³² and it is by *endeixis* that the rational part of the soul is discovered to be in the brain, the spirited part in the heart.¹³³ The variety and consistency of the veins and arteries indicate that they contain all the humors.¹³⁴ The source and power and use of the nerves are all discovered by *endeixis*.¹³⁵ Especially important for Galen's teleological view of organisms is the inference by *endeixis* from the

¹²⁶ *De diff. febr.* 1. 3 (7. 282. 1-5 K.); cf. also *De sectis* 1 (1. 65 K. = *SM* 3. 2. 2-3); *MM* 2. 7. 3. 7 (10. 127. 9-12, 204. 11-13 K.); *Subf. emp.* 2 (44. 10-13 Deichgr.).

¹²⁷ For the empiricists see below, 301 and note 164. Sextus' attack on the ἐνδεικτικὸν σημεῖον is in *PH* 2. 99-129, *AM* 8. 143-298 (see below, 302). We must assume that both Stoics and rational physicians had theories of *endeixis* in late Hellenistic times, but there is little evidence outside the vague references in Sextus and Galen. The verb ἐνδείκνυσθαι occurs three times in Philodemus, *De signis* in anti-Stoic contexts, twice (col. xi 11 and xiii 26) in denials of the cogency of Stoic arguments, and once (col. xxxv 26) in an explanation of the use of καθό and ἦ. *Endeixis* is in Posid. test. 87 Edelstein-Kidd = Gal. *PHP* 5. 7. 84 (pp. 356. 31-58. 1) in an epistemological context. In Cicero the terms *declarare*, *declaratio* may be translations of ἐνδείκνυσθαι, ἐνδειξις in such passages as *De nat. deor.* 2. 43: *sensum autem astrorum atque intelligentiam maxime declarat ordo eorum atque constantia*, and *Acad.* 1. 41: *visis . . . eis solum quae propriam quandam habent declarationem earum rerum quae viderentur*. In such passages, however, *endeixis* does not appear to have the methodological significance that it has for Galen.

¹²⁸ *MM* 2. 7 (10. 127. 12-18 K.).

¹²⁹ Excluded from consideration here is the use of *endeixis* in the explanation of the meaning of a word or in the interpretation of a text, whether of Homer or Hippocrates or Plato or Chrysippus or some other. This usage is very common in Galen. See for example *PHP* pp. 156. 11, 158. 22, 218. 11, 236. 16, 244. 15, 252. 28. *Endeixis* is used also of the meaning of gestures in *PHP* pp. 108. 2-4, 8-10; 114. 13-16.

¹³⁰ *De semine* 1. 4 (4. 520. 6-16 K.).

¹³¹ *De foet. form.* 6 (4. 692. 10-18 K.).

¹³² *PHP* 5. 7. 22 (p. 342. 1-5).

¹³³ *PHP* 2. 7. 17; 6. 3. 4; 6. 8. 39, 44 (pp. 154. 28-32, 372. 29-32, 416. 6-9, 21-24).

¹³⁴ *De atra bile* 5. 1 (*CMG* V 4.1.1, p. 79. 1-3).

¹³⁵ *PHP* 1. 7. 55, 7. 5. 17, 7. 8. 7 (pp. 90. 22-25, 456. 21-25, 476. 19-21).

structure of the body to the wisdom and power of the divine artisan who fashioned it.¹³⁶

In pathology *endeixis* is on the level of the individual. The patient's behavior or his symptoms indicate his condition, and his condition indicates what action should be taken. A dry tongue combined with fever of a certain kind is sufficient indication of the state of the liver.¹³⁷ An injury to the spinal cord is indicated by the parts that receive their nerves from it.¹³⁸ The patient's habits are indicative of the nature of his body.¹³⁹ His condition may be indicated even by what he dreams about.¹⁴⁰ Here universals are present, presumably, in that the patient's symptoms enable the physician to classify him and so draw the appropriate inference.¹⁴¹

From the patient's condition the cure is found by *endeixis*: *a dispositionibus inveniri indicative curam*.¹⁴² This indication of the cure depends on one's medical theory. Galen tells us that the physician must master logical method in order to know by genus and species how many diseases there are and how to take from each disease an indication, *endeixis*, of the cure.¹⁴³ Galen's training in the methods of proof enabled him to judge the views of others, and in his cures he was guided by the *endeixis* of what he discovered: ὡς ἡ τῶν εὐρεθέντων ἔνδειξις ἐποδήγει με, τὰς θεραπειὰς ἐποιοῦμην.¹⁴⁴

Finding the *endeixis* of the cure in the *diathesis* of the patient has a superficial resemblance to the *endeixis* of the methodists. As Galen explains it, the methodists held that unnatural conditions indicate their remedies. A stone in the bladder indicates removal. A dislocated joint

¹³⁶ See for example *PHP* 9. 8. 12 (p. 594. 2-4); *De foet. form.* 6 (4. 687. 13-14, 693. 12-15 K.); *In Hipp. Epid. VI comm.* 5. 4 (CMG V 10.2.2, p. 265. 14-15). In *De usu partium* Galen finds many indications of the wisdom and skill of the artisan who fashioned the bodies of men and animals; see for example 17. 1 (4. 346-62 K. = 2. 437-49 Helmreich).

¹³⁷ *In Hipp. Epid. III comm.* 1. 6 (CMG V 10.2.1, p. 30. 30-31).

¹³⁸ *In Hipp. Prorrh. comm.* 2. 34 (CMG V 9.2, p. 80. 17-20), reading αὐτῶ with Comarius at 80. 19.

¹³⁹ *MM* 9. 16 (10. 654. 15-16 K.).

¹⁴⁰ *In Hipp. Epid I comm.* 3. 1 (CMG V 10.1, p. 108. 1-21).

¹⁴¹ See below, note 143, and *De curandi ratione per venae sect.* 3 (11. 258. 14-18 K.), where Galen speaks of the need to classify by species and differentia the conditions that require evacuation.

¹⁴² *De caus. content.* 10. 8 (CMG Suppl. Or. II, p. 141. 33-34; cf. p. 73. 14-15). There are many similar statements in Galen's other works. See for example *De sectis* 3 (1. 70 K. = *SM* 3. 5. 16-17). Other circumstances besides the patient's διάθεσις may enter into the indication of what is helpful; cf. *De sectis* 3 (1. 70, 72 K. = *SM* 3. 5. 16-6. 1, 6. 25-26); *In Hipp. Epid. VI comm.* 3. 47 (CMG V 10.2.2, p. 187. 4-9). Indications of cures derived from differences in ἔλκη are mentioned in *MM* 3. 10 (10. 221. 15-17 K.).

¹⁴³ *Quod opt. med. sit quoque philos.* 3, 4 (1. 59-60, 62 K. = *SM* 2. 6. 10-14, 7. 2-3, 8. 5-6).

¹⁴⁴ *MM* 7. 5 (10. 469. 14-70. 2 K.).

indicates a return to its proper place.¹⁴⁵ The methodists' *endeixis*, however, does not depend on logical method or medical theory. Indeed Sextus found it consistent with skepticism.¹⁴⁶ Galen gave it a limited role in medicine. Everyone agrees that the first indications are taken from the *diathesis*, but this is only at the beginning of the science of medicine.¹⁴⁷ It requires no medical skill; it is obvious even to the layman.¹⁴⁸ Although it indicates what is to be done, only the physician knows how to do it.¹⁴⁹ The methodists are at fault also in that they neglect circumstances relevant to the treatment of the *diathesis*, and they are not even clear about the distinction between natural and unnatural.¹⁵⁰

The superficial resemblance to the methodists' *endeixis* is in Galen's use of such phrases as τὸ μὲν γὰρ νόσημα αὐτὸ τῆς ἑαυτοῦ διαθέσεως ἐνδείκνυται τὰ βοηθήματα, and τὴν μὲν ἔνδειξιν τοῦ βοηθήματος ἀπὸ τῆς κατὰ τὸ σῶμα διαθέσεως ἔλαβε.¹⁵¹ But the difference is that for Galen *endeixis* is a relation of ἀκολουθία. One thing follows from another in accordance with some rational principle. Normally there is a causal relation behind the *endeixis*, or one thing is a necessary condition of another. In the visible symptoms, Galen says in *De sectis*, there is for the dogmatist an indication of the cause, and from that he finds the cure.¹⁵² The choice of drugs is indicated by the degree to which the affected part must be dried and cooled.¹⁵³ Symptoms may also indicate the strength or weakness of the body.¹⁵⁴ When there is a conflict between the treatment indicated by the affected part and that indicated by the patient's nature, the well-trained physician is best able to estimate (στοχάζεσθαι) what drug should be used.¹⁵⁵ A future event may be indicated by a symptom when the symptom and the future event are both effects of the same cause.¹⁵⁶

¹⁴⁵ Galen describes the *endeixis* of the methodists in *De sectis* 6–7 and *MM* 3. 1.

¹⁴⁶ Sextus, *PH* 1. 236–41, especially 240.

¹⁴⁷ *MM* 3. 1 (10. 157. 7–58. 4 K.).

¹⁴⁸ *MM* 3. 1 (10. 158. 10–12 K.).

¹⁴⁹ *MM* 3. 1 (10. 158. 15–16 K.).

¹⁵⁰ Galen presents criticisms of the methodists made by both empiricists and dogmatists in *De sect.* 8–9.

¹⁵¹ *In Hipp. De vict. acut. comm.* 1. 43, 44 (*CMG* V 9.1, pp. 159. 15–16, 160. 19–20). See also *De curandi rat. per venae sect.* 3 (11. 258. 16–17 K.): τὸν ἀριθμὸν τῶν ἐνδεικνυμένων τὴν κένωσιν διαθέσεων, and *De sectis* 3 (1. 70 K. = *SM* 3. 5. 16–18): ἀπ' αὐτῆς τῆς διαθέσεως ἢ ἔνδειξις αὐτοῖς (sc. τοῖς δογματικοῖς) τοῦ συμφέροντος γίγνεται.

¹⁵² *De sect.* 4 (1. 73 K. = *SM* 3. 7. 19–21; cf. 3. 7. 23–25).

¹⁵³ *MM* 3. 8 (10. 212. 11–17 K.).

¹⁵⁴ See for example *In Hipp. Progn. comm.* 1. 8, 2. 28, 3. 15 (*CMG* V 9.2, pp. 216. 23, 284. 3–7, 343. 22–23).

¹⁵⁵ *MM* 3. 9 (10. 216. 8–17. 17 K.). There is another example of conflicting indications in *In Hipp. De vict. acut. comm.* 1. 43 (*CMG* V 9.1, p. 159. 15–23).

¹⁵⁶ For examples see *In Hipp. Progn. comm.* 1. 21 (*CMG* V 9.2, p. 234. 16–22) (death), and *ibid.* 2. 27 (p. 282. 18–24) (recovery).

Galen also speaks of indication, perhaps improperly, when there is more than one explanation of a symptom.¹⁵⁷ Even more surprising is the remark in *De semine* 2. 6 (4. 651. 1–2 K.): ἡ γὰρ τοῦ χωρίου κοινωνία καὶ τὴν τῆς χρείας αὐτῶν κοινωνίαν ἐνεδείξατο, πιθανῶς μὲν, οὐκ ἀληθῶς δέ. Apparently Galen allowed himself some latitude in the use of the term.

Galen recognized that *endeixis* is an inference from a sign, σημεῖον or γνώρισμα.¹⁵⁸ We find such phrases as ἐνδεικνυμένων τῶν σημείων νενικῆσθαι,¹⁵⁹ μοχθηρὸν εἶναι τὸ σημεῖον τοῦτο, νέκρωσιν τινα . . . ἐνδεικνύμενον,¹⁶⁰ τὰ τε τοιαῦτα γνώρισμα καὶ τὰ τῶν σφυγμῶν ἐνδείξεταί τινα διάκρισιν,¹⁶¹ ἐπὶ γὰρ ἀνομοίοις γνωρίσμασιν ἀνόμοιον εἶναι χρῆ καὶ τὴν ἐνδείξιν,¹⁶² *eam que ex indicativis signis noticiam*.¹⁶³ It is as a sign-relation that *endeixis* was rejected by the empiricists and doubted by the skeptics. In his *De sectis* Galen gives the argument of the empiricists that one thing cannot be known from another: μηδ' ἐνδείξιν ὑπάρχειν τὸ παράπαν μηδ' ἕτερον ἐξ ἑτέρου δύνασθαι γνωσθῆναι· πάντα γὰρ δεῖσθαι τῆς ἐξ αὐτῶν γνώσεως μηδ' εἶναι τι σημεῖον ἀδήλου φύσει πράγματος οὐδενός.¹⁶⁴ They argued also that the same appearance may be accompanied at different times by different non-evident things, and thus disagreement arises for which there is no test.¹⁶⁵

In *De peccat. dignot.* Galen again presents the argument from the disagreement of dogmatists. This time the context is ethical, and his

¹⁵⁷ The examples that I noted are all in commentaries on Hippocrates, *In Hipp. Epid. I comm.* 2. 27 (CMG V 10.1, p. 65. 1–2); *In Hipp. Epid. III comm.* 1. 6 (CMG V 10.2.1, p. 30. 19); *In Hipp. Epid. VI comm.* 5. 14 (CMG V 10.2.2, p. 286. 23–26). Sextus points out (*AM* 8. 201) that the indicative sign must be the sign of one thing only.

¹⁵⁸ In *In Hipp. Progn. comm.* 3. 44 (CMG V 9.2, pp. 372–76), in discussing the terms σημεῖον and τεκμήριον, Galen remarks that according to the χαριέστεροι, σημεῖον is used of that which is ἐκ τηρήσεως, τεκμήριον of that which is ἐξ ἐνδείξεως. In his own usage, however, Galen does not observe this distinction.

¹⁵⁹ *In Hipp. Prorrhet. comm.* 1. 2 (CMG V 9.2, p. 10. 27); cf. *ibid.* (p. 11. 6–8, 12–15) and 3. 76 (p. 177. 21–22).

¹⁶⁰ *In Hipp. Progn. comm.* 1. 15 (CMG V 9.2, p. 230. 2–3); cf. *ibid.* 3. 15 (p. 343. 22–23).

¹⁶¹ *In Hipp. Progn. comm.* 1. 8 (CMG V 9.2, p. 217. 16–17).

¹⁶² *PHP* 6. 5. 5 (p. 388. 22–23). Cf. also *In Hipp. Epid. VI comm.* 3. 30 (CMG V 10.2.2, p. 168. 4–5).

¹⁶³ *De caus. content.* 10. 5 (CMG Suppl. Or. II, p. 141. 23); cf. σημεῖον ἐνδεικτικόν, *In Hipp. Epid. VI comm.* 5. 14 (CMG V 10.2.2, p. 286. 23).

¹⁶⁴ *De sectis* 5 (1. 77 K. = *SM* 3. 10. 22–25 = 105. 26–29 Deichgr.). Cf. also *Subf. emp.* 1 and 2 (43. 4–10 and 44. 4–6 Deichgr.). In *De sect.* 8 (1. 89 K. = *SM* 3. 19. 23–24) Galen puts ἐνδεικνυμένων in the mouth of his spokesman for empiricism, but it is in a criticism of the methodists and reflects their usage.

¹⁶⁵ *De sectis* 5 (1. 78–79 K. = *SM* 3. 11. 19–12. 4 = 106. 8–16 Deichgr.). In *De caus. content.* 10 (CMG Suppl. Or. II, pp. 71–73, 141) Galen charges the empiricists with violating their own principles when they call syndromes of symptoms signs of non-evident states of the body and then call these non-evident states the causes of evident states.

opponents are the skeptics. Since philosophers disagree about good and evil, the Academics and Pyrrhonists consider it rash to assent to any opinion about them.¹⁶⁶ Galen's answer is that disagreement arises because not only physicians but even good philosophers who have not been trained in apodeictic method are misled by false arguments that closely resemble true ones. The remedy is daily practice in logic and avoidance of rash statements. With the proper method one may arrive at true knowledge of good and evil.¹⁶⁷

A comparison of Galen's account of the attack on *endeixis* with Sextus' lengthy discussions in *PH* 2. 99–129 and *AM* 8. 143–298 reveals many differences but some similarities. The indicative sign, Sextus says, ἐκ τῆς ἰδίας φύσεως καὶ κατασκευῆς σημαίνει τὸ οὐ ἔστι σημεῖον.¹⁶⁸ Galen's formula, ἐξ αὐτῆς τῆς τοῦ πράγματος φύσεως (see above, 293), does not include κατασκευή, but *endeixis* rests on κατασκευή in such passages as *De instr. odor.* 3. 8 (*CMG* Suppl. V, p. 42. 16): ἀπὸ τῆς κατασκευῆς τὴν ἔνδειξιν τοῦ ζητουμένου λαμβάνοντας and *PHP* 7. 3. 30 (p. 446. 11): τοῦτό τε οὖν αὐτὸ τῆς κατασκευῆς τῶν μορίων ἔνδειξαμένης and many others.¹⁶⁹

Both Galen and Sextus see *endeixis* as a relation of logical consequence between sign and thing signified.¹⁷⁰ Sextus formulates this relation as a conditional, the conclusion following on the condition.¹⁷¹ Galen does not ordinarily explain *endeixis* as a conditional, but presumably it could always be so formulated. Many of the conditionals that appear from time to time in his works could be considered instances of *endeixis*, for example, "If the offspring resemble each of their parents, they resemble them by virtue of a cause common to both."¹⁷² In *De caus. content.* 10. 6, where Galen places two *endeixis* in sequence, they are, according to the Latin text, *si hec sunt signa, hec sunt cause*, and *si hec sunt cause, hec est cura*.¹⁷³

In his explanation of the relation of indicator to what is indicated Galen uses the terms ἔμφασις and ἐμφαίνεσθαι: τὴν γὰρ οἶον ἔμφασιν τῆς ἀκολουθίας ἔνδειξιν λέγομεν. The empiricist, he says, also discovers τὸ

¹⁶⁶ *De peccat. dignot.* 1. 6 (*CMG* V 4.1.1, pp. 42. 15–43. 2).

¹⁶⁷ *Ibid.* 2. 2–7 (pp. 43. 17–44. 20); cf. 3. 14 (p. 49. 17–21). That disagreement is a sign of ignorance and lack of training in logic is a point made by Galen in *In Hipp. De vict. acut. comm.* 1. 14 (*CMG* V 9.1, p. 127. 23–24) and *Adv. Iul.* 5. 9 (*CMG* V 10.3, p. 50. 11–12).

¹⁶⁸ Sextus, *PH* 2. 101; cf. *AM* 8. 154, 276.

¹⁶⁹ See for example *PHP* 9. 8. 12 (p. 594. 3); *De usu part.* 17. 1 (4. 360 K. = 2. 447. 19–20 Helmreich); *De foet. form.* 6 (4. 687. 13–14 K.).

¹⁷⁰ For Galen, see *In Hipp. Progn. comm.* 3. 44 (*CMG* V 9.2, p. 373. 8): ἡ δ' ἐξ ἀκολουθίας λογικῆς, ὅπερ ἔστιν ἔνδειξις.

¹⁷¹ See Sextus, *AM* 8. 272, 276.

¹⁷² Gal. *De semine* 2. 1 (4. 609. 7–9 K.).

¹⁷³ *De caus. content.* 10. 6 (*CMG* Suppl. Or. II, p. 141. 26–27). In Lyons' translation of the Arabic, however (*ibid.* p. 73. 5–6), the introductory word is "when."

ἀκόλουθον, but not as ἐμφαινόμενον τῷ ἡγουμένῳ.¹⁷⁴ Sextus' term, taken from the Stoic definition of sign, is ἐκκαλυπτικόν.¹⁷⁵ But in *PH* 2. 112 Sextus says that some dogmatists, using ἔμφασις as a criterion, say that a conditional is true in which the consequent is contained potentially (δυνάμει) in the antecedent. This could conceivably be intended as an interpretation of Galen's *emphasis*. If *endeixis* is from effect to cause, as it often is in Galen, Sextus' explanation of *emphasis* would mean that the cause is somehow contained in the effect. This is in fact the case in Galen's explanation of qualitative change. The four active qualities (hot, cold, dry, wet) change an object by making it like themselves.¹⁷⁶ When they generate humors in the body by acting on nutriment, their powers are passed on to the humors that they produce. They are in the body potentially, not actually: δυνάμει μὲν γὰρ ἔστιν ἐν τοῖς σώμασιν, ἐνεργεία δὲ οὐκ ἔστιν.¹⁷⁷ Whether Galen would have considered an inference from the humors to the qualities that cause them an example of *emphasis* must remain uncertain; but in any case we must recognize the possibility that Galen was one of the rational physicians that Sextus included among the proponents of indicative signs.¹⁷⁸

The charge that there are disputes among dogmatists that cannot be resolved by any test appears to have been the argument that Galen considered the most serious.¹⁷⁹ Galen's answer is that there are tests. In more recent times, he says, physicians have neglected to watch accurately what happens to the sick and to seek out their conditions and the causes from which the cure is discovered, the cure itself being judged also by πείρα.¹⁸⁰ Those who have mastered apodeictic method should test by πείρα whether they have really solved a problem, as a geometer who has found a method for dividing a line into equal parts has the result as witness.¹⁸¹ The person who designs a sundial follows a logical method that indicates to him where to draw the lines, and he then checks the lines for accuracy against other sundials and

¹⁷⁴ *MM* 2. 7 (10. 126. 10–12 K.).

¹⁷⁵ The word ἐκκαλυπτικόν is in the definition of indicative sign in Sextus, *PH* 2. 101, a passage bracketed by Mau. It has, however, a prominent place in Sextus' attack on the indicative sign. It is in the Stoic definition of sign (*PH* 2. 104), and is discussed in *PH* 2. 116–20. See also Sextus, *AM* 8. 245, 251–53, 256, 257, 273. In *AM* 8. 165 ἐκκαλυπτικόν is paired with μηνυτικόν. In *AM* 8. 154 Sextus says that the indicative sign all but announces what it indicates.

¹⁷⁶ See *PHP* 6. 6. 28 (p. 400. 22–23, with the note on p. 668).

¹⁷⁷ *PHP* 8. 4. 21 (p. 502. 19–25).

¹⁷⁸ Sextus, *AM* 8. 156. Another rather close parallel between Galen and Sextus is mentioned below, note 197.

¹⁷⁹ For the empiricists see Gal. *De sectis* 5 (1. 78 K. = *SM* 3. 11. 20–22); for the skeptics see Gal. *De diebus decret.* 1. 3 (9. 778. 7–18 K.) and Sextus, *PH* 2. 116, *AM* 8. 257, 288.

¹⁸⁰ Gal. *In Hipp. Epid. VI comm.* 3. 30 (*CMG* V 10.2.2, p. 167. 21–25).

¹⁸¹ *De peccat. dignot.* 3. 1–7 (*CMG* V 4.1.1, pp. 46. 1–47. 21).

against an even flow of water.¹⁸² To disagree when a test is available is as ridiculous as the dispute of the two philosophers, one of whom argued at length on theoretical grounds that wood is heavier than water, the other that water is heavier than wood, as if it were impossible to settle the matter by observation.¹⁸³

There are of course disputes concerning matters about which no apodeictic proof is possible and no test is available, for example, whether the cosmos had a beginning, or whether the whole is finite or infinite.¹⁸⁴ On such matters one should suspend judgment. The question of the substance of the divine craftsman is also unanswerable. We know from his works that he exists, but we do not know his οὐσία.¹⁸⁵ Galen even admits to a Carneadean doubt whether noxious animals were divinely created,¹⁸⁶ but he rejects the argument that what looks like the work of an artisan may in fact be a matter of chance.¹⁸⁷ Closer to medicine, Julianus had argued that we should not use the word "nature," since we do not know what nature is. Galen concedes that it is difficult or impossible to know the οὐσία of nature or soul. We say that every plant is governed by nature, and every animal by nature and soul, when we do not know the οὐσία of either. But, he adds, it is difficult also to know the οὐσία of sense-perception, thought, memory, or reasoning. That is hardly surprising, when we do not even know the οὐσία of the sun, which we see most clearly.¹⁸⁸

In those matters, then, where our logical method does not help us and no test is available, we must acknowledge our ignorance.¹⁸⁹ But even where a logical inference can be made and can be confirmed by a test, the test

¹⁸² Ibid. 5. 1-4 (pp. 54. 20-55. 27).

¹⁸³ Ibid. 7. 2-3 (p. 66. 1-9); cf. 7. 7 (p. 67. 1-6). See also *De caus. procat.* 16 (CMG Suppl. II, p. 4. 24-26): *dissonancie que in rationibus experientia est maximum indicatorium.*

¹⁸⁴ *De peccat. dignot.* 3. 4 (CMG V 4.1.1, p. 46. 23-25); cf. 7. 8-11 (pp. 67. 6-68. 4). See also *In Hipp. De vict. acul. comm.* 1. 12 (CMG V 9.1, p. 125. 9-16).

¹⁸⁵ *PHP* 9. 9. 2-3 (p. 598. 2-11). On the wisdom and power of the divine craftsman see above, 298-99 and note 136.

¹⁸⁶ *De foet. form.* 6 (4. 701. 1-5 K.); cf. Cic. *Acad.* 2. 120, *De nat. deor.* 3, fr. 7 (pp. 1230-32 in Pease's edition, with Pease's note ad loc.).

¹⁸⁷ *PHP* 9. 8. 4-9 (pp. 590. 22-92. 21). For Carneades, see Cic. *De div.* 1. 23.

¹⁸⁸ *Adv. Iul.* 5. 1-5 (CMG V 10.3, pp. 47. 17-49. 5). The theme that we do not know the οὐσία of the soul is commonplace in Galen's writings. Some references are collected in *PHP* p. 675, note to p. 444. 4-8. According to *De foet. form.* 6 (4. 687. 10-12 K.), we all speak of nature as the cause of birth, but we do not know its οὐσία; cf. also *PHP* 9. 8. 27 (p. 596. 22-29). As for the οὐσία of the sun (*Adv. Iul.* p. 49. 2-5), Galen had chided the latter-day Academics for saying that the sun is not καταληπτός; *De opt. doctr.* 1 (1. 40 K. = 179. 6-8 Barigazzi). The difference, I suppose, between Galen and the Academics is that for Galen there is some real object, whatever it is, that makes the regular movements apparent to us, whereas the Academics stop with the appearances.

¹⁸⁹ It should be noted that Galen recognizes the possibility that a question to which only a likely answer can now be given may receive a "truer" (ἀληθεστέρα) answer in the future: *De semine* 2. 6 (4. 649. 15-17 K.).

comes after the inference. The *endeixis* itself is made ἄνευ τῆς πείρας.¹⁹⁰ How then do we establish the necessary relation between the evident and the non-evident that makes the inference valid? The answer lies in those truths that are clear to the mind. Inferences from effect to cause are governed by such clear and generally accepted truths as that nothing happens without a cause,¹⁹¹ that which is undergoing change arrives at a form similar to that which is changing it,¹⁹² peculiarities of substance have their own peculiarities of powers.¹⁹³ Galen has many such truths which he invokes as he needs them.¹⁹⁴ They are starting-points for reasoning (λογικαὶ ἀρχαί), for they are accepted without proof.¹⁹⁵ When therefore the skeptics and empiricists doubt that we can know the οὐσία of the power of drugs, and the dogmatists who say that it is knowable advance conflicting theories, Galen can explain the power not only of drugs but of all else in terms of the qualities of the thing that causes the change.¹⁹⁶

This explanation, however, depends on Galen's theory of the elements and their mixture in bodies, whether animate or inanimate, and for that Galen refers the reader to his works *On the elements according to Hippocrates* and *On mixtures*. In the former he presents his proofs that there is more than one element, that the elements undergo qualitative change, that there are only four qualities that can change an object through and through, that these four qualities cannot exist apart from matter, that the four combinations of quality with matter produce four elements, that in the world as we know it these four elements are not found in their pure form but only in combination.¹⁹⁷ In the work *On mixtures* he points out that in any

¹⁹⁰ See above, 297 and note 125.

¹⁹¹ See *PHP* 4. 4. 36 (p. 258. 13, with p. 646, note to p. 258. 13–14). Galen was aware of, and participated in, controversies about causes; see Bardong's introduction to his edition of *De caus. procatarc.*, *CMG Suppl II*, pp. xii–xxxiii.

¹⁹² Εἰς ὁμοίαν ἰδέαν τῶ μεταβάλλοντι τὸ μεταβαλλόμενον ἀφικνεῖται, *PHP* 6. 8. 13 (p. 410. 13–14); cf. *ibid.* 6. 6. 28 (p. 400. 21–23); *De semine* 1. 11, 12 (4. 553. 4–5, 556. 16–17 K.); *De usu part.* 4. 12, 14. 10 (3. 298, 4. 185 K. = 1. 219. 6–8, 2. 317. 11–14 Helmreich).

¹⁹³ *PHP* 7. 5. 14 (p. 456. 11–12).

¹⁹⁴ See for example *MM* 1. 4 (10. 36. 15–37. 3 K.) and the passages collected in *PHP* pp. 698–99, note to p. 544. 17–19.

¹⁹⁵ *MM* 1. 4 (10. 37. 6–7 K.); cf. *PHP* 9. 8. 1 (p. 590. 12) and *Thrasylbulus* 24 (5. 847 K. = *SM* 3. 62. 9–10).

¹⁹⁶ *De simp. med.* 1. 1 (11. 380. 18–81. 12 K.). Diocles (cf. *De alim. fac.* 1. 1. 4–6 [*CMG V* 4.2, pp. 202. 25–03. 24]) and Quintus (*In Hipp. Epid. I comm.* 2. 7 [*CMG V* 10.1, p. 52. 26–29]) were among those who rejected a theoretical approach to the action of drugs.

¹⁹⁷ See especially *De elem.* 1. 2, 5, 7, 8. In *De elem.* 1. 9 (1. 489 K. = 56. 2–7 Helmreich) Galen raises but leaves unanswered the question whether mixtures are of qualities only or of corporeal substances. He alludes to this same problem also in *De nat. fac.* 1. 2 and 2. 4 (2. 5, 92 K. = *SM* 3. 104. 11–15, 168. 11–14); *MM* 1. 2 (10. 16. 12–15 K.); *In Hipp. De nat. hom. comm.* 1. 3 (*CMG V* 9.1, p. 19. 4–7); and *De prop. plac.* 4. 762. 9–16 K. Sextus (*PH* 3. 57–62) uses the problem whether mixtures are of qualities or

combination of the four elements there may be an even balance of qualities, or one or two qualities may dominate.¹⁹⁸ When one thing causes a change in another, therefore, the change can be traced back to the dominant quality of the cause.¹⁹⁹

Inference from structure also depends on universal truths, for example, larger things are sources of smaller things,²⁰⁰ the governing part of the soul is the source of sense-perception and voluntary motion,²⁰¹ what is rightly made in all its parts is assigned to art.²⁰² When Galen makes an inference by *endeixis* without stating the universal truth, whether needing no proof or proved earlier, we must assume that if asked he would supply it.

The answer to those who would question the possibility of proof is now clear.²⁰³ Proof (ἀπόδειξις) follows ἔνδειξις as the final step in Galen's scientific method.²⁰⁴ It confirms *endeixis* by supplying the universal truth that validates it. There is no infinite regress, since there are starting-points, the universal truths that are accepted without proof, and clear sense-perceptions that require no criterion.²⁰⁵ Even the philosophers who contentiously question all demonstration understand, even if they do not say so, that if the λογικαὶ ἀρχαὶ are not trusted, nothing can be proved.²⁰⁶ So we end up where we began, with truths clear to the senses and clear to the mind. On them the whole of Galen's medical theory is based, and without them it would collapse.²⁰⁷

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substances or both in his argument against the dogmatists' theory of the mixture of the elements.

¹⁹⁸ On the nine kinds of *crases* see *De temp.* 1. 8 (1. 554–59 K. = 29. 3–32. 4 Helmreich).

¹⁹⁹ A corollary of this theory is that when a cold drug causes heat in the body the drug is said to be potentially hot. See *De temp.* 3. 1 (1. 649–51 K. = 87. 25–89. 14 Helmreich).

²⁰⁰ *PHP* 6. 3. 20, 32 (pp. 378. 6, 380. 25–28).

²⁰¹ *PHP* 8. 1. 1 (p. 480. 8–9).

²⁰² *PHP* 9. 8. 9 (p. 592. 19–20).

²⁰³ Galen mentions the empiricists' rejection of proof in *De sectis* 5 (1. 77 K. = *SM* 3. 11. 1–2 = 105. 30–32 Deichgr.). He wrote a treatise, now lost, on Clitomachus' attack on proof: *De libr. prop.* 11 (19. 44 K. = *SM* 2. 120. 3–4).

²⁰⁴ Cf. *De peccat. dignot.* 3. 20–21 (*CMG* V 4.1.1, p. 51. 6–15), where, in spite of the difficult text, it is clear that Galen differentiates three levels, τὸ πρῶτως τε καὶ ἐξ αὐτοῦ πιστόν, ὁ λόγος μόνης ἐνδείξεως δεόμενος, and ἀπόδειξις.

²⁰⁵ See for example *De alim. fac.* 1. 1. 3 (*CMG* V 4.2, p. 202. 14–16). Of course the conclusion of one proof (τὸ προαποδεδειγμένον) may be used as the premise of another; cf. *De temp.* 2. 2 (1. 587 K. = 50. 1–4 Helmreich). There is a sequence of such proofs in *De semine* 2. 1 (4. 609–10 K.), where one step, missing from the Greek, is supplied by the Arabic. (I am indebted to Dr. Strohmaier for this information.)

²⁰⁶ See above, 287 and note 35.

²⁰⁷ I am indebted to R. J. Durling for help in finding Galen's references to skepticism.